2015 IASR/AFSP International Summit on Suicide Research
October 11-14, 2015
Waldorf Astoria, New York City

Summit Abstracts

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Special Sessions

SUICIDE PREVENTION: SETTING THE STAGE

Participant: Christine Moutier

American Foundation for Suicide Prevention

Suicide prevention as a field has grown tremendously in the past 50 years. In this 30-minute session, key developments clinicians should be aware of for their practice and as leaders in society will be presented. This session will kick off the day-long conference, giving clinicians a number of perspectives to frame the issue of suicide throughout the day. Highlights include a conceptual model for understanding suicide risk, understanding suicide from a public health perspective, grassroots activities impacting social stigma, and public policies that have the potential to lower suicide rates. Clinicians can play a role in reducing the rate of suicide, both through their clinical work with patients at risk for suicide, but also through other potential roles they play: as leaders in their local, regional, or national communities, media spokespersons, educators, and policy advocates.

SUICIDE RISK ASSESSMENT: STATE OF THE ART

Chair: Keith Hawton, Warneford Hospital/Oxford University

Presenter: Jill Harkavy-Friedman, American Foundation for Suicide Prevention

Clinicians are expected to assess for suicide risk with each person at intake. The process is started in the initial evaluation and continues throughout treatment. Assessment of current and past suicidal behavior and additional risk factors will be reviewed. The potential therapeutic impact of assessing for suicidal thoughts, behaviors and risk will be discussed as well as how to engage with collateral resources in order to maintain an approach aimed at suicide prevention. Active discussion will be encouraged throughout the presentation.

MANAGING SUICIDAL PATIENTS IN OUTPATIENT SETTINGS: STRATEGIES TO SAFELY AVOID HOSPITALIZATION

David Jobes, The Catholic University of America

There is emerging research showing the virtue of managing suicidal patients on an outpatient basis. This presentation will feature a review of suicide-specific management and treatment techniques that can be used to effectively work with suicidal patients within outpatient mental health care. Some of these interventions include various forms of stabilization planning (e.g., safety planning and crisis response planning). In terms of clinical treatments, replicated clinical trial studies have shown the effectiveness of Dialectical Behavior Therapy (DBT), Cognitive Therapy for Suicide Prevention (CT-SP), and the Collaborative Assessment and Management for Suicidality (CAMS) as proven evidence-based outpatient treatments for suicidal risk. In

addition, there is emerging interest in brief interventions (1-4 sessions), the use of non-demand follow-up caring contact, and potential new technologies that can supplement suicide-specific care. These various interventions will all be considered within a stepped-care model of suicide treatment that emphasizes evidence-based suicide-specific care that is least restrictive and cost effective. Finally, potential concerns about suicide-related malpractice liability will be considered.

PSYCHOTHERAPEUTIC APPROACHES WITH SUICIDAL PATIENTS

Gregory Brown, Perelman School of Medicine University of Pennsylvania

Lars Mehlum, National Centre of Suicide Research and Prevention, Institute of Clinical Medicine, University of Oslo

Although nearly all clinicians are faced with suicidal patients in their practice, there are few guidelines for treating patients with acute suicide ideation or who have recently made a suicide attempt. This presentation will provide an overview of an empirically supported cognitive intervention for treating suicidal patients. Conceptualization of the risk factors associated with suicidal acts from a cognitive perspective will be described and linked to treatment planning. The steps for conducting a cognitively-based suicide risk assessment and for developing a safety plan in collaboration with suicidal patients will be presented. Specific intervention strategies that take place in the early, intermediate, and later phases of treatment will be illustrated through didactic presentation and case discussion.

NEUROBIOLOGY OF SUICIDE AND PHARMACOLOGICAL APPROACHES

John Mann, Columbia University & New York State Psychiatric Institute

John Walkup, Weill Cornell Medical College and New York-Presbyterian Hospital

In 2004 the FDA placed a black box warning about risk of treatment-related suicide of antidepressants in children and in 2006 this warning was extended to young adults. Later this warning was extended to other classes of medication like anti-epileptic drugs and varenicline. It is hard to understand how so many different classes of medication, only some of which are antidepressants, can share the property of increasing the risk of suicidal behavior. At the same time we have learned certain things about the neurobiology of suicidal behavior, such as evidence for deficient serotonin transmission, that indicate enhancement of serotonin transmission should be protective. This presentation will review risk and benefit estimates from much research that has been published since the FDA warning was issued including results of randomized controlled trials to pharmaco-epidemiologic data sets. The results tend to show how FDA risk-benefit estimates, which are based on more than ten year old RCT-level meta-analyses, generated a more negative picture than current findings. These newer results are also more consistent with what is known about the neurobiology of suicidal behavior. A case may be made for re-evaluation of black box warnings related to suicide risk.

MANAGING MEDICOLEGAL RISK WHEN TREATING SUICIDAL PATIENTS

Lanny Berman

Patients at-risk of suicide or suicidal behaviors are often anxiety-provoking to clinical mental health professionals and threaten negative outcomes, both in terms of their potential to act on suicidal urges and, in consequence to such actions, the potential threat of a malpractice action. Clinicians are charged with meeting the standard of care in their assessment and treatment of at-risk for suicide patients, but too frequently are driven by their anxiety, insufficient training in, or misguided understandings of what constitutes reasonable, no less optimal, care of these patients. This presentation will offer strategies to both meet and maximize standards of care in working with patients at-risk for suicide, hence minimize negative outcomes.

PROMISES AND CHALLENGES OF INTERVENTIONS TO PREVENT SUICIDE TO SUICIDE

Mark Williams, University of Oxford

David Brent, UPMC/ Western Psychiatric Institute & Clinic

This discussion by leading suicidologists will focus on issues that we face in the development of the next generation of suicide interventions. This discussion will consider what components should be included in all suicide interventions and will address problems in intervention trials such as how to conduct well-powered trials given the low base-rate of suicidal behavior, whether proxy outcome measures should be used and what underlying treatment targets are promising.

LIVED EXPERIENCE IN SUICIDE RESEARCH: THE POWER OF INCLUSION

Moderator: Doreen Marshall, American Foundation for Suicide Prevention

Participants: DeQuincy Lezine, Mental Health/Prevention Consulting & Writing
Ursula Whiteside, University of Washington
Lynn Keane, Author

More stakeholders in suicide prevention, such as those with lived experience of suicide and suicide loss, are being included in the goals, design and implementation of suicide research studies. This session will explore how to better involve these stakeholders in the development, implementation, and dissemination of suicide research. Panelists will share key insights that may be particularly helpful for researchers to consider in designing and conducting research studies with loss survivors and those with lived experience. Session attendees will learn about insights gained, and challenges experienced, from three stakeholders who have been involved in research as well as hear how to include individuals with lived experience and loss survivors in their research efforts.

INTEGRATING PSYCHOLOGICAL THEORIES AND NEUROBIOLOGICAL MODELS OF SUICIDAL BEHAVIOR: AN IMPOSSIBLE DREAM?

Participants: Thomas Joiner, Florida State University
John Mann, Columbia University & New York State Psychiatric Institute
Rory O'Connor, University of Glasgow
Gil Zalsman, Geha Mental Health Center, Sackler School of Medicine, Tel Aviv University

This discussion will showcase perspectives on the challenges of bringing together the different disciplines focused on suicide research to produce a coherent theoretical yet pragmatic model for suicidal behavior.

Symposia Sessions

1. MODELS TO UNDERSTAND SUICIDAL BEHAVIOR

Chair: Thomas Joiner, FSU

1.1 A TWO PATH MODEL OF SUICIDAL BEHAVIOR IN ADOLESCENTS

Alan Apter[1], Shira Barzilai[2], Dana Feldman[3]

[1]Schneiders Childrens Medical Center of Israel, [2]Bar Ilan University, [3]Schneiders Childrens Hospital

Based on clinical observations and empirical findings, we propose a two-pathway model leading to suicide in adolescence. In the primary path, vulnerabilities related to interpersonal problems and internalizing psychopathology lead to suicidal ideation and eventually to suicide (i.e. have a wish to die and no longer live). The second path is related to poor impulse control and is associated with direct and indirect self-harm (i.e. has a temporary desire to not be here for a time). This in turn increases the likelihood of suicide attempt and completion. While it seems obvious that most people who attempt suicide previously contemplated suicide, it is somewhat counterintuitive that there are individuals who attempt and even commit suicide without any preliminary suicidal thinking. However, these young people do present in clinical settings and many scientific studies, including recent studies of our own show that some risk factors for suicide act directly without going through the path of suicidal ideation. This has clinical significance given that the pathway associated with previous incidents of self-harm can be picked up by gatekeepers, especially in hospital emergency rooms, because they are overt, observable behaviors. The other suicidal pathway, which is related to internalizing pathology is much more difficult to identify and requires proactive screening measures such as questionnaires and direct interviews.

1.2 USING RDOC AS A FRAMEWORK FOR ADVANCING THE UNDERSTANDING OF SUICIDAL BEHAVIOR

Matthew Nock[1]

[1]Harvard University

The presentation will review the Research Domain Criteria (RDoC) framework and describe how this approach can be used to advance the understanding of suicidal behavior.

1.3 THE IDEATION-TO-ACTION FRAMEWORK AND THE THREE-STEP THEORY (3ST) OF SUICIDE

E. David Klonsky[1]

[1]University of British Columbia

Most individuals with suicidal ideation do not go on to make suicide attempts, and most traditional risk factors for suicide predict ideation but distinguish poorly between ideators and attempters. Consequently, Klonsky and May (2014) argued that an 'ideation -to -action' framework should guide suicide theory, research, and prevention. From this perspective, 1) the development of suicide ideation and 2) the progression from ideation to suicide attempts should be regarded as distinct processes with distinct predictors and explanations. This presentation describes the need and rationale for the ideation to action framework, and introduces a new theory of suicide rooted in the framework: the Three- Step Theory (3ST). The 3ST comprises three central tenets. First, the theory hypothesizes that suicide ideation results from the combination of pain (usually psychological pain) and hopelessness. Second, among those experiencing both pain and hopelessness, connectedness is a key protective factor against escalating ideation. Third, the theory views the progression from ideation to attempts as facilitated by dispositional, acquired, and practical contributors to the capacity to attempt suicide. The presentation will describe recent research supporting the theory, as well as direct tests of the theory that support the 3ST's central tenets. Implications for suicide prevention and future research are discussed.

1.4 FROM THOUGHTS TO ACTION: UNDERSTANDING THE PSYCHOLOGY OF SUICIDE RISK

Rory O'Connor[1]

[1]University of Glasgow

Suicide and attempted suicide are major public health concerns with complex aetiologies which encompass a multifaceted array of risk and protective factors. There is growing recognition that we need to move beyond psychiatric categories to further our understanding of the pathways to both. As an individual makes a decision to take their own life, an appreciation of the psychology of the suicidal mind is central to suicide prevention. Another key challenge is that our understanding of the factors that determine behavioural enaction (i.e., which individuals with suicidal thoughts will act on these thoughts) is limited. Although a comprehensive understanding of these determinants of suicidality requires an appreciation of biological, psychological and social perspectives, the focus in this presentation is primarily on the psychological determinants of self-harm and suicide. The Integrated Motivational–Volitional (IMV) Model of Suicidal Behaviour (O'Connor, 2011) provides a framework in which to understand suicide and self-harm. This tripartite model maps the relationship between background factors and trigger events, and the development of suicidal ideation/intent through to suicidal behaviour. A selection of illustrative empirical studies consistent with the model is described throughout the presentation. The implications for the prevention of self-harm and suicide will also be discussed.

2. UNLOCKING THE GENETIC BASIS OF SUICIDE

Chair: John Mann, Columbia University & New York State Psychiatric Institute

2.1 GENETICS OF SUICIDAL BEHAVIOR AND INTERMEDIATE PHENOTYPES

Dan Rujescu[1]

[1]University of Halle

Suicide accounts for almost 2% of the world's death. It has emerged as one of the leading causes of death among young people.
Suicidal behavior is complex and frequently classified in suicidal ideation, suicide attempts, and completed suicide. It is not attributable only to one single cause but is a consequence of complex interactions of several risk factors like, for example, medical, psychological, psychosocial, social, cultural, socioeconomic, and biological.

Beside all risk factors, especially personality seems to have a high impact on suicidal behavior. Aggression has been associated with suicidal behavior at least since the early findings by Asberg et al. (1976). Since then a high amount of studies could replicate this link.

This talk will give an overview on the field of genetics of suicidal behavior by focusing on personality traits, like aggression or impulsivity. Beside candidate gene studies also genome wide association studies will be presented.

2.2 BEHAVIORAL REGULATION BY THE EARLY-LIFE ENVIRONMENT: INSIGHT INTO NOVEL MOLECULAR MECHANISMS

Gustavo Turecki[1]

[1]McGill University

Early-life environmental adversity, particularly childhood maltreatment, associates with development of high impulsive and aggressive traits, and predicts lifetime suicidal behavior. In this talk, Dr. Turecki will discuss molecular changes that associate with early-life adversity, focusing on epigenetic alterations. He will review recent findings and will present new data implicating non-coding RNA in behavioral regulation.

2.3 STRESSFUL LIFE EVENTS AND SUICIDAL BEHAVIOR

Pilar Saiz[1]

[1]University of Oviedo-CIBERSAM, Mental Health Services of the Principado de Asturias (SESPA)

Suicidal behavior is a complex behavior mainly explained through a stress – diathesis model. On this model, biological (genetics) and psychological or clinical (mainly, early childhood adversity) developmental factors may have casual relevance to the disturbances found in subjects with suicidal behavior. Specifically, genotype and early childhood experience may influence neuroendocrine, neurochemical and clinical endophenotypes for suicidal behavior.
Humans display wide variation in response to adversity. Caspi et al (2003) reported that a functional length polymorphism (5-HTTLPR) in the promoter of the serotonin transporter gene moderated the influence of stressful life events (SLE) on depressive symptoms, major depression, and suicidality, suggesting evidences of a gene-by-environment interaction. A recent study point to a gene-gene-environment interaction that relevantly impacts on the role

of the s/s genotype of the 5-HTTLPR in childhood abuse: depending on the BDNF background (Val/Val versus Met allele) the s/s genotype showed either protective or risk properties with regard to depressive symptoms.

Neuroimage data from healthy, non-depressed, s allele carriers of the 5-HTTLPR show an exaggerated amygdale response to threatening visual stimuli as well as reduced gray matter volume in limbic regions critical for processing of negative emotion compared with individuals with the LL genotype. These data suggest a potent modulatory effect of the 5-HTTLPR on amygdala reactivity to environmental threat.

On the other hand, recent data suggest that biological stress reactivity, mediated by the hypothalamic-pituitary-adrenocortical axis, might be a plausible mechanism underlying the association between the 5-HTTLPR genotype and exposure to life stress in predicting psychopathology.

In this presentation we discuss data regarding the complex relationship between the above mentioned systems, stress, and suicidal behavior.

2.4 NEW TARGETS IN GENETICS OF SUICIDE IN BIPOLAR DISORDER

Antoni Benabarre[1]

[1]Hospital Clínic de Barcelona

Bipolar patients (BP) are at high risk of suicide. Causal factors underlying suicidal behaviour are still unclear. However, it has been shown that lithium has antisuicidal properties. Genes involved in its putative mechanism of action such as the phosphoinositol and the Wnt/β-catenine pathways could be considered candidates for suicidal behavior (SB). Our aim was to investigate the association of the IMPA1 and 2, INPP1, GSK3α and β genes with suicidal behavior in BP.

199 BP were recruited. Polymorphisms at the IMPA1 (rs915, rs1058401 and rs2268432) and IMPA2 (rs66938, rs1020294, rs1250171 and rs630110), INPP1 (rs3791809, rs4853694 and 909270), GSK3α (rs3745233) and GSK3β (rs334558, rs1732170 and rs11921360) genes were genotyped. All patients were grouped and compared according to the presence or not of history of SB (defined as the presence of at least one previous suicidal attempt). Single SNP analyses showed that suicide attempters had higher frequencies of AA genotype of the rs669838-IMPA2 and GG genotype of the rs4853694-INPP1gene compared to non-attempters. Results also revealed that T-allele carriers of the rs1732170-GSK3β gene and A-allele carriers of the rs11921360-GSK3β gene had a higher risk for attempting suicide. Haplotype analysis showed that attempters had lower frequencies of A:A haplotype (rs4853694:rs909270) at the INPP1 gene. Higher frequencies of the C:A haplotype and lower frequencies of the A:C haplotype at the GSK-3β gene (rs1732170:rs11921360) were also found to be associated to SB in BP.

Therefore, our results suggest that genetic variability at IMPA2, INPP1 and GSK3β genes is associated with the emergence of SB in BP.

3. STRATEGIES FOR SUICIDE PREVENTION AT THE POPULATION LEVEL

Chair: Christine Moutier, American Foundation for Suicide Prevention

3.1 POPULATION-BASED OUTREACH TO PREVENT SUICIDE ATTEMPT IN LARGE HEALTH SYSTEMS

Gregory Simon[1]

[1]Group Health Research Institute

This presentation will describe the development of a population-based laboratory to understand and reduce risk of suicidal behavior in large healthcare systems. Steps in this process include: implementing systematic measurement of risk in clinical practice, epidemiologic research using practice-based data, implementation research to evaluate health system progress, effectiveness research to evaluate potential new programs, and exploratory research focused on gaps or "blind spots" in current knowledge.

3.2 RESEARCH AND PREVENTION CHALLENGES RELATED TO SUICIDE IN THE MIDDLE YEARS OF LIFE

Eric Caine[1]

[1]Department of Psychiatry, University of Rochester Medical Center

Suicide rates in the United States have risen year 24.5% since 1999, from 10.46 per 100,000 (age-adjusted = 10.48) to 13.02 (age-adjusted = 12.57) in 2013, with total deaths increasing from 29,199 to 41,149 annually. These changes largely have reflected a 31.8% increase in rates among adults 35-64 years of age (13.70 per 100,000 to 18.06; age-adjusted = 13.70 to 17.84); those of men rose 28.6% (21.50 to 27.64; age-adjusted, 21.48 to 27.27), while women showed a 42.6% increase (6.18 to 8.81; age-adjusted = 6.19 to 8.70).

Despite these dramatic changes, there are no well-developed or carefully tested prevention programs that target persons in the middle years of life. Several factors contribute to the current dearth of initiatives. [1] There is a systematic undercounting of suicides, related to the misclassification of drug overdose deaths across the U.S. While there now are urgent calls to address drug related deaths, public attention has not included suicide. [2] Adults who bear greater risks cannot be easily engaged in an individually oriented fashion – men often fail to seek treatment services; many women have persisting or recurring conditions (e.g., mental health and substance use related disorders) for which sustained care has been too difficult to access or maintain. [3] While adverse antecedent life events are common – e.g., job and financial problems; family turmoil and violence, and separation – those agencies and providers who encounter such individuals are not prepared to provide mental health or suicide prevention services. [4] Traditional health system approaches often do not provide an infrastructure appropriate either for “upstream” (distal) or more proximal “downstream” preventive interventions; programs must be community focused and dispersed geographically and socially to encounter and engage diverse populations in a broad array of settings. The profound shortage of substance related treatment programs in many U.S. communities compounds these problems. [5] Social safety net policies in the U.S. have focused primarily on children, youth, and elders – it has been exceedingly difficult in the U.S. to create support services for adults, especially for those who have conditions that interfere with employment or financial stability.

Until suicide is viewed with the same public health urgency as smoking, HIV/AIDS, and most recently, deaths from prescription drug overdose, it will be exceedingly difficult to create the array of coordinated (or integrated) community and health programs to stem the tide of suicide in the U.S. involving persons in the middle years of life.

3.3 YOUTH SUICIDE CONTAGION: IMPLICATIONS FOR SUICIDE PREVENTION AND POSTVENTION ON COLLEGE AND UNIVERSITY CAMPUSES

Madelyn Gould[1]

[1]Columbia University & New York State Psychiatric Institute

Suicide is the 2nd leading cause of death among college students in U.S., with approximately 1,100 students dying by suicide each year. In addition, approximately 1% of undergraduates attempt suicide and 6-9% seriously consider suicide each year. It is recognized that youth suicide is influenced by many factors; research has indicated that one such factor is suicide contagion, a phenomenon to which teenagers and young adults are particularly vulnerable. Suicide contagion, sometimes referred to as suicide modeling, is the process wherein the direct or indirect knowledge of one suicide facilitates the occurrence of a subsequent suicide. There is ample evidence to support concerns about suicide contagion/modeling; several sources of this evidence will be presented. Given the prevalence of suicide on college campuses, and the associated risk of contagion and clustering, it is imperative that colleges develop effective and comprehensive postvention strategies. This presentation will focus on specific postvention strategies that colleges and universities can use to limit the risk of further suicides through contagion.

3.4 STRATEGIES FOR SUICIDE PREVENTION AT THE POPULATION LEVEL SAVING AND EMPOWERING YOUNG LIVES IN EUROPE: SCHOOL-BASED SUICIDE PREVENTIVE INTERVENTIONS

Danuta Wasserman[1]

[1]Karolinska Institute/NASP

There is a critical need for scientific-based approaches in the treatment and prevention of suicide and suicidal behaviours, particularly among youth. In an initiative to develop evidence-based methods for promoting mental health and reducing suicidal behaviours among youth, the EU funded project Saving and Empowering Young Lives in Europe (SEYLE) was performed in 168 randomly assigned schools with 11,110 school-based adolescents recruited from 10 European countries: Austria, Estonia, France, Germany, Hungary, Ireland, Italy, Romania, Slovenia and Spain, with Sweden serving as the coordinating centre. SEYLE is a randomized controlled trial (RCT) comparing three active interventions with a control group. The first intervention targets teachers and other school staff through education (Question, Persuade, Refer, QPR), the second intervention targets pupils through awareness training on mental health promotion and suicide prevention (Youth Aware of Mental Health, YAM), and the third intervention targets health care professionals by providing screening tools for risk-behaviours and mental health problems (ProfScreen).

In an analysis of SEYLE interventions, the YAM intervention proved to be superior in preventing incident cases of severe suicidal ideation and suicide attempts when compared to the other interventions. When compared to the control group, the YAM intervention showed a

significant reduction in incident suicide attempts (OR: 0·45 [0·24 - 0·85]; p=0·014) and severe suicidal ideation (OR: 0·50 [0·27 – 0·92]; p=0·025) at the 12-month follow-up. The YAM programme was the only intervention that had a significant impact on incident suicidal behaviours at the 12-month follow-up. Preliminary results for the prevention of incident cases of depression will also be presented.

YAM is a manualised universal intervention developed for the SEYLE study. The YAM programme consists of 3 hrs. of role-play sessions with interactive workshops combined with a 32-page booklet that pupils can take home, six educational posters displayed in each participating classroom and two 1 hr. interactive lectures about mental health at the beginning and end of the intervention. YAM aims to raise mental health awareness about risk and protective factors associated with suicide, including knowledge about depression and anxiety, and to enhance the skills needed to deal with adverse life events, stress, and suicidal behaviours. This programme was implemented at each site by instructors trained in the methodology using a detailed and comprehensive 31 page instruction manual.

Preventing respectively treating high-risk behaviours, psychopathology and suicidal behaviours requires different approaches. The European Psychiatric Association (EPA) guidance on suicide treatment summarises existing evidence on the treatment of the prevalent suicidal behaviours supporting the efficacy of pharmacological treatment and cognitive behavioural therapy (CBT) in preventing suicidal behaviour.

The YAM intervention is an effective universal school-based preventive strategy for reducing incident cases of suicidal attempts. Preventing suicide attempts is important as they are the strongest predictors of completed suicides.

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4. SUICIDALITY AMONG ACTIVE DUTY MILITARY AND VETERANS: ANALYSIS OF BASELINE DATA FROM CURRENT CLINICAL TRIALS

Chair: Peter Gutierrez, Rocky Mountain Mental Illness Research, Education and Clinical Center
Moderator: Katherine Comtois, University of Washington

Overall Abstract: This symposium will present analyses of pooled data from the baseline assessment point of 6 randomized clinical trials currently in progress or recently completed with active duty Service Members or Veterans. While each of these studies compares different clinical interventions, all baseline assessments were conducted before randomization to treatment. Therefore, the combined baseline assessments provide the opportunity to study a very large sample of high risk for suicide military personnel and Veterans.

This pooled dataset is over 1800 participants for this symposium. All active duty and Veteran participants were recruited due to (a) recent thoughts of ending their lives or recent suicide attempt or (b) presentation for medical or behavioral treatment in a Department of Defense or Veterans Administration treatment setting. Variables examined include suicidal ideation and suicide attempts at baseline, military-specific information (such as number of combat deployments, active duty vs. Veteran, and rank/duty position), measures of psychological distress and resiliency, PTSD symptoms, stressors, and family factors (such as marital status and children). All variables are common or comparable between multiple, if not all, studies.

We propose four specific presentations in this symposium. At this writing data have been harmonized and individual study teams are working on setting up and running their analyses. Final results will be available well before the conference date. The four proposed presentations will focus on: (1) Dr. Villate will report on the percentage of active duty personnel versus Veterans reporting current suicidal ideation who have also made a previous suicide attempt, a description of the similarities and differences in suicide-related behavior in the two subsamples, and similarities and differences in predictors of suicide-related behaviors in the two subsamples; (2) Dr. Bryan will report on predictors of single versus multiple suicide attempts; (3) Ms. Kerbrat will discuss predictors of acquired capability for suicide; (4) Dr. Zimmerman will present on predictors of suicidal ideation with a focus on PTSD-related variables.

The first presentation will set the stage for the symposium by providing a broad understanding of what has been learned about suicide within Veterans and active duty military from a careful examination of pooled clinical trial data. The remaining three presentations will highlight specific aspects of suicidality within subgroups of the overall sample. This symposium is a unique opportunity to learn from data being collected across a wide range of VA and DOD settings, a diverse sample of individuals at risk of suicide, and the advantages of pooling data to test hypotheses which cannot be adequately tested in the parent studies.

Dr. Gutierrez will provide a general introduction to the symposium with an emphasis on the benefits of analyzing pooled data.

Dr. Comtois will conclude the symposium by commenting on how these findings fit within suicide clinical trials more generally and possible future research directions based on the presented findings.

4.1 DIFFERENCES IN RISK FACTORS AND CHARACTERISTICS OF SUICIDE ATTEMPTS BETWEEN ACTIVE DUTY MILITARY PERSONNEL AND VETERANS

Jennifer Villate[1], Stephen O'Connor[2], Rebecca Leitner[3], Amanda Kerbrat[1], Lora Johnson[4], Peter Gutierrez[5]

[1]University of Washington, [2]Western Kentucky University, [3]Rocky Mountain Mental Illness Research, Education and Clinical Center, [4]Louisville VA Medical Center, [5]Rocky Mountain Mental Illness Research, Education and Clinical Center; University of Colorado School of Medicine

This presentation will examine the differences in risk factors and characteristics of suicidal behavior between active duty and veteran service members receiving treatment for suicidality. Using data from 1061 active duty service members and 781 Veterans we will determine what proportion of active duty versus veterans with suicidal ideation has ever attempted suicide. Next we will determine if characteristics of suicidal behavior differ between active duty service members and Veterans. Specifically, controlling for race, sex, marital status, combat deployment and/or exposure we will determine if active duty versus Veteran status differentially predict number of suicide attempts, timing of first suicide attempt (prior to military service, during active duty, post-discharge), and method of suicide attempt. Finally, we will examine whether there are different predictors of self-harm behaviors among active duty service members versus Veterans. Controlling for race, sex, and marital status we will test whether years of military service, branch, number of deployments, and combat exposure differentially predict lifetime non-suicidal self-injury (NSSI), age of first NSSI, or age of first suicide attempt. Preliminary analyses indicate that a greater percentage of active duty military in the pooled sample have attempted suicide than Veterans, and that many more female service members have made suicide attempts. Gender differences in the proportion who have attempted suicide in the two subsamples were much more pronounced for the active duty participants relative to the Veterans. It appears that Veteran status was associated with a lower risk of suicide attempts compared to active duty, current status as "married" was associated with a lower risk for suicide attempts, and females were at greater risk for previous suicide attempts. Final analyses will seek to confirm these findings and also examine variables related to potential lethality of previous attempts. Implications for suicide screening and assessment as well as treatment implications will be offered.

4.2 DIFFERENTIATORS OF MILITARY PERSONNEL WITH A HISTORY OF ONE VERSUS MULTIPLE SUICIDE ATTEMPTS

Peter Gutierrez[1]

[1]Rocky Mountain Mental Illness Research, Education and Clinical Center

Research from nonmilitary samples indicates that individuals who have made multiple suicide attempts have more severe psychopathology than individuals who have made only one suicide attempt and individuals who have never attempted suicide. In addition to having higher rates of psychiatric diagnoses and more severe psychiatric symptoms, multiple attempters also experience longer and more intense suicidal crises, and experience greater variability in suicide ideation on a day-to-day basis. Perhaps not surprisingly, multiple attempters are significantly more likely to make future suicide attempts than individuals who a history of zero or one suicide attempt. To date, however, few studies have examined differences between multiple and non-multiple attempters in military and veteran populations. The purpose of the present study was to determine if military personnel and veterans with a history of multiple suicide attempts have more severe psychopathology as compared to military personnel and veterans

who have not made multiple suicide attempts. To test this relationship, pooled data from several military and veteran clinical trials will be used. Differences in terms of psychiatric diagnosis and symptom severity will be considered among multiple and non-multiple suicide attempters. The planned analyses include multinomial logistic regression and generalized linear modeling with robust maximum likelihood estimation.

4.3 ACQUIRED CAPABILITY FOR SUICIDE AMONG ACTIVE DUTY MILITARY PERSONNEL

Amanda Kerbrat[1], Katherine Anne Comtois[2], David Luxton[3], David Atkins[2], Bryan Stiles[2]

[1]University of Washington at Harborview Medical Center, [2]University of Washington, [3]Naval Health Research Center

Thomas Joiner's Interpersonal-Psychological Theory of Suicidal Behavior posits that a prerequisite for a serious suicide attempt or death by suicide is an acquired capability for suicide. Acquired capability offers a face-valid explanation as to why most who desire suicide do not die by suicide: that it is only those who have developed a fearlessness of pain, injury, and death who can overcome the powerful instinct of self-preservation such that they are capable of engaging in lethal or near-lethal behavior. Although to date, data are mixed regarding the existence of a link between combat deployments and suicide among military personnel, one way in which deployments and suicide might indirectly be linked is via acquired capability. Combat deployments have been hypothesized to be a pathway to increased acquired capability for suicide. This study utilizes pooled baseline data from ongoing and recently completed clinical trials of active duty Service Members at risk for suicide. Analyses will examine whether combat deployments are associated with increased acquired capability for suicide using the Acquired Capability for Suicide Scale (which assesses both fearlessness about death and exposure to painful and provocative events) as well as the ACSS-FAD, a recently developed fearlessness about death subscale, which can be calculated from the items in the full-length 20-item measure or administered alone. Data will be presented in context of what is currently known about clinical and non-clinical civilian and active duty population scores on the ACSS. We will also examine other hypothesized predictors of increased acquired capability for suicide, including the frequency and severity of previous suicide attempts.

4.4 SUICIDAL IDEATION SEVERITY, SUICIDE ATTEMPTS AND RESILIENCE AMONG TREATMENT-ENGAGED ACTIVE DUTY SERVICE MEMBERS: EXAMINING THE INFLUENCE OF PTSD, DEPRESSION, SUBSTANCE ABUSE AND TRAUMATIC BRAIN INJURY

Jennifer Villate[1], Amanda Kerbrat[1], Aaron Flaster[1], David Atkins[1], Kate Comrois[1]

[1]University of Washington School of Medicine

This presentation examines the contributions of risk factors associated with suicidality among a sample of 400 active duty service members (Army, Marine, Reserves and National Guard) who are engaged in mental health treatment. Psychiatric comorbidity is common among service members who attempt or complete suicide. Population and clinical research studies have identified increases in suicide risk associated with PTSD, depression, substance abuse and traumatic brain injury. Often, these risk factors are not examined for their relative contributions to suicide risk. The purpose of our investigation is to evaluate the likelihood of a suicide attempt based on these potentially modifiable risk factors. We plan to evaluate the influence of both the probable diagnosis and level of PTSD, depression, and substance abuse

symptoms. Planned analyses include descriptive statistics, data harmonization of clinical measures across military duty stations and negative binomial regression.

Controlling for age, gender, ethnicity and marital status, we will examine for potential differences in suicidal ideation severity among those with combat deployments who develop PTSD, as compared to service members who did not deploy to combat zones or did not report symptoms consistent with a probable PTSD diagnosis on the Posttraumatic Checklist (Military Version) after combat deployment. Second, we will examine associations between PTSD symptom clusters from the DSM-IV-TR (avoidance, intrusion, hypervigilance) and suicidal ideation. Finally, we will examine whether and how the presence of three common PTSD-comorbidities: depression, substance abuse and a history of traumatic brain injury influence the relative risk of suicide attempt.

Our analyses will examine how PTSD symptoms covary with suicidal ideation and will allow us to estimate the probability of making a suicide attempt based on the relative contributions of multiple risk factors likely to be the focus of clinical attention. We expect that our findings may be useful to providers who use standardized assessments to establish treatment priorities among treatment-engaged service members at a high-level of suicide risk.

5. SUICIDAL BEHAVIOR IN MINORITY AND UNDERREPRESENTED GROUPS

Chair: Maria Oquendo, Columbia University & New York State Psychiatric Institute

5.1 SUICIDE PREVENTION FOR AMERICAN INDIAN YOUTH

John Walkup[1]

[1]Weill Cornell Medical College and NewYork-Presbyterian Hospital

Native American youth have the highest rates of suicide of any racial or ethnic minority in the United States. Despite high rates of suicide there are limited mental health resources available in rural tribal communities, necessitating innovative approaches to suicide prevention. The White Mountain Apache Tribe in conjunction with the Center for American Indian Health at the Johns Hopkins Bloomberg School of Public Health have developed a unique community based surveillance system utilizing Native community health workers who identify and refer tribal members with suicidal and other high risk behaviors. Analyses of surveillance data also allows for identification of trends in suicidal behavior and the development of tribal specific suicide prevention strategies. In this presentation the development and implementation of the White Mountain Apache surveillance system, and findings from analyses of surveillance data and relevant prevention strategies will be described. In communities with limited mental health resources and high rates of suicide and other high risk behaviors, the utilization of community based surveillance strategies and paraprofessionals is a promising approach.

5.2 STATE OF THE SCIENCE ON BLACK ADOLESCENTS SUICIDAL BEHAVIOR

Sean Joe[1], Andrae Bank[2], Marquisha Lawrence[3]

[1]Washington University in Saint Louis, [2]George Warren Brown School of Social Work, Washington University in Saint Louis, [3]Brown School at Washington in St. Louis

Suicide is the third leading cause of death of black adolescents and recent evidence reveal that the rate to suicide is highest among black children in the United States. This paper presents the states of the science on the prevalence, risk and protective factors, and the treatments literature for suicidal Black children and adolescents. Data from a 20-years systematic review of the randomized control trail treatment literature are examined to outline what works for suicidal black males. The paucity of empirical research that if addressed would further help identifying and effectively treating suicidal black children and adolescent are discussed. Without this work little can be done to understand, intervene, or prevent suicide and suicidal behavior among this population.

5.3 SUICIDAL BEHAVIOR IN SEXUAL MINORITIES IN SWEDEN

Charlotte Bjorkenstam[1], Kyriaki Kosidou[2], Emma Bjorkenstam[2], Christina Dalman[2], Gunnar Andersson[3], Susan Cochran[1]

[1]UCLA, [2]Karolinska Institutet, [3]Stockholm University

Population-based research has identified general risk factors for suicide attempts to be: female gender, White and Hispanic race in the US, history of depression, feelings of hopelessness, alcohol- and drug abuse, early debut of sexual activity, violence/victimization and sexual minority status.. However, most studies of sexual orientation risk have used samples too small to investigate specific risk factors among sexual minorities such as variations by sexual orientation identities or the timing and severity of suicide attempts. We capitalized on a 2010 population-based sample of Swedes to compare suicidal ideation and attempts between sexual minorities and heterosexuals. We examined these research questions:

1) Are sexual minorities at higher risk for suicide ideation- and attempts even in a highly liberal country as Sweden? 2) Does age at first attempt differ depending on sexual orientation identity? 3) Are suicide attempts more likely to be recurring events among sexual minorities? 4) Are there differences in suicide ideation and attempts between a) lesbian/gays and bisexuals b) female and male sexual minorities?

We used the Stockholm Public Health Cohort (SPHC), a population-based longitudinal study (N = 89,268) with respondent recruitment occurring in 3 successive cycles (2002, 2006, 2010). The 3 waves have been pooled and individuals are followed up longitudinally. In 2010, all 3 waves were assessed for sexual orientation. Of the 75,261 questionnaire participants 69,695 provided usable information (e.g., self-identified as lesbian/gay, bi-, or heterosexual). SPHC data are further enriched by linkage to information available in Sweden's extensive and high quality health and administrative registers. We compared sexual minorities (lesbian/gays n=874 and bisexuals n=841) and heterosexuals (n=67,980) self-reported lifetime histories of suicide ideation and attempts in 2010 and register-based hospitalizations for suicide attempts, since age 13 or 1969 (for those older than 43 at the time of their 2010 survey). Further, we assessed sexual orientation-related differences in person-years at risk for hospitalization for suicide attempt. We aggregated number of treated suicide attempts during this period to estimate the incidence rate ratio (IRR) in order to clarify the intensity of suicide attempt risk in this vulnerable population.

Lifetime suicidal ideation varied by sexual orientation (heterosexuals: 11.6%, lesbian/gays: 23.6%, bisexuals: 34.7%). Sex-stratified analyses revealed lower prevalence of suicidal ideation among men as compared to women. But among men, gay and bisexual men were twice as likely as heterosexual men to report ideation histories. Gay (OR 3.4 95% CI: 2.4-4.8) and bisexual (OR 2.3 (95% CI: 1.4-3.8) were also more likely than heterosexual men to evidence histories of suicide-related behaviors (attempts, out-patient care, hospitalizations). Among women, lesbian/gay and bisexual women were more likely to report ideation as compared to heterosexual women, though lesbians were no more likely to evidence suicide-related behaviors. However, bisexual women had three times higher risk for suicide attempt (OR: 3.4, 95% CI: 2.7-4.4) than heterosexual women. And lesbians and bisexual women also tended to be younger at first attempt. Investigation of the average number of hospitalizations among persons hospitalized for suicide attempts revealed 1.5 hospitalizations among heterosexual women, 2.8 among lesbians, and 3.8 among bisexual women. The corresponding numbers for men were 1.5, 2.4, and 1.4.

Like others, our results show the prevalence of suicide ideation and suicide attempt to be higher among sexual minorities, and especially among bisexual women.

However, capitalizing on the SPHC cohort characteristics, we were able to determine that serious suicide attempts seemed also to be a more recurring phenomenon in sexual minorities than in heterosexuals, foremost among bisexual women. Our results further suggest homo- and bisexual women are younger at first attempt than their heterosexual and male peers. Further, in our multi-adjusted survival analyses, we determined that the increased risk for suicide attempt only remained in lesbian and bisexual women when confounding effects were removed. We also found substantial contributions of history of alcohol and substance abuse and history of psychiatric diagnoses, both well-known risk factors for suicidal behavior. The higher prevalence of suicidal behavior in this vulnerable population calls for tailored prevention efforts directed to sexual minority individuals.

5.4 GRADY NIA PROJECT: CULTURALLY COMPETENT TREATMENT OF ABUSED, SUICIDAL LOW-INCOME AFRICAN AMERICAN WOMEN

Nadine Kaslow[1]
[1]Emory University School of Medicine

Both intimate partner violence (IPV) and suicidal behavior are significant public health concerns for African American women. This presentation discusses these two public health conditions, as well as the link between IPV and suicide attempts in this population. Then, attention is paid to the description of the Grady Nia Project, which is a culturally competent empowerment group intervention designed to reduce those risk factors and enhance those protective factors associated with suicidal behavior among African American women in abusive partnerships. Data supporting the efficacy and effectiveness of the Grady Nia Project will be shared. Finally, case vignettes will be used to illustrate the lives and experiences of the women in the Grady Nia Project.

6. NIMH EFFORTS TO IMPROVE SUICIDE RESEARCH: PANEL DISCUSSION ON THE PRIORITIZED AGENDA'S IDENTIFIED RESEARCH INFRASTRUCTURE NEEDS

Chair: Jane Pearson, National Institute of Mental Health

Overall Abstract: Among its activities, the Research Prioritization Task Force of the National Action Alliance for Suicide Prevention (RPTF) considered the current quality of suicide research, as well as the type of infrastructure needed to move the field forward more efficiently. This symposium by NIMH program staff, proposed as a roundtable presentation with audience discussion, will describe how NIMH is working to address suicide research quality, as well as infrastructure needs. Dr. Greg Farber will summarize current NIMH policies on common data elements (CDEs) and data sharing. NIMH supported a cross agency effort on CDEs for suicide prevention intended to enhance potential analyses across studies, and/or cross-walk studies that focus on more unique samples. Dr. Farber will also describe how investigators have the opportunity to share their data, including the guidance NIMH can provide in the process.

Dr. Holly Garriock will describe the NIMH Research Domain Criteria (RDoC), a neuroscientific framework for a transdiagnostic dimensional approach to domains of functioning. She will address: What is RDoC and why is NIMH implementing it? How can RDoC be applied to suicide-related research? Examples of currently funded translational research that successfully integrated RDoC concepts will be provided, as well as the RDoC matrix structure, and key construct components. Recent RDoC developments and updates (e.g., website, discussion forum, and relevant RDoC-relevant funding opportunity announcements) will also be presented.

Dr. Joel Sherrill will provide an overview of priorities and funding approaches for NIMH interventions research that are intended to increase both the rigor and the yield of clinical trials, including those on suicide prevention. NIMH's interest in addressing the research objectives in the Prioritization Research Agenda for Suicide Prevention will be highlighted. Priorities for suicide intervention research include community-based interventions aimed at reducing risk factors; individual-level psychosocial/ psychotherapeutic and pharmacological interventions for preventing suicidal behavior across the life-span; and consumer-, provider, and systems-level services interventions aimed at improving access, engagement, quality and delivery of services.

Dr. Jane Pearson will describe how the RPTF portfolio analyses report, summarizing 9 federal agencies and 2 private foundation research investments (2008 to 2013), can be used to look at trends in infrastructure investments. Specifically, the use of: research centers, secondary data sets, use of (patient; tissue; trauma) registries, early investigator status, new researcher status, and whether the grant included support for mentoring will be presented. How these infrastructure investments, in combination with other NIMH policies presented in this symposium (common data elements; data banking; RDoC framework; improved clinical trials rigor), are intended to make future research investments more efficient, strategic and potent in the effort to reduce the burden of suicide, will be proposed. Audience discussion will be moderated by the symposium chair.

6.1 SUICIDE RESEARCH PORTFOLIO ANALYSES: TRACKING RESEARCH INFRASTRUCTURE INVESTMENTS AND RESEARCH PROGRESS

Jane Pearson[1]

[1]National Institute of Mental Health

In response to Goal 12 of the US 2012 National Strategy for Suicide Prevention, the Research Prioritization Task Force of the National Action Alliance (RPTF) aimed to develop a new prioritized research agenda to help reduce suicide. The RPTF considered the need for allocating funds and monitoring future suicide research to ensure that available resources target research with the greatest likelihood of reducing suicide morbidity and mortality. As part of this prioritized research agenda development process, the RPTF determined how recently funded U.S. research studies, supported by both public (federal) and private (e.g., foundations) entities, could benefit and/or be leveraged by the RPTF prioritized research agenda. This resulted in the report, U.S. National Suicide Prevention Research Efforts: 2008-2013 Portfolio Analyses (release date anticipated March 2015). Because there is no one central place to identify U.S. funding of suicide research, the process used to develop the report required the collaboration of 9 federal agencies and 2 private foundations to categorize and share information about their research investments. Each funder was asked to categorize their funded studies according to Key Questions 1-5 and specific research objectives outlined in the Prioritized Research Agenda for Suicide Prevention (2014), and also indicate for Key Question 6 whether the study used particular types of research infrastructure. Specific types of research infrastructure used in studies that were of interest included: the use of research centers, secondary data sets, use of a registry (e.g., patient; tissue; trauma), early investigator status, new (to suicide) researcher status, and whether the grant included support for mentoring. This presentation will summarize the findings of infrastructure use across US funded suicide research studies. The presentation will conclude with a proposal as to how these infrastructure investments, in combination with other NIMH policies presented in this symposium (encouraging use of common data elements; data banking; use of an RDoC framework; improved clinical trials rigor), are intended to make future research investments more efficient, strategic and potent in the effort to reduce the burden of suicide. Questions that will be posed to the symposium audience for discussion will include: What type of additional infrastructure investments are needed for which areas of suicide research? Are there other types of infrastructure that are important to track? There will be ample time in this symposium for audience questions about research infrastructure, as well as questions for all presenters.

6.2 NIMH COMMON DATA ELEMENTS AND DATA SHARING INFRASTRUCTURE

Gregory Farber[1], Jane Pearson[2], Holly Garriock[2], Joel Sherrill[2]

[1]National Institute of Mental Health, [2]NIMH

Working with the research community, NIMH has recently defined a set of common data element for the entire NIMH awardee community as well a collection of common data elements aimed at researchers working in the area of suicide. These common data elements will be discussed. Data collected using these elements, as well as using other data collection instruments will be aggregated in the NIMH Data Archive. Data from more than 80,000 subjects is already available in the NIMH Data Archive. The basic architecture of the data archive will be discussed. The tools available to query the data will be demonstrated, and the data analysis tools will be discussed.

6.3 APPLYING RDOC TO SUICIDE-RELATED RESEARCH STUDIES

Holly Garriock[1]

[1]National Institute of Mental Health

NIMH generated Research Domain Criteria (RDoC) as a neuroscientifically informed framework for a transdiagnostic dimensional approach to domains of functioning that is hoped to be the source of novel discoveries, preventions and treatments. This review will cover a general overview of what RDoC is, why NIMH is implementing RDoC, how it is administered at NIMH, and how RDoC can apply it to suicide-related research.
The application of RDoC concepts to studies of suicide and suicidal behaviors will be discussed using an example of what is currently represented in the translational research portfolio, and previously successful integrations of RDoC concepts into longitudinal studies. The structure of the RDoC matrix, key components of the constructs, and examples of successful experimental designs incorporating RDoC principles will be provided.

Recent developments and updates on RDoC will be presented at this talk, including, but not limited to the following topics: RDoCdb as a data-sharing and crowdsourcing informatics platform, the RDoC website, RDoC discussion forum, online availability of tasks and paradigms, and any current RDoC-relevant funding opportunity announcements.

6.4 NIMH PRIORITIES AND FUNDING APPROACHES FOR INTERVENTIONS RESEARCH ON SUICIDE PREVENTION STRATEGIES

Joel Sherrill[1]

[1]National Institute of Mental Health

This presentation will provide an overview of priorities and funding approaches for interventions research on suicide prevention strategies used by the National Institute of Mental Health (NIMH), highlighting current strategies that are intended to increase both the rigor and the yield of NIMH-supported clinical trials.

Critical reviews of the literature focused on suicide prevention strategies and the deliberations of the Research Prioritization Task Force of the Action Alliance for Suicide Prevention raise questions about the interpretability of some trial results and their utility for informing practice and policy, often citing methodological limitations and other challenges (e.g., outcomes are low base-rate phenomena, selecting appropriate and safe comparison conditions can be challenging). Recent efforts to specify priorities for suicide prevention research call for appropriately designed trials testing suicide prevention strategies across various target populations and settings. This presentation highlights NIMH's current priorities and directions in clinical trial research that aim to advance this literature.

Informed by the Research Prioritization Task Force of the National Action Alliance for Suicide Prevention, NIMH's updated priorities for suicide intervention research include studies focused on broad, community-based interventions aimed at reducing risk factors; individual-level psychosocial/psychotherapeutic and pharmacological interventions for preventing suicidal behavior among high-risk individuals across the life-span; and consumer-, provider, and systems-level services interventions aimed at improving access, engagement, quality and delivery of services.

Across this range of interventions research, the presentation will highlight current funding strategies and initiatives aimed at increasing the rigor and yield. NIMH's current approach to funding clinical trials emphasizes an experimental medicine based approached using a series of stage-specific funding mechanisms to support research across the intervention development and testing pipeline. Under this approach, from novel intervention development through effectiveness testing, trials are designed to not only test whether study interventions yield clinical benefit, but also to interrogate the conceptual model that motivates the intervention strategy. Thus, trials are explicitly designed to examine whether the intervention had the hypothesized effect on a key target or targets presumed to account for clinical changes. In this manner, results of mechanism-based intervention studies yield information regarding disorder mechanisms and change processes, regardless of trial outcomes. Additional priorities and considerations for effectiveness research include an emphasis on the scalability and the potential impact of the proposed study interventions/services models on practice and public health.

The presentation will also provide an overview of cross-cutting strategies that focus on increasing the efficiency, oversight, and reporting of clinical trials research in general, and suicide prevention research, specifically.

7. LATEST FINDINGS IN NEUROCOGNITION OF SUICIDAL BEHAVIOR: WHAT DOES NEUROIMAGING AND NEUROPSYCHOLOGY TELL US?

Chair: Stéphane Richard-Devantoy, McGill Group for Suicide Studies

Overall Abstract: The objectives of this symposium will be to present the most recent findings in the domain of neuroimaging and neuropsychology of suicidal behavior. Dr. Jollant, who has been the first to describe decision-making impairment in suicide attempters, will present the results of a unique study investigating cognitive deficits, notably impaired decision-making and cognitive control, in healthy first-degree relatives of suicide completers. These results suggest that some but not all cognitive deficits are heritable, and related to prefrontal cortex dysfunction. Dr. Keilp, an expert in the neuropsychology of suicidal act, will present deficits in specific components of attention control, memory and working memory which were associated with suicidal behavior in a sample where non-violent attempt predominated. Broader executive dysfunction in depression may be associated with specific forms of suicidal behavior, rather than suicidal behavior per se. Dr. Olié will summarize recent findings investigating the neural basis of social threat and social exclusion in euthymic patients with histories of suicide attempt. These results show that some alterations in brain responses underlie the way individuals interact with their social environment and are keys for the understanding of the vulnerability to suicidal acts. Finally, Dr. Richard-Devantoy will present results from a recent neuroimaging study suggesting that some deficits in cognitive control (as measured by the GoNoGo task) are more related to depression than specifically to suicidal acts. These deficits are, however, in play in the suicidal process along more specific deficits. This symposium will, therefore, give an interesting overview of the suicidal process in a neurocognitive perspective.

7.1 DEFICIENT INHIBITION AS A STEP TOWARDS SUICIDE?

Stéphane Richard-Devantoy[1]

[1]McGill Group for Suicide Studies

The key question here is to know if there is a specific component of cognitive control relevant to suicidal behavior: Is cognitive inhibition, the active suppression of task-irrelevant processing, related to depression or suicide behavior? Suicidal behaviour results from a complex interplay between stressful events and vulnerability factors, including neurocognitive alterations. Deficits in cognitive inhibition have previously been found in suicide attempters. Here, we examined the neural basis of these deficits in patients at-risk for suicide. Functional magnetic resonance imaging was used to measure brain activation in 25 middle-aged unmedicated depressed suicide attempters, 22 unmedicated depressed patient controls with no personal or first-degree family history of suicidal behaviour, and 27 healthy controls during the Go/No-Go response inhibition task. Suicide attempters committed more commission errors than both control groups. In whole brain No-Go vs. Go condition, suicide attempters showed elevated activities in posterior cingulate gyrus compared to healthy controls (Cluster FWE = 0.022). Further exploration of each condition against baseline (i.e. No-Go versus Baseline and Go versus Baseline) suggested this regional differences were mainly due to No-Go baseline comparison within each groups: namely, HC showed a large reduced activities during No-Go blocks while PC and SA failed to showed similar reductions comparing to baseline. Our results suggest that some deficits in cognitive control (as measured by the Go/No-Go task) are more related to depression than specifically to suicidal acts. These deficits are, however, in play in the suicidal process along more specific deficits.

7.2 NEUROCOGNITION IN RELATIVES OF SUICIDE COMPLETERS: WHAT IS HERITABLE?

Fabrice Jollant[1]

[1]McGill University Faculty of Medicine

Heritability of suicidal behavior is well-established. Transmission of risk appears to follow traits more than diagnostic categories. On the other hand, cognitive deficits, notably in decision-making and cognitive control, have been found in suicide attempters, and have mainly been related to prefrontal cortex dysfunction. Here, I will present the findings of a recent study investigating cognitive deficits in healthy relatives of suicide completers in comparison to relatives of depressed patients and healthy controls. As hypothesied, we found decision-making impairment in relatives of suicide completers, suggesting that these deficits could be endophenotypes of suicide. Functional MRI showed that decision-making deficits were related to deficient response to risk in ventral prefrontal cortex. On the contrary, deficits in cognitive control previously described in suicide attempters were not found in this population, suggesting that normal cognitive control could act as protective factors. Overall, these results confirm a neurocognitive model previously proposed and suggest potential therapeutic targets.

7.3 ROLE OF VALUATION OF SOCIAL AND ENVIRONMENTAL FACTORS IN SUICIDE ATTEMPTERS

Emilie Olié[1]

[1]Psychiatric Emergencies, Lapeyronie Hospital, CHU Montpellier; University UM1, Montpellier ; INSERM U1061, Montpellier FRANCE

Interpersonal difficulties and social devaluation often trigger suicidal acts when combined with psychopathology. Social exclusion impairs individuals' ability to self-regulate, which inhibits their ability to utilize the motivational resources necessary to avoid impulsive acts and to inhibit behaviours associated with a short term reward whatever the long term consequences are. We recently replicated that euthymic suicide attempters (vs. non attempters) have decreased prefrontal response when making risky vs. safe choices and increased orbitofrontal response to angry faces. Based on prefrontal dysfunction, suicide attempters may underevaluate deleterious consequences of short-term rewarded choices and overevaluate social negative signs. We will also present neuroimaging data focusing on the neural bases of perception social exclusion (using the Cyberball game) to discuss its potential central role in suicide.

7.4 IDENTIFYING FUNDAMENTAL NEUROCOGNITIVE DEFICITS IN SUICIDE ATTEMPTERS

John Keilp[1], Marianne Gorlyn[1], Ainsley Burke[1], Maria Oquendo[1], J. John Mann[1]

[1]Columbia University/NYS Psychiatric Institute

A variety of neurocognitive deficits have been identified in past suicide attempters, and may play a role in risk for both attempt and completed suicide. However, the nature of these deficits have varied by study population and assessment strategy. These deficits appear to encompass three levels of neurocognitive functioning, one at the level of basic information processing, a second at the level of decision processes and executive control, and a third at the level of psychological content that does not presume any fundamental disturbance of cognitive integrity. The relationship of impairments at each of these levels of functioning is unclear. The state vs. trait nature of these deficits is also largely unknown. Data will be presented to characterize the role of deficits in basic information processing in suicide attempt, their consistency across studies, their trait nature, and their potential familial aggregation. Their role in the development of suicidal thinking and in attempt itself will also be discussed, as well as their association to decision processes and other executive measures. Future research, focused on reconciling the variety of deficits in neurocognition found in suicide attempt, will be outlined, with the goal of characterizing the pathways that lead to deliberate acts of self-harm.

8. UNDERSTANDING FACTORS THAT IMPACT THE TRANSITION FROM SUICIDAL IDEATION TO SUICIDE ATTEMPTS

Chair: Regina Miranda, City University of New York, Hunter College

Overall Abstract: Understanding the transition from suicidal ideation to suicide attempts is of critical importance in preventing suicide in both adolescence and adulthood. Research suggests that the transition to suicide attempts occurs within one year of the onset of suicidal ideation. However, very limited research has sought to understand the characteristics and correlates of suicidal ideation that increase risk for the transition to suicide attempts. The present symposium seeks to fill this gap in knowledge by providing data from community and clinical

samples to better understand the transition from suicidal thought to suicidal behavior in adolescence and adulthood.

Presentation 1 (Liu) examines data from an epidemiological sample of adolescents and adults testing the specificity of injection drug use to suicide attempts versus suicidal ideation. These data suggest that injection drug use is associated with the transition from suicidal plans to suicide attempts in both adolescents and adults. These findings will be discussed from the perspective of the Interpersonal Theory of Suicide.

Presentation 2 (Ortin) focuses on longitudinal data examining the transition to different forms of suicidal ideation between early and later adolescence among youth who took part in the Boricua Youth Study. These data suggest that mood disorders are associated with the onset of passive suicidal ideation, while anxiety disorders and disruptive behavior disorders are associated with the transition from passive to more active suicidal ideation. These findings have implications for interventions early in adolescence to prevent the transition from passive to active suicidal ideation.

Presentation 3 (Saffer) examines data from an online study of differences in executive functioning among adults with recent (past 12 months) and lifetime suicidal ideation and attempts. Findings from this study suggest that (poorer) executive functioning – particularly disinhibition – distinguishes suicide attempters from suicide ideators and may thus represent a risk factor for the transition from suicidal thought to suicidal behavior.

Presentation 4 (Miranda) focuses on characteristics of two profiles of suicidal ideation – chronic versus brief suicidal ideation – and whether these two profiles might differentially predict short-term risk of suicide attempts among adolescents who present to an emergency department with suicidal ideation or an attempt. Findings from this study suggest that chronic suicidal ideation may confer increased risk for future suicide attempts in adolescence and is a cognitive profile of ideation that merits focus in suicide risk assessment.

David Shaffer will discuss findings from this group of presentations in light of contemporary models of suicide risk, along with implications for assessment of risk for suicidal behavior in adolescence and adulthood.

8.1 SUBSTANCE USE AND SUICIDALITY: SPECIFICITY OF SUBSTANCE USE BY INJECTION TO SUICIDE ATTEMPTS IN AN EPIDEMIOLOGICAL SAMPLE

Richard Liu[1], Shayna Cheek[2], Bridget Nestor[2]

[1]Alpert Medical School, Brown University, [2]Alpert Medical School of Brown University

Although several risk factors for suicidal ideation (SI) have been identified in the research literature, there is a pressing need for studies evaluating markers of risk differentiating ideators from attempters. One theoretical model that may facilitate advancement in this area is the interpersonal theory of suicide (Joiner, 2005). According to this theory, an individual must possess the acquired capability for suicide in order to act on thoughts of self-harm. This acquired capability for suicide is the product of repeated experiences of physically painful and fear-inducing events which habituate the individual to the pain and fear associated with death. This theory further posits that the acquired capability for suicide should be unrelated to risk for SI.

Substance use has been identified as an important risk factor for suicide, and allows for a useful context in which to evaluate this component of the interpersonal theory of suicide. Based on

this theory, injection drug use, a painful route of administration that may habituate users to pain, should confer greater risk for attempting suicide than should painless routes of drug use. Hence, the aim of the current study is to evaluate the specificity of injection drug use to suicide attempts relative other forms of suicidality in an epidemiological sample of adolescents and adults. We hypothesize that drug use by injection relative to other means would be related to suicide attempts but not SI or suicide plans.

Data were drawn from the National Survey on Drug Use and Health, a nationally representative survey of US households conducted annually on behalf of the Substance Abuse and Mental Health Services Administration. Participants were 2,095 adolescents aged 12-17 who endorsed illicit drug use and clinically significant depression, and 10,203 adults over 17 with a history of drug use and depression. All participants completed a diagnostic interview assessing DSM-IV symptoms of depression and substance use disorders.

Injection drug use was positively associated with suicide attempts in the full adolescent (OR=3.01, 95% CI=1.74–5.20) and adult sample (OR=1.66, 95% CI=1.18–2.34), but not SI or suicide plans. Injection drug use was also associated with the transition from SI to suicide attempts among adolescent (OR=2.89, 95% CI=1.68–4.98) and adult ideators (OR=1.64, 95% CI=1.14–2.35), but not suicide plans. Finally, injection drug use was associated with the transition from suicide plans to attempts in both adolescents (OR=5.18, 95% CI=1.90–14.12) and adults (OR=1.76, 95% CI=1.01-3.06). All analyses included sex, age, race/ethnicity, family income, drug use disorder symptom counts for injectable drugs, and depression symptom count as covariates.

Consistent with the interpersonal theory of suicide, injection drug use was associated with specific risk for suicide attempts but not SI or plans. Consideration of method of drug use is important in evaluating suicide risk among substance users.

8.2 INCIDENCE, PERSISTENCE, AND TRANSITIONS IN FORM OF SUICIDAL IDEATION IN EARLY ADOLESCENCE

Ana Ortin Peralta[1], Regina Miranda[2], Hector Bird[3], Glorisa Canino[4], Cristiane Duarte[3]

[1]NYSPI/Columbia University, [2]Department of Psychology, City University of New York, Hunter College and The Graduate Center, [3]Division of Child and Adolescent Psychiatry, New York State Psychiatric Institute, Columbia University Medical Center, [4]Behavioral Sciences Research Institute, University of Puerto Rico

Earlier onset of suicidal ideation (SI) is associated with increased severity along the continuum of suicidality. Most transitions from serious SI to plans and suicide attempts (SA) occur within the first year of SI onset. Passive forms of SI (e.g., Thoughts about death or being dead) are frequently reported in adolescence; however, epidemiological studies have mainly focused on severe SI forms (e.g., Thought seriously about killing oneself) and suicide plans. Incidence, persistence and transition in the SI forms – passive SI, serious SI, and plans – and their associations with psychiatric disorders remain unexplored. The present study sought to examine: 1) 3-year rates of incidence, persistence, and transition in different SI forms; and 2) the association of the SI forms and psychiatric disorders at baseline with the SI forms reported within the 2-year follow-up (FU) period. Adolescents (N = 1,221; 48% girls) from the Boricua Youth Study, aged 10-13 years at wave 1, residing in the South Bronx, NY (47%) and the Standard Metropolitan Areas of San Juan and Caguas, Puerto Rico, were assessed yearly for 3 waves. Past-year SI forms (passive SI, serious SI, suicide plans) and SA (lifetime and past-year) were assessed with the Affective Module of the parent and youth versions of the

Diagnostic Interview Schedule for Children-IV (DISC-IV). SI forms were defined as mutually exclusive categories. Teens with baseline SA history were excluded (n=50). Psychiatric disorders were assessed with parallel versions of the DISC-IV, including anxiety (GAD, separation anxiety, panic disorders, social phobia, PTSD), mood (depression, dysthymia), and disruptive behavior disorders (ADHD, ODD, CD).
Among teens without any SI at wave 1, 14% reported some form of SI at FU. Among teens with passive SI (19.9%) at wave 1, 27% reported passive SI, 5% reported serious SI, and 2% suicide plans at FU. Of teens with serious SI (4%) at wave 1, 27% reported serious SI and 15% reported suicide plans at FU. Of teens with suicide plans (1%) at wave 1, 15% reported suicide plans at FU. Serious SI and suicide plan were combined into active SI for further analyses. Results from multinomial logistic regression analyses revealed that Passive SI at wave 1 was associated with both passive SI (OR, 2.5) and active SI (OR, 2.7) at FU. Active SI showed the strongest association with the forms of SI at FU (OR, 3.9 for passive SI; OR, 26.0 for active SI). Mood disorders were significantly associated only with passive SI (OR, 3.1) at FU, while anxiety and disruptive behavior disorders were significantly associated with active SI (OR, 3.8; OR, 2.6, respectively) at FU.

Our findings suggest that passive SI is common in early adolescence, and although more transient than active SI, it increases the risk of transitioning to a more severe SI form. The low rates of serious SI and suicide plans at this age provide a window to implement prevention and intervention strategies that curb the progression on the continuum of suicidality, by targeting mood disorder to decrease risk of endorsing passive ideation; and anxiety and disruptive behavior disorders to prevent active forms of SI.

8.3 UNDERSTANDING THE RELATIONSHIP OF SELF-REPORTED EXECUTIVE FUNCTIONING TO SUICIDE IDEATION AND SUICIDE ATTEMPT

Boaz Saffer[1], E. David Klonsky[2]

[1]University of British Columbia, [2]The Department of Psychology, the University of British Columbia

Suicide is a global public health problem responsible for over 800,000 deaths each year. Identifying risk factors for suicide is crucial in predicting and preventing suicide attempts. A growing body of research indicates that risk factors associated with suicide (such as depression, hopelessness, and presence of a mental health condition) are more predictive of suicidal thoughts, not suicidal acts – an important distinction since most people who think about suicide do not act on their thoughts. Executive functioning (EF) abilities are thought to mediate the relationship between thoughts and behaviours and therefore might be uniquely implicated in the progression from suicidal thoughts to suicidal acts. Our study examined whether two multidimensional measures of EF differentiated those with a history of suicide ideation from those with a history of suicide attempts using an online platform (MTurk).

Five-hundred and seventy seven participants (Mean age=34.6, SD=11.6) completed the online study. Participants were divided into three groups based on lifetime and past-12 month history of suicide ideation and suicide attempts. Specifically, 180 endorsed a history of lifetime suicide attempt (attempters), 197 endorsed a lifetime history of suicide ideation (ideators), and 166 endorsed no history of suicide ideation or suicide attempts (nonsuicidal). Past-12 month ideation and attempts classified 21 participants as attempters, 103 as ideators, and 419 as nonsuicidal participants.

Executive functioning (EF) was measured using the Behavioural Rating Inventory of Executive Functions – Adult Version (BRIEF-A) and the Frontal Systems Behaviour Scale (FrSBe).

Consistent with past work, depression was not statistically-significantly different in past-12 month ideators and attempters ($p>.31$, $d=.22$) or lifetime ideators and attempters ($p>.13$, $d=.14$). In contrast, a one-way analysis of variance (ANOVA) revealed statistically-significant differences ($p<.001$) in EF across both past-12 month and lifetime nonsuicidal, ideators, and attempter groups.

Comparing past-12 month attempters to ideators revealed moderate-large differences (d range=.52-.98) in reported EF. Attempters and ideators differed most on the FrSBe disinhibition scale ($d=.98$), FrSBe total score ($d=.86$), and BRIEF-A Global Executive Composite ($d=.82$), with attempters reporting worse EF. Interestingly, comparing lifetime attempters to ideators revealed only small differences (d range=.10-.38). Specifically, lifetime attempters reported worse EF on the BRIEF-A emotional control scale ($d=.38$), BRIEF-A behaviour regulation index ($d=.29$), and the FrSBe disinhibition index ($d=.28$), relative to lifetime ideators.

Lifetime attempters and ideators did not meaningfully differ on self-reported EF. EF did, however, clearly differentiate past-12 month ideators from past-12 month attempters, suggesting impaired EF might represent an important state risk factor for suicide attempts.

Moderator: David Shaffer
Columbia University & New York Psychiatric Institute

8.4 BRIEF VERSUS CHRONIC SUICIDAL IDEATION: IMPLICATIONS FOR ADOLESCENT SUICIDE ATTEMPTS

Regina Miranda[1], Ana Ortin[2], David Shaffer[3]

[1]City University of New York, Hunter College, [2]Department of Psychiatry and Forensic Medicine, Universitat Autonoma de Barcelona, [3]Division of Child and Adolescent Psychiatry, Columbia University Medical Center

Adolescence is a time in development when more suicide attempts are made than at any other time in life. Measurement of suicidal ideation (SI) in adolescence has been hindered by lack of understanding of the specific features of SI that predict the transition from suicidal ideation to attempts. Recent studies suggest that knowing how adolescents think about suicide – i.e., the form of their SI – may help predict not only whether teenagers will go on to make a future suicide attempt but also how soon they will do so. However, current conceptualizations of suicidal ideation and suicide risk assessments tend to ignore the form of an adolescent's SI.

The present pilot research sought to examine two clinical profiles of SI – chronic versus brief SI – that might predict risk of a future suicide attempt. Sixty-eight adolescents (82% female; 68% Latina/o), ages 12-19, who presented to a pediatric psychiatric emergency department with either SI or a suicide attempt were interviewed within 5 days of their ideation or attempt. Fifty of the teens were followed up over one year to assess risk for a future suicide attempt. Teens were classified as presenting with either brief or chronic SI. We defined chronic SI as involving a period during which one or more instances of SI occurred on a given day, uninterrupted by more than 24 hours, and lasting for more than 2 weeks; and Brief SI as a period during which one or more SI events occurred that lasted no more than 2 weeks.

Preliminary data suggest that teens who presented with a suicide attempt (n = 28) or SI (n = 40) did not differ in baseline SI severity nor baseline depressive symptoms, nor was suicide attempt vs. SI presentation associated with higher odds of making a future attempt (O.R. = 0.82). However, SI classification into a Chronic vs. Brief episode was associated with baseline differences in self-reported SI severity and depressive symptoms and with higher odds of a future SA (O.R. = 2.5). Chronic ideators made their SAs between about 5 days and 6 months of being seen in the ED (M = 2.8 months), while brief ideators made an attempt about 3-9 months (M = 6.0 months) later, a large effect size (d = 1.23). Response on a modified Emotional Stroop paradigm (i.e., the Suicide Stroop) among 23 teens who completed it suggested that teens classified as Chronic SI (n = 11) showed greater semantic interference by suicide-related stimuli relative to positive stimuli, whereas teens classified as Brief SI (n = 12) showed greater interference by positive stimuli relative to suicide-related stimuli (d = .81, a large effect size).

Understanding patterns of suicidal ideation and their underlying cognitive profiles is a critical step in identifying targets for intervention to prevent suicide in this population. This research has the potential to change how suicide risk assessments are conducted in pediatric EDs by identifying which characteristics of suicidal ideation merit focus in clinical assessments with adolescents.

9. SPECIAL POPULATIONS

Chair: Paula Clayton, Professor Emeritus

9.1 SUICIDE IN THE MILLITARY- IT COULD BE PREVENTED- LESSONS LEARNED FROM THE IDF SUICIDE PREVENTION PROGRAM

Eyal Fruchter[1]

[1]USC- SOWK- the Center of Innovational Research- California

Suicide is a major cause of death in young adults worldwide,1,2 and the leading cause of death in the military in peacetime.3-5Increased attention to military suicide prevention was stimulated by the rising suicide rate in The U.S. Army, despite considerable investment in mental health services,6,7 contrasting with minor change in the civilian suicide rate.8 Effective prevention in both civilian and military population is crucial and now considered possible, with special consideration to special "tailor made" needs in each group.

While suicide is currently the leading cause of death in the Israel Defense Force (IDF)3, in contrast to the US Army's, the IDF suicide rate has declined dramatically since 2006. This decline coincided with the implementation of a suicide prevention program.9

In my talk, I would show an effort to evaluate the effectiveness of the IDF Suicide Prevention Program, implemented since 2006, designed in a Quasi-experimental (before and after) cohort study. We looked at two cohorts of IDF mandatory service soldiers: the first inducted prior to (1992-2005, n = 766,107) and the second subsequent to (2006-2012, n = 405,252) the launching of the intervention program. The IDF Suicide Prevention Program is a population-based

program, incorporating: reducing weapon availability, de-stigmatizing help-seeking behavior, integrating mental health officers into service units, and training commanders and soldiers to recognize suicide risk factors and warning signs. The main outcome measure: Suicide rate and time to suicide in cohorts before and after exposure to the Suicide Prevention Program. In this study, we found lower suicide rates in the cohort after intervention. The hazard ratio for the intervention effect on time to suicide was 0.44 (95% CI =0.34-0.56, $p < .001$). Lower risk was associated with: male gender; born in Israel; higher socioeconomic status; higher intelligence score; and serving in a combat unit (HR = 0.43: 95% CI=0.33-0.55), all of which were detected in past IDF works as the main risks for suicide. There was an overall 57% decrease in the suicide rate following the administration of the IDF Suicide Prevention Program. Mediating or moderating variables for the effect of the intervention appear to be related to use of a weapon, and being able to benefit from improved help seeking and de-stigmatization.

The success of the IDF Suicide Prevention Program, as well as past detected success of the US air-force suicide prevention program, offers the hope that similar programs can succeed in military settings (and with adaptations also civilian communities) in other countries. Careful attention must be paid to the main risk factors, which may vary among national military forces, and guide adjustment of the emphasis on different aspects of suicide prevention, such as means restriction, enhanced diagnosis and treatment of mood disorders, and PTSD and substance use disorders by both general medical and mental health professionals in the military.

In my talk, I would show the steps taken by the Israeli defense force in building the prevention program. I would focus on the military as a special group and on how a program such program should be built to answer the tailor-made needs, and show the reduction of the suicide rate with hope many more organizations and societies would take the needed steps to fight this mostly un- necessary death

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9.2 PREVENTION OF SUICIDE IN LATER LIFE -- A PUBLIC HEALTH PERSPECTIVE

Yeates Conwell[1]

[1]University of Rochester School of Medicine

Promising progress has been made in the elucidation of mechanisms underlying vulnerability to suicide in older adults. In order to save lives, however, those findings must be translated to practice. Much current research on suicide prevention takes an approach of identifying and intervening with those recognized to be at immediate risk ("indicated" preventive interventions). Complementary strategies, consistent with the public health approach, target populations of older adults irrespective of the risk status of any individual ("universal" prevention) or groups who share characteristics that are associated with elevated risk but for whom clinical interventions are not indicated ("selective" preventive interventions).

This presentation will first review the rationale for including public health and population-based strategies as components of comprehensive late life suicide prevention programming. We will consider those characteristics associated with suicide in older adults that create opportunities for development of universal and selective prevention, examine examples of such strategies, and review the available evidence for their effectiveness. Finally, we will consider a framework to guide priorities for public health oriented late life suicide prevention programs going forward.

9.3 SUICIDE AND TRAUMATIC BRAIN INJURY: KEY FINDINGS AND NECESSARY NEXT STEPS TO INFORM POLICY AND PRACTICE

Lisa Brenner[1]

[1]Veteran's Administration

Research has consistently identified traumatic brain injury as an independent risk factor for death by suicide. That being said, knowledge regarding TBI and suicidal ideation and suicide attempts, risk factors and warning signs, as well as interventions is limited. Nonetheless interest on this topic is on the rise, and as such, work by multiple groups aimed at identifying key pieces of missing data continues to be published. During this session, participants will be provided with information regarding key findings to inform policy and practice, and important research questions yet to be answered.

9.4 DECISION MAKING AND LATE-LIFE SUICIDE: WITH AGE COMES WISDOM?

Katalin Szanto[1]

[1]University of Pittsburgh

This talk will give an overview of the role of cognitive impairments, social reasoning, impulsivity, and real-life decision making as risk factors for late-life suicide.

There is accumulating evidence that suicide attempters make decisions that are not optimal (e.g. preferring options which do not return the greatest value, or making choices which are inconsistent with their preferences), not only during the suicidal crisis but also in the laboratory. Combining theories and methods from psychology, economics, and neuroscience, we study how individual differences in decision-making are related to the suicidal diathesis. We relate decision-making deficits to impulsivity, cognitive control, and impaired integration of social information into decisions.

Our studies focus on elderly who have made nearly-fatal suicide attempts, as these attempts most closely resemble those which result in death-by-suicide. Aging alters decision-making as working memory, attention, and cognitive inhibition decline with age, while domain-specific knowledge remains conserved. We show that older suicide attempters show the greatest deficits in decision-making when making complex decisions that require considering multiple attributes simultaneously, or when making decisions in a changing or ambiguous environment. The study included participants who had made a suicide attempt, as well as those who were depressed and had contemplated suicide but hadn't attempted it; who were depressed but not suicidal; and non-psychiatric controls. In a sample of 256 older adults, we show that many previously-described risk factors for suicide (e.g., hopelessness, and perceived burdensomeness) are related to contemplation of suicide, while decision-making deficits differentiate suicide attempters from suicide ideators. Moreover, we demonstrate that the clinical presentations of the attempt correspond to distinct decision process deficits.

Deficits in decision-making contribute to the accumulation of potentially-controllable stressful life events, and may explain why people in a suicidal crisis fail to consider important deterrents and see suicide as the only solution. We propose that identifying the mechanisms of disadvantageous decision-making may be a new way to prevent suicidal behavior.

10. GENETICS OF SUICIDAL BEHAVIOUR: NEW TRENDS. ECNP SUICIDE NETWORK CONTRIBUTION

Chair: Philippe Courtet, University of Montpellier
Moderator: Danuta Wasserman, Karolinska Institute/NASP

Overall Abstract: Since 20 years, a large number of studies have been implemented to hunt genetic risk factors of suicidal behaviour. However, to date the availability of valid genetic markers remains questionable. The reasons for the difficulties in identifying such variants are well known, and related to the heterogeneity of the definition of the phenotypes, the difficulty to attain the needed sample sizes, the missing heritability... The European Suicide Network supported by the European College of Neuropsychopharmacology is aiming to foster collaborations among European groups and to build bridges with North American teams

involved in the field. In this symposium, members of this network will propose new strategies that may enhance the identification of genetic markers of suicidal behaviour, when taking into account specific environmental influences or by considering intermediate phenotypes. More specifically, Y Ben Efrain will present gene environment interactions from a large family-based study. E Peñas Lledo will focus on pharmacogenetics highlighting the potential role of CYP genotypes. D Rujescu will present new genomics data on personality dimensions related to suicidal behaviour.

10.1 GENE-ENVIRONMENT INTERACTIONS BETWEEN HPA AXIS REGULATORY GENES AND STRESSFUL LIFE EVENTS IN SUICIDE ATTEMPTS: FOCUS ON SEROTONIN RECEPTOR TYPE-2A

Yair Ben-Efraim[1], Marcus Sokolowski[2], Jerzy Wasserman[2], Danuta Wasserman[2]

[1]Max Planck – Weizmann Laboratory for Experimental Neuropsychiatry and Behavioral Neurogenetics, Weizmann Institute of Science, Max Planck Institute of Psychiatry,
[2]Karolinska Institute

Background: A dysregulated cortisol response to psychosocial stress, mediated in large part by the hypothalamic-pituitary-adrenal (HPA) axis, is an established endophenotype and biological predictor of suicide. Identifying genetic variants that contribute to the heritability of HPA axis activity and suicidal behavior may aid in suicide prediction. Our goal was to study variants in genes that regulate HPA axis activity in linkage/association with suicide attempts (SAs). We further studied gene-environment interactions (GxEs) between these variants and exposure to stressful life events (SLEs) in linkage/association with SAs.

Method: We used a family-based study design of 660 offspring who have made a SA and both their parents. Genes were selected according to established roles in regulating HPA axis activity, as well as previous association with suicidality, mood disorders, and/or alcohol use. Single nucleotide polymorphisms (SNPs) were genotyped in these genes, which included the neuropeptide receptor genes corticotropin releasing hormone receptor type-1 (CRHR1) and arginine vasopressin receptor type-1b (AVPR1B); the serotonin receptor type-2a gene (HTR2A); and genes in the glutamatergic, γ-aminobutyric acid-ergic, and polyaminergic systems. SLE exposures were assessed by interview and included physical and sexual assault in childhood/adolescence or adulthood (cutoff 18 years), as well as an exploratory checklist which assessed cumulative lifetime exposure to well-established SLE types.

Results: We observed significant linkage/association with SAs in all studies. With regard to HTR2A, comprehensive coverage of common SNPs and some low-frequency SNPs revealed several novel genetic and GxE associations with suicide attempts. Overall, two genetic effects and one GxE of a SNP and exposure to lifetime SLEs were significant after correction for multiple comparisons. The GxE result was observed with a highly studied SNP, and was characterized by a complex genotypic parent-of-origin effect that may in part explain inconsistent findings in the genetic association literature. Among the significant findings, one genetic effect and the GxE had an odds ratio > 2.

Discussion: Our findings support a stress-diathesis model of suicidal behavior. Moreover, they support a potential etiological role for risk variants in HPA axis regulatory genes in the suicidal process. GxE analysis was useful for identifying genetic risk variants. Several associations with SAs were observed with large effects. The strength of the findings was supported by the relatively comprehensive investigation of SNPs and/or GxEs. We also used the largest family-based sample of SAs in the world, to our knowledge. Adequate power was achieved to detect

genetic associations with modest-to-large effect size and which were robust to population substructure, a potential source of confounding in population-based association studies. Further investigation and consistent replications across samples are warranted before utility in suicide prediction and/or prevention efforts.

10.2 GENOMICS OF PERSONALITY TRAITS AS RISK FACTORS FOR SUICIDAL BEHAVIOR

Dan Rujescu[1]

[1]University of Halle

Every year over 1 million people commit suicide. This is one suicide every 40 seconds. Furthermore, over 10 million people attempt suicide leading to one suicide attempt every 3 seconds worldwide. Suicide accounts for almost 2% of the world's death and it has emerged as one of the leading causes of death among younger people.
The risk of suicidal behavior is determined by a complex interplay of sociocultural factors, traumatic life experiences, psychiatric history, personality traits, and genetic vulnerability. Adoption and family studies indicate that suicidal acts have a genetic contribution that is independent of the heritability of Axis I and II psychopathology. Personality traits like impulsivity, aggression-related traits or anger are well defined risk factors for suicidal behavior.

To study genetics of suicidal behavior and intermediate phenotypes we built up a large sample comprising 3000 healthy controls, 250 suicide attempters with affective disorders and 500 schizophrenia patients with suicidal behavior. All these underwent genome wide genotyping. Best results for personality traits as well as suicidal behavior per se will be presented and discussed in the light of the current literature.

10.3 PHARMACOGENETIC RISK FACTORS AND SUICIDE PREVENTION

Eva Peñas Lledo[1], Adrian Llerena[2]

[1]University of Extremadura Medical School, [2]Universidad de Extremadura

The polymorphic CYP2D6 gene, which is involved in the metabolism of widely used antidepressant drugs (e.g., fluoxetine, amitriptyline, paroxetine, fluvoxamine, venlafaxine, mirtazapine, citalopram) and other like antipsychotics or opioids, have been found related to suicide events. An increased frequency of individuals with duplication/multiplication of the active CYP2D6 gene (ultrarapid metabolizers –UMs- related to very fast enzyme activity) was initially found among people who completed suicide (Zackrisson et al., 2010). Later, CYP2D6 UMs were also found to be more frequent among young eating disordered patients with a lifetime history of suicidal behavior [Peñas Lledó et al., 2011], among depressive inpatients with high suicide risk as measured by the MINI (Stingl & Viviani, 2011), and among attempters from the general population with scores of 75th percentile or above on the "objective circumstances subscale" of the Beck Suicide Intent Scale" related to planning (Peñas-Lledó et al., 2012). Furthermore, when looking at CYP2D6 activity in combination with another polymorphic gene, CYP2C19 also involved in the metabolism of widely used antidepressant and anxiolytic drugs (e.g., citalopram, diazepam, sertraline), the frequency of suicide attempters with a high CYP2D6-CYP2C19 combined metabolic capacity was also shown to increase the likelihood of a highly planned suicide attempt, in particular in individuals without a family history of suicidal behavior (Peñas-Lledó et al., 2014). Recently the ABCB1, involved

also in the transport of antidepressants at the blood brain barrier (e.g., citalopram, venlafaxine, paroxetine, and amitriptyline) has been found in relation to the use of violent suicide method in completed suicide (Zackrisson et al., 2013) and survivors of an attempt (Peñas-Lledó et al., 2015).
The first most likely explanation for these relationships, therapeutic failure in patients taking commonly prescribed psychotropic drugs mainly metabolized by these polymorphic genes, will be discussed. A second explanation is the implication of these genes in the endogenous metabolism of neuroactive compounds like amines, steroids and cannabinoids, which will be also addressed (Ingelman-Sundberg et al., 2014).

Therefore, further research on pharmacogenetic risk factors may be helpful in clinical decision making to identify a priori which of the individuals taking central nervous system medications to prevent suicidal events are less likely to benefit from them. In the light of current findings, one might anticipate that CYP2D6 and CYP2C19 activity appears of relevance in relation to the specific phenotype of planned suicide attempts in the subset of individuals with no family history of suicide.

11. REGISTRIES AND ADMINISTRATIVE DATABASES

Chair: Marco Sarchiapone, University of Molise

11.1 PSYCHOSOCIAL TREATMENTS FOR ADULTS WHO SELF-HARM: SYSTEMATIC REVIEW

Keith Hawton[1,2], David Gunnell[3], Katrina Witt[2], Ella Arensman[4], Philip Hazell[5], Kees van Heeringen[6], Ellen Townsend[7], Tatiana Salisbury[8]

[1]Warneford Hospital/Oxford University, [2]Centre for Suicide Research, University of Oxford, [3]School of Social and Community Medicine, University of Bristol,, [4]National Suicide Research Foundation and Department of Epidemiology and Public Health, University College Cork, [5]Discipline of Psychiatry, Sydney Medical School,, [6]Unit for Suicide Research, Department of Psychiatry and Medical Psychology, Gent University, [7]Self-Harm Research Group, School of Psychology, University of Nottingham,, [8]Institute of Psychiatry, King's College London

Background: Self-harm is common, often repeated, represents substantial personal distress, involves very large health care costs, and is strongly associated with risk of future suicide. Development of effective treatments is therefore imperative. We have conducted a systematic review within the Cochrane Collaboration of the global research literature on randomised trials of psychosocial interventions in self-harm patients to identify treatments that appear to be beneficial.

Method: Searches were conducted of research literature in all languages using major electronic databases and experts in the field were consulted. Data were extracted from included studies, further data requested from study authors, and meta-analysis conducted within RevMan.

Results: Brief psychological intervention (CBT/problem solving) was compared with treatment as usual (TAU) in 18 trials. Meta-analysis of the results showed greater benefits of psychological therapy in terms of repetition of self-harm, depression, hopelessness and suicidal ideation. TAU varied considerably between trials in terms of content and quality of reporting.

Sending regular postcards to patients compared to TAU did not appear to reduce the proportion of patients self-harming but may be useful in countries where community psychiatric services are lacking. Dialectical behaviour therapy (DBT) reduced frequency of repetition of self-harm in patients with a history of multiple repeats.

Conclusion: Brief psychological therapy can now be recommended in the aftercare treatment of self-harm patients. DBT can reduce repeat episodes in patients with a history of repetition. Greater attention needs to be paid to the content and reporting of TAU.

11.2 ENHANCING SURVEILLANCE OF SELF-HARM AND SUICIDE - A CORE COMPONENT OF NATIONAL SUICIDE PREVENTION PROGRAMMES

Ella Arensman[1]

[1]National Suicide Research Foundation, Department of Epidemiology and Public Health

The recently published WHO Report on Preventing Suicide: A Global Imperative, (WHO, 2014) recommends up-to-date surveillance of suicide and non-fatal suicidal behavior as an essential component of national suicide prevention programs.

Enhancing surveillance of self-harm

Having engaged in one or more acts of self-harm is the single most important predictor of death by suicide. Therefore, monitoring the prevalence, demographic patterns and methods involved in non-fatal suicidal behavior in a country or region provides important information that can assist in the development of suicide prevention strategies. Combining this with information on suicide deaths, case-fatality rates can be estimated which will assist in identifying high-risk individuals (WHO, 2014).

Hospital based surveillance systems for self-harm range from national registries, such as in Ireland to regional registries in the United Kingdom, where data on episodes of self-harm presenting to emergency departments is obtained from three regions. However, challenges associated with existing surveillance systems of self-harm include differences between regions and countries in terms of methodological aspects and procedures for data collection. Recommendations to improve standardization within and between countries with regard to establishing and maintaining a surveillance system of hospital presented self-harm will be presented.

Enhancing surveillance of suicide

The lack of standardization in suicide recording procedures limits our ability to make comparisons and generalizations based on research outcomes. Research into suicide recording procedures in eight European countries involved in Optimizing Suicide Prevention Programs and their Implementation in Europe (OSPI-Europe) revealed that suicide registration was based on a medico-legal system in six countries and on a coronial system in two countries. The coronial system applies the legal approach i.e. the decision to classify a death as suicide is expected to be 'beyond reasonable doubt' whereas the medical system uses a 'balance of probabilities' approach in line with the procedure for diagnostic assessment. A particular challenge in coronial systems is to establish whether the death was self-inflicted. In addition, there is growing evidence for the likelihood of underreporting of suicide. Outcomes of the Suicide Support and Information System (SSIS) in Ireland showed that the characteristics of those who died prematurely and were classified as 'open verdict' are more similar than dissimilar to confirmed cases of suicide. The injury death of undetermined intent is often

discussed in connection with the validity of suicide statistics. Internationally, consistency is lacking in the classification of injury deaths of undetermined intent (UD) or 'probable suicides', with some European countries adding UDs to suicide deaths and other countries classifying these separately. In this context, on-going research conducted in conjunction with the SSIS in Ireland is currently updating international criteria for probable suicide cases among a wide range of external cause of death verdicts including open verdicts, narrative verdicts, death by misadventure, accidental drowning and single vehicle road traffic accidents. Outcomes and implications of this research for the recording and classification of suicide will be discussed.

11.3 RISK FACTORS FOR SUICIDE AND DELIBERATE SELF-HARM: SEARCHING EVIDENCE FROM REGISTRIES

Ping Qin[1]

[1]University of Oslo, National Center for Suicide Research and Prevention

Population registries offer extensive opportunities for research on suicide and deliberate self-harm (DSH), because the data is recorded uniformly, precisely and longitudinally and covers a large population. The registries allow research in as well children as adults, entail follow-up of individual subjects beyond the limited time span, and ensure cost effective and easy access to data of both common and rare exposures. Starting from the Nordic countries and increasingly more from other parts of the world, a range of studies have used this valuable source of data to search for meaningful evidence on risk factors associated suicide and DSH. The studies have been able to include a great variety of socioeconomic and health-related factors to study their contextual effect on risk for suicide and DSH, to disentangle contributing effects of specific exposures, to examine interactive effects among various factors, and to assess the effect of clinical treatments and inventions. This presentation will provide a summary of important findings from such large scale studies, with emphasis on the temporal and contextual effects of socioeconomic disadvantages, adverse experiences and psychiatric and physical illnesses. Possible implications of these insightful results and directions for future research will be discussed in connection with efforts for effective treatment of DSH and for suicide prevention.

12. THE EMERGENCY DEPARTMENT SAFETY ASSESSMENT AND FOLLOW-UP EVALUATION: A CLINICAL TRIAL OF UNIVERSAL SCREENING AND ENHANCED INTERVENTION

Chair: Edwin Boudreaux, University of Massachusetts Medical School

Background: Evidence suggests that many individuals at-risk for suicide present to the emergency department (ED) setting. Those at risk include both patient sub-populations with known risk, such as those presenting with intentional self-harm ideation or behavior, as well as those with hidden or nascent risk, such as those presenting with medical complaints but experiencing active suicidal ideation not expressed during typical clinical examination practices. Consequently, the ED visit represents an opportune time for suicide risk screening and intervention. The Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) (U01MH088278, Boudreaux, Camargo, Miller) evaluated whether (1) a practical approach to universal suicide risk screening was feasible and effective at improving detection

of suicide risk in the ED setting, and (2) a multi-component intervention delivered during and after the ED visit improved suicide-related outcomes over the 12 months after the ED visit.

Methods: This symposium summarizes the ED-SAFE's study design and main results. The ED-SAFE used a quasi-experimental, interrupted time series design with three sequential phases: Treatment as Usual (Phase 1), Universal Screening (Phase 2), and Universal Screening + Intervention (Phase 3). Eight EDs in the United States participated between 2009 and 2015. Data from the three phases informed two separate evaluations: (1) Screening Outcome Evaluation, which examined the feasibility of universal screening and its impact on suicide risk detection, and (2) Intervention Outcome Evaluation, which examined the efficacy of the multi-component intervention on suicide and suicide attempts over the 12 months after the visit. Data analyses used a combination of chi-square tests, generalized estimating equations, time series plots, and survival analyses. Detailed methods will be presented in a separate abstract.

Results: Across the three phases, 236,791 ED visit records were reviewed and used for the Screening Outcome Evaluation. Of the 2,310 patients identified through an eligibility interview as having active suicidal ideation or a suicide attempt in the week before the visit (inclusive of the index visit), 1,376 (60%) were followed for 12 months and included in the Intervention Outcome Evaluation. Detailed results will be presented in two separate abstracts.

Conclusions: The ED-SAFE represents an innovative approach to examining the complex public health issue of suicide prevention through a multi-phase, quasi-experimental design embedded in a 'real world' clinical setting. The results of both the screening and intervention components hold important implications for suicide prevention research in the ED setting.

12.1 THE EMERGENCY DEPARTMENT SAFETY ASSESSMENT AND FOLLOW-UP EVALUATION: STUDY DESIGN AND METHODS

Carlos A. Camargo, Jr.[2], Sarah A. Arias[3], Ashley F. Sullivan[2], Michael H. Allen[4], Amy B. Goldstein[5], Anne P. Manton[6], Janice A. Espinola[2], Kohei Hasegawa[2], Ivan W. Miller[3], Edwin D. Boudreaux[1]

[1]University of Massachusetts Medical School, [2]Department of Emergency Medicine, Massachusetts General Hospital, [3]Butler Hospital and the Warren Alpert Medical School of Brown University, [4]University of Colorado Depression Center and Rocky Mountain Crisis Partners, [5]Division of Services and Intervention Research, National Institute of Mental Health, National Institutes of Health, [6]Cape Cod Hospital / Centers for Behavioral Health,

Background: Many individuals at-risk for suicide present to the emergency department (ED). Those at risk include patients with known risk, such as those presenting with intentional self-harm ideation or behavior, as well as those with hidden or nascent risk, such as those presenting with medical complaints but experiencing active suicidal ideation that is not expressed during a typical clinical examination. Consequently, the ED visit represents an opportune time for suicide risk screening and intervention. The Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) (U01MH088278: Boudreaux, Camargo, Miller) evaluated whether (1) a practical approach to universal suicide risk screening was feasible and effective at improving detection of suicide risk in the ED setting, and (2) a multi-component intervention delivered during and after the ED visit improved suicide-related outcomes over the 12 months after the ED visit.

Methods: This presentation summarizes the ED-SAFE's study design and methods. The ED-SAFE used a quasi-experimental, interrupted time series design with three sequential phases:

Treatment as Usual (Phase 1), Universal Screening (Phase 2), and Universal Screening + Intervention (Phase 3). Eight EDs from across the United States participated from 2009-2015. The hospitals ranged from small community hospitals to large academic medical centers. To make the results more generalizable, no site had a stand-alone psychiatric ED. Data from the three phases informed two separate evaluations: (1) Screening Outcome Evaluation, which examined the feasibility of universal screening and its impact on suicide risk detection, and (2) Intervention Outcome Evaluation, which examined the efficacy of the multi-component intervention on suicide attempts and completed suicides over the 12 months after the visit. The richness of the ED-SAFE interview data also allowed investigators to explore the impact of universal screening and the multi-component intervention on other suicide outcomes, including aborted or interrupted attempts and implementation of rescue procedures. Data analyses used a combination of chi-square tests, generalized estimating equations, time series plots, and survival analyses.

Results: The subsequent presentations will address the main results of the Screening Outcome Evaluation (based on >235,000 ED visit records), and the Intervention Outcome Evaluation (based on almost 1500 enrolled patients with active suicidal ideation or a suicide attempt in the week before the index visit [inclusive of the index event]). For the latter evaluation, 12 months of follow-up data were available from two main sources: multiple telephone interviews and review of medical records.

Conclusions: The ED-SAFE represents an innovative approach to examining the complex public health issue of suicide prevention through a multi-phase, quasi-experimental design embedded in a 'real world' clinical setting. The results of both the screening and multi-component intervention hold important implications for suicide prevention research in the ED setting.

12.2 THE EMERGENCY DEPARTMENT SAFETY ASSESSMENT AND FOLLOW-UP EVALUATION: THE SCREENING OUTCOME EVALUATION

Edwin Boudreaux[1], Carlos A. Camargo, Jr.[2], Michael H. Allen[3], Sarah A. Arias[4], Ashley F. Sullivan[2], Amy B. Goldstein[5], Anne P. Manton[6], Janice A. Espinola[2], Ivan W. Miller[4]

[1]University of Massachusetts Medical School, [2]Department of Emergency Medicine, Massachusetts General Hospital, [3]University of Colorado Depression Center and Rocky Mountain Crisis Partners, [4]Butler Hospital and the Warren Alpert Medical School of Brown University, [5]Division of Services and Intervention Research, National Institute of Mental Health, National Institutes of Health, [6]Cape Cod Hospital / Centers for Behavioral Health

Background: Patients at risk for suicide after an emergency department (ED) visit include patients with risk that is incidental to their chief complaint; this suicide risk often is not identified during routine clinical care. However, studies suggest that such patients will report active suicidal ideation or a recent suicide attempt if asked directly. This lack of identification of hidden risk during routine care, combined with apparent willingness to report such risk when asked, suggests that universal suicide risk screening may be useful in detecting suicide risk in ED patients. Consequently, the Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) (U01MH088278, Boudreaux, Camargo, Miller) was designed to evaluate whether a practical approach to universal suicide risk screening was feasible and effective at improving detection of suicide risk in the ED setting when implemented as part of routine clinical care. This objective is referred to as the Screening Outcome Evaluation.

Methods: The Screening Outcome Evaluation used data from three sequential phases, described in the Methods abstract. The 3-item screener assessed depression (past 2 weeks), active suicidal ideation (past 2 weeks), and lifetime suicide attempt. Prospective, real-time ED medical record review was used to establish if screening for intentional self-harm ideation/behavior (screening) occurred during the ED visit and whether the individual endorsed intentional self-harm ideation/behavior (detection). Follow-up interviews of patients with any intentional self-harm documented on the ED medical record established whether the intentional self-harm was suicidal ideation or behavior occurring in the past week, inclusive of the visit. Chi-square tests and generalized estimating equations were used to assess the changes in screening and detection rates across the three phases. Time series plots were used to visualize the data.

Results: Across the three phases (n=236,791 ED visits), documented screenings for intentional self-harm ideation or behavior rose from 25.5% (Phase 1) to 84.5% (Phase 3) of patients presenting during monitoring periods, $\chi 2$ (2, N=236,789)=71,000, P<0.001. Detection of intentional self-harm ideation/behavior rose from 2.9% to 5.7%, $\chi 2$ (2, N=236,789)=902, P<0.001. Approximately 74.5% (95% CI: 72.9% to 76.0%) of all intentional self-harm detected was confirmed as recent suicidal ideation or suicide attempt by research staff interview.

Conclusions: Using a common performance improvement approach and a simple, three-item verbal screener, universal suicide risk screening during routine care was feasible, eventually reaching nearly 85% of all ED patients. This screening was associated with nearly a two-fold increase in identification of active self-harm ideation or behavior. If applied to the approximately 350,000 ED visits that occur annually at the eight participating EDs alone, nearly 10,000 patients with previously undetected suicide risk would be identified every year.

12.3 THE EMERGENCY DEPARTMENT SAFETY ASSESSMENT AND FOLLOW-UP EVALUATION: THE INTERVENTION OUTCOME EVALUATION

Ivan Miller[1], Carlos A. Camargo, Jr.[2], Sarah A. Arias[1], Ashley F. Sullivan[2], Michael H. Allen[3], Amy B. Goldstein[4], Anne P. Manton[5], Kohei Hasegawa[3], Edwin D. Boudreaux[6]

[1]Butler Hospital and the Warren Alpert Medical School of Brown University, [2]Department of Emergency Medicine, Massachusetts General Hospital, [3]University of Colorado Depression Center and Rocky Mountain Crisis Partners, [4]Division of Services and Intervention Research, National Institute of Mental Health, National Institutes of Health, [5]Cape Cod Hospital / Centers for Behavioral Health, [6]Departments of Emergency Medicine, Psychiatry, and Quantitative Health Sciences, University of Massachusetts Medical School

Background: Despite improvements in mental health care, rates of attempted and completed suicide in the United States have not decreased over the past two decades. Recent research has shown that a substantial number of individuals who attempt or complete suicide have had recent contact with emergency departments (EDs). Thus, the ED setting is a prime site for developing and testing interventions to reduce subsequent suicidal behavior.

Methods: The Intervention Outcome Evaluation study of the Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) project was designed to assess the effectiveness of a multi-faceted intervention to reduce post-ED suicidal behavior. The Intervention was composed of three components: (1) a secondary suicide screener designed to be used by ED physicians to evaluate level of suicide risk following an initial positive suicide screen, (2) provision of a Personal Safety Plan and information to patients at suicide risk prior

to their discharge from the ED, and (3) a series of telephone calls to the patient and their significant other for 12 months following the index ED visit. The structure and content of these calls was based on the Coping Long Term with Active Suicide Program (CLASP) protocol.

Primary analyses compared patients from the Intervention Phase (n=502) with those patients from the Treatment as Usual (n=497). Follow-up data were collected at 6, 12, 24, 36, 52 weeks after the ED visit using both interviewer-telephone assessments and chart review. Primary outcomes were number and frequency of post-ED suicide attempts and deaths. Secondary outcomes included broader aspects of suicidal behavior and ideation as well as suicide-related health care utilization.

Survival analyses (e.g., Kaplan Meier survival curves and Cox proportional hazards models) will be used to assess differences in the time to an outcome event between groups.

Results: Analyses are ongoing. Results will be reported at the meeting.

Conclusions: These data will provide a comprehensive evaluation of the effect of a multi-faceted intervention on future suicide-related outcomes among ED patients with suicide risk.

13. NOVEL STRATEGIES FOR DATA COLLECTION AND INTERVENTION: LEVERAGING TECHNOLOGY

Chair: Erkki Isometsä, University of Helsinki and Helsinki University Hospital, Helsinki, Finland

13.1 USING EMA TO ASSESS SUICIDAL IDEATION AND SELF HARM BEHAVIORS

Barbara Stanley[1], Sadia Chaudhury[2], Hanga Galfalvy[3]

[1]College of Physicians & Surgeons, Columbia University, [2]New York State Psychiatric Institute/Columbia University, [3]Columbia University

Novel techniques to assess real time emotions, stressors and coping strategies using ecological momentary assessment (EMA) can be applied to understanding patterns of suicidal ideation and behavior. In this presentation, we will describe different patterns of suicidal ideation and behavior over the course of a week, stressors that are more likely to lead to increased ideation and coping techniques that decrease ideation. We will also discuss the advantages of using EMA over retrospective, single point measures to assess ideation.

13.2 NOVEL METHODS TO ASSESS AND FOLLOW SUICIDAL IDEATION

Enrique Baca-Garcia[1], Sofian Berrouiguet[2], Juan Jose Carballo Beloso[1], Santiago Ovejero[1], Raquel Alvarez García[3], Laura Mata Iturralde[1], Laura Muñoz Lorenzo[1], Ezequiel Distasio[4], Maria Luisa Martín Calvo[5], David Delgado[6], Jorge Lopez Castroman[7], Ana Gomez Carrillo[8], Mercedes Perez Rodriguez[9], Philippe Courtet[7], Maria Oquendo[10]

[1]Fundacion Jimenez Diaz, [2]University Hospital Brest, [3]Hospital Rey Juan Carlos, [4]Hospital General de Villaba, [5]Hospital Infanta Elena, [6]Universidad Carlos III, [7]Montpelier University, [8]University of London, [9]Mount Sinai, NY, [10]Columbia University

Clinical assessment in psychiatry is mostly based on brief, regularly scheduled face-to-face appointments. Although crucial, this approach reduces assessment to cross-sectional

observations that often miss critical information about course of disease and risk-assessment. Clinicians in-turn make all medical decisions based on this inevitably limited information. We discuss recent technological developments in terms of assessment and information triangulation, analysis of longitudinal data, approaches to enhance medical decision-making and improve communication between patients, caregivers and clinicians.

13.3 TECHNOLOGY FACILITATED SUICIDE PREVENTION STRATEGIES

Edwin Boudreaux[1], Gregory Brown[2], Barbara Stanley[3], Carlos Camargo[4], Ivan Miller[5]

[1]University of Massachusetts Medical School, [2]University of Pennsylvania, [3]Columbia University, [4]Massachusetts General Hospital, Harvard Medical School, [5]Butler Hospital and the Warren Alpert Medical School of Brown University

Background: Healthcare settings now have tremendous capacity to provide both clinicians and patients' access to computers, including tablet PCs. Consequently, suicide prevention interventions that are in part or wholly facilitated by computers are increasingly accessible; they hold tremendous promise for improving implementation of brief suicide prevention interventions in healthcare settings.

Methods: We developed a web-based program to enable personalized safety planning; the program is called keepmyselfsafe.com (KMS). A user-centered, iterative software design strategy was employed. An expert panel of suicidologists and clinicians, including ED physicians, psychiatrists, psychologists, and nurses, worked closely with software engineers at every step of the design and testing process to ensure the system was user friendly and firmly rooted in the evidence and best practices. The structure and sequencing of the program was heavily patterned after the Safety Planning Intervention (SPI) pioneered by Greg Brown and Barbara Stanley. Two versions were created, one for clinicians and one for patient self-report. Both versions guide the user through completing each of the six SPI steps. Once all six steps are complete, the user can review and "confirm" the plan, and KMS builds a one-page safety plan that can be printed, emailed, saved, shared, and edited at will. Early versions were piloted by the project team and experts, with modifications made in response to critical evaluation. The resulting alpha prototype was piloted with suicidal patients, with further modifications made iteratively based on usability testing results. Enrollment stopped after thematic saturation was achieved, defined as five consecutive enrollments which resulted in no usability problems identified.

Results: We enrolled 31 patients who endorsing suicidal ideation or who presented to the ED with a suicide attempt. Overall, KMS achieved strong usability ratings, even with early recruits, and all 31 participants successfully completed all safety planning steps and produced a completed safety plan with little or no assistance from the research staff. All satisfaction indices were >90%. Four of five patients (81%) reported Agreeing or Strongly Agreeing that they would be likely to use their safety plan if they had thoughts of killing themselves after discharge. A paired samples t-test was conducted to compare intensity of suicidal ideation (0 = No thoughts of killing myself, 10 = Constant thoughts of killing myself) immediately before and after completing the KMS. Post-ratings (M= 4.5, SD = 3.0) were significantly lower than pre-ratings (M=5.1, SD = 2.9), $t(27) = 2.49$, $p = 0.02$. The total number of ED visits related to suicide decreased from an average of 1.0 (SD = 0.5) in the month prior to the index visit to an average of 0.1 (SD = 0.3) in the month after the index visit, $t(31) = 11.77$, $p < 0.001$).

Conclusions: The KMS was designed to be user-friendly, which was reflected by patient ratings and process evaluations. Within-subjects changes were noted in suicidal ideation intensity and

suicide-related ED visits one month before and after KMS participation. The KMS represents an innovative approach to using technology to facilitate administration of a suicide prevention intervention. The efficacy and acceptability of both the clinician and self-report versions merit further investigation.

14. RESEARCH UPDATE ON SUICIDE AND KETAMINE

Chair: Elizabeth Ballard, NIMH

Overall Abstract: Safe and rapidly-acting treatments for suicidal individuals are critically needed. Current psychopharmacologic and psychotherapeutic approaches can take weeks-to-months to take effect. At the same time, the days to weeks after an emergency department visit or discharge from a psychiatric inpatient unit are times of high risk for suicide. Clinicians have few treatment tools to combat these high-risk periods.

Ketamine, though traditionally classified as an anesthetic, has recently been studied because of its antidepressant effects within hours-to-days of administration. These rapid effects have fueled interest in studying ketamine in suicidal patients. Currently, there is a burgeoning literature on the effects of ketamine on suicidal thoughts. For some patients, ketamine has been associated with a reduction in suicidal thoughts that takes effect within minutes-to-hours. Because of this effect, it is possible that psychopharmacologic approaches—such as ketamine—can be used in emergency treatment settings to quickly reduce suicidal thoughts. This intervention may provide a bridge during the critical period of suicide risk, until more regular psychiatric medications and psychotherapy can be started. However, before interventions such as ketamine can be implemented in clinical settings, more information is needed into ketamine's potential impact on suicidal thoughts.

This symposium, entitled, "Research Update on Suicide and Ketamine," takes a translational approach to recent research around ketamine and suicidal thoughts. The perspective will take the audience on a continuum from the clinic to the bench; from recent clinical findings from a randomized trial to molecular and basic science approaches to understanding ketamine's mechanism of action. First, Dr. James Murrough will present findings from his AFSP-funded study of intravenous ketamine compared to midazolam as an active placebo. Importantly, this study was conducted across psychiatric diagnoses, rather than limited to depression, which will have implications the potential utility of ketamine in clinical settings. Second, Dr. Dawn Ionescu will present data from a repeat infusion study to discuss whether ketamine's impact on suicidal thoughts can be maintained with multiple doses in patients at serious risk for suicide. Third, Dr. Elizabeth Ballard will present data from mechanism of action trials of ketamine to suggest possible PET imaging and sleep-related biomarkers of suicide ideation response to ketamine. Lastly, Dr. Yogesh Dwivedi will discuss his work on the involvement of microRNA in the impact of ketamine on suicidal thoughts, including research from both humans and animal models. This translational perspective will permit discussion of future uses of ketamine or similar medications, as well as how ketamine can be used as a research tool to understand the neurobiology of suicidal thoughts.

14.1 DOES KETAMINE HAVE RAPID ANTI-SUICIDAL EFFECTS? RESULTS FROM A RANDOMIZED CONTROLLED PILOT STUDY

James Murrough[1]

[1]Icahn School of Medicine at Mount Sinai

Background: Suicide is a devastating public health problem and very few biological treatments have been found to be effective in decreasing the intensity of suicidal ideation (SI) or the risk of suicide. We have previously shown that a single dose of ketamine, a glutamate N-methyl-d-aspartate (NMDA) receptor antagonist, is associated with a rapid reduction in depressive symptom severity and SI in patients with treatment resistant depression.
Methods: We conducted a randomized, controlled trial of ketamine in patients who presented with clinically significant SI across a trans-diagnostic sample (n=24). Patients received a single infusion of ketamine or midazolam (as an active placebo) in addition to standard of care. Suicidal ideation measured using the Beck Scale for Suicidal Ideation (BSI) 24 hours post-treatment represented the primary outcome. Secondary analyses included the Montgomery-Asberg Depression Rating Scale–Suicidal Ideation (MADRS-SI) score at 24 hours and additional measures beyond the 24-hour time point.

Results: The intervention was well tolerated and no dropouts occurred during the primary 7-day assessment period. BSI score was not different between the treatment groups at 24 hours (p=0.32), however a significant difference emerged at 48 hours (p=0.047). MADRS-SI score was lower in the ketamine compared to midazolam group at 24 hours (p=0.05). The treatment effect was no longer significant at the end of the 7-day assessment period.

Conclusion: The current findings provide support for the safety, tolerability and efficacy of ketamine as an intervention for suicidal ideation in patients who are at risk for suicidal behavior across mood and anxiety disorders.

14.2 RAPID REDUCTIONS IN SUICIDAL IDEATION FOLLOWING REPEATED, FLEXIBLE DOSES OF INTRAVENOUS KETAMINE IN OUTPATIENTS WITH TREATMENT-RESISTANT DEPRESSION AND SERIOUS RISK FOR SUICIDE

Dawn Ionescu[1], Cristina Cusin[1], Lee Baer[1]

[1]Massachusetts General Hospital

Introduction: Suicidal ideation is of particular concern in patients with treatment-resistant depression (TRD). Ketamine has been found to reduce symptoms of suicidal ideation in TRD patients at low risk for suicide. The aim of this investigation was to examine the extent to which repeated, escalating doses of subanesthetic ketamine reduces suicidal ideation in chronically suicidal, medicated depressed outpatients at serious suicidal risk.
Methods: Fourteen outpatients with TRD (≥3 failed antidepressant trials of adequate dose and duration during the current depressive episode) and serious suicidal risk (≥3 months of suicidal ideation, as assessed with the Columbia-Suicide Severity Rating Scale (C-SSRS)) received six open-labeled infusions of ketamine (0.5mg/kg over 45 minutes for the first three infusions; 0.75mg/kg over 45 minutes for the last three infusions) in the acute phase of the study. Measures of suicidality (e.g., C-SSRS) and depression (e.g., Hamilton Depression Rating Scale; HDRS) were assessed at 240 minutes post-infusion.

Results: In the acute phase, there was a significant change in C-SSRS Ideation scores over time (baseline C-SSRS Ideation scores=2.1; Coefficient=-0.26; SE=0.05; p=0.000; 95% CI -0.36 to

-0.17), suggesting that C-SSRS Ideation scores decreased by -0.26 at each infusion. When the change in C-SSRS Ideation was controlled for by the change in HDRS-6 depression items, the change in C-SSRS Ideation remained significant over the infusions (Coefficient=-0.12; SE=0.06; p=0.05; 95% CI -0.23 to -0.00); this suggest that -0.12 of the -0.26 decrease in scores observed over the course of the infusions was independent of decreases in depression symptoms. There was a significant change in the C-SSRS Intensity scores over time (C-SSRS Intensity at baseline=12.1; Coefficient=-1.15; SE=0.26; p=0.000; 95% CI -1.65 to -0.64) and the HDRS-Suicide Item (baseline HDRS-SI scores=2.1; Coefficient=-0.22; SE=0.04; p=0.000; 95% CI -0.31 to -0.14). Of the 2 patients who achieved depression remission (HDRS<8) at the end of the six infusions, both (100%) achieved suicidal ideation remission at that point on the C-SSRS (i.e., Ideation=0). Of the 10 patients who had NOT achieved depression remission at the end of the six infusions, 5 (50%) did achieve suicidal ideation remission at that point on the C-SSRS. Two patients did not complete all six infusions.

Conclusions: Repeated-dose ketamine rapidly and robustly decreased suicidal ideation in medicated outpatients with severe TRD and clinically-significant suicidality. Furthermore, decreases in suicidal ideation (as measured by the C-SSRS Ideation score) were not completely dependent on decreases in depression symptoms—suggesting that ketamine decreased suicidal ideation in a way that was independent of its antidepressant effects.

14.3 IMAGING AND SLEEP-RELATED BIOMARKERS OF RAPID REDUCTION OF SUICIDAL THOUGHTS IN RESPONSE TO KETAMINE

Elizabeth Ballard[1]

[1]NIMH

Whereas ketamine has been associated with reductions in suicidal thoughts, the mechanism of action remains unknown. Understanding how response to ketamine correlates with changes on neurobiological measures can suggest potential mechanisms and may indicate who is most likely to respond to ketamine. More generally, identifying biomarkers associated with ideation response can help elucidate potential neurobiological circuits associated with acute suicide risk, which is essential for future research with and treatment of suicidal individuals. This presentation will review results from ongoing mechanism of action studies of ketamine. Over 120 participants with treatment-resistant Major Depressive Disorder or Bipolar Disorder have been administered ketamine as of clinical trials. Many of these individuals were also assessed using neuroimaging paradigms and polysomnography (PSG) in the days before and after ketamine infusion. As around 65% of this sample endorsed some level of suicidal thoughts, this research provides the opportunity to examine neurobiological correlates of reductions of suicidal ideation. One promising finding demonstrated on positron emission tomography (PET) that increased cerebral glucose metabolism in the infralimbic cortex (BA 25) was associated with suicidal ideation, but not depressive symptom severity. Reductions in suicidal ideation after ketamine infusion were correlated with reductions in glucose metabolism in this area ($r = .54$, $p = .02$), suggesting that the infralimbic cortex may be implicated in suicidal ideation. The second finding to be discussed is the relationship between suicidal ideation and disrupted sleep. Using overnight PSG, nocturnal wakefulness, particularly later in the night, was associated with next-day suicidal thoughts, independent of depressive symptom severity ($\beta = .31$, $p = .008$). Additionally, reductions in suicidal thoughts after ketamine infusion were associated with decreased wakefulness, suggesting that improved sleep may underlie ketamine's effect on suicidal thoughts. Results require replication in samples not limited to

treatment-resistant depression, but highlight the potential importance of imaging and sleep-related factors in suicidal thoughts.

14.4 REVERSAL OF STRESS-INDUCED HOPELESSNESS BY ACUTE KETAMINE TREATMENT: INVOLVEMENT OF MICRORNAS

Yogesh Dwivedi[1]

[1]University of Alabama at Birmingham

Ketamine is a non-competitive glutamate N-methyl-d-aspartate receptor antagonist with rapid and robust antidepressant and anti-suicide effects. In fact, ketamine is the only agent available for human use that rapidly reduces both depressive symptoms and suicidal ideation in most patients. This action of ketamine has been shown to be related to NMDA receptor blockade. The mechanisms of rapid action of ketamine are under intense investigation. Several studies show that ketamine rapidly but transiently increases the phosphorylation and activation of mTOR in the PFC of mice, leading to a delayed, but sustained induction of synaptic proteins with a time course similar to its therapeutic response. microRNA (miRNA), a class of small non-coding RNAs, is a major regulator of higher brain functioning. By modulating translation and stability of a large number of targets in a coordinated and cohesive fashion, they are able to regulate entire gene circuitry. miRNAs are expressed highly in neurons, and because they can regulate the expression of a large number of target mRNAs, neuronal miRNA pathways can create an extremely powerful mechanism to dynamically adjust the protein content of neuronal compartments even without the need for new gene transcription. Since miRNAs show a highly regulated expression, they contribute in the development and maintenance of a specific transcriptome and thus have the unique ability to influence disease phenotypes. Recently, we demonstrated that not only were miRNAs significantly altered in dlPFC of MDD suicide subjects but they were dramatically reorganized in a coordinated fashion. We also found that a set of miRNAs formed a highly correlated network in MDD, which was different than the one present in healthy controls. In addition, we found that a subset of miRNAs specifically altered in the brain of suicide subjects regardless of psychiatric illnesses. Interestingly, a recent study showed that ketamine itself can have a major impact on miRNA expression in rat hippocampus and when given to early-life stressed rats this impact is much larger, suggesting that some of the ketamine effects on miRNAs can be apparent only following pathological changes. In our lab, we investigated the effects of ketamine on miRNA expression in brain of learned helpless rats (a rat model of hopelessness) and found that acute ketamine treatment (180 min and 24 h later) not only reversed learned helpless-induced altered miRNAs in rat frontal cortex, but differentially altered a large number of miRNAs which were not part of the learned helpless effect. These data suggest that some of the ketamine's anti-depressant/anti-suicidal effects are mediated via miRNAs and its response may be different under pathological and non-pathological conditions. In addition, similar changes were noted in plasma-derived exosomes, suggesting that response of ketamine can be captured in both brain and in peripheral cells. In addition, our study also shows that turnover of miRNAs in neuronal population is rapid which corresponds very well with exosomal miRNA changes, suggesting that exosomal miRNAs can be used as biomarker for treatment response.

15. DECISION MAKING AND SUICIDAL BEHAVIOR

Chair: Yari Gvion, Bar Ilan University

Overall Abstract: Suicide risk constitutes a complex set of interacting demographic, clinical, psychobiological and environmental variables. Impulsivity is a long-known risk factor for suicide attempts. However, research based on clearer conceptual refinement in this area is imperative. One emerging field of study is that of decision making. Impulsivity involves a failure of higher-order control, including decision-making. Using standardized operational definitions that take into consideration relevant aspects of impulsivity, including state- and trait components and a deeper understanding of the process of decision-making in the suicidal mind, we may come a step closer to understanding suicidality and winning the fight in this scourge of human suffering

15.1 NEURAL REWARD VALUE SIGNALS, IMPULSIVITY AND SUICIDAL BEHAVIOR

Alexandre Dombrovski[1], Katalin Szanto[2], Greg Siegle[2], Luke Clark[2], Charles F. Reynolds[3]

[1]University of Pittsburgh School of Medicine Department of Psychiatry, [2]Univ. of Pittsburgh, [3]Univ. of British Columbia, Canada

Suicide can be viewed as an escape from unendurable impending punishment at the cost of any future rewards. Could faulty estimation of these outcomes predispose to suicidal behavior? In behavioral studies, many of those who have attempted suicide misestimate expected rewards on gambling and probabilistic learning tasks.

We aimed to describe the neural circuit abnormalities that underlie disadvantageous choices in people at risk for suicide and to relate these abnormalities to impulsivity, which is one of the components of vulnerability to suicide. We conducted a case-control functional magnetic resonance imaging study of reward learning using a reinforcement learning model. Participants were recruited from a university hospital and outpatient clinic. We enrolled 53 participants 60 years or older, including 15 depressed patients who had attempted suicide, 18 depressed patients who had never attempted suicide (depressed control subjects), and 20 psychiatrically healthy controls. We measured components of the cortical blood oxygenation level-dependent (BOLD) response tracking expected reward or value.

Impulsivity and a history of suicide attempts (particularly poorly planned ones) were associated with a weakened expected reward signal in the paralimbic cortex, which in turn predicted the behavioral insensitivity to contingency change. These results were robust to the effects of possible brain damage from suicide attempts, depressive severity, co-occurring substance use and anxiety disorders, antidepressant and anticholinergic exposure, lifetime exposure to electroconvulsive therapy, vascular illness, and incipient dementia.

We conclude that a pattern of disadvantageous decision-making marked by altered paralimbic reward signals and impulsivity/carelessness may facilitate unplanned suicidal acts. A central feature of this pattern is the failure to incorporate relevant and readily accessible information into one's choices. Similar behavioral patterns are seen in gambling, cocaine use, and in people with a variant dopamine transporter gene. This pattern closely resembles the behavior of primates and rodents with lesions of the ventromedial prefrontal/medial orbitofrontal cortex. Thus, it may reflect a primary deficit in the paralimbic cortex or in its mesolimbic input.

15.2 SOCIAL DECISION MAKING AND LATE-LIFE SUICIDAL BEHAVIOR

Katalin Szanto[1], Polina Vanyukov[1], Alexandre Y Dombrovski[1]

[1]University of Pittsburgh

Suicide attempters make bad decisions in non-social contexts in the laboratory. However, most of the decisions we make in real life are in a social context and social motivations are often cited as a reason to die by suicide. We previously showed impaired self-reported social problem solving and social cognition deficits in older suicide attempters. We used game theory to understand the possible mechanisms that underlie social problem solving deficits and investigate individual differences in social reasoning. Economic bargaining games provide a controlled environment in which social influences on decision-making may be observed. We provide data on two lines of investigation: a) reactions to unfairness, and 2) emotional interference of cooperation using the Ultimatum Game (UG) and a trust game experiment. One can conceptualize suicide as an extreme reaction to stressors that involves a distorted cost-benefit analysis. Perceived unfairness is a common theme in suicide notes. Social injustice compels us to punish offenders, often at a cost to ourselves. Our study focused on older adults because of the high proportion of medically serious (high-lethality (HL) suicide attempts in this age group. We used the UG in 26 depressed older adults with HL attempts, 20 low-medical lethality suicide attempts (LL), 35 non-suicidal depressed older adults, and 22 elders with no psychiatric history. In the UG, players decide whether to accept or punish (reject) unfair monetary offers from another player, trading personal gain against social fairness. Despite the fact that rejection is personally costly, people typically punish unfair counterparts by rejecting their offers. Yet, the demand for social fairness is sensitive to price in healthy subjects; with increasing reward size unfair offers are rejected less frequently. In our analyses we took advantage of complete trial-by-trial data, using hierarchical models including within-subject and between-subject levels. On the UG, HL failed to incorporate the cost of prosocial punishments into their choices. This tendency was also evident in a condition when no actual rewards were delivered, suggesting that HL's behavior is due to the specific effects of social emotions and not to a general insensitivity to any rewards. Such interference of social emotions with the estimation of expected rewards has been noted in neuroeconomic research with healthy subjects however, it has not yet been studied in a sample with severe psychopathology. We used a multi-trial trust game to investigate whether social information introduces systematic bias into decision-making, and whether interference of social emotions into optimal choices is exaggerated in the most serious suicide attempters. All trustees start by sharing with the participant 50% of the time followed by a block of trials when they share either infrequently (25%) or frequently (75%), switching sharing rates in the last block of trials. The overall rate of sharing is identical among trustees. For optimal decision making participants need to update their beliefs based on their experiences during the interactions. In summary, our results indicate that decision biases in a social context are part of the suicidal diathesis, and they underlie interpersonal conflicts that are often described by suicidal individuals.

15.3 LOSS AVERSION AND SUICIDE ATTEMPTS

Gergo Hadlaczky[1], Anahit Mkrtchian[2], Sebastian Hökby[2], Danuta Wasserman[2], Vladimir Carli[2]

[1]Karolinska Institute, National Center for Suicide Prevention, NASP, [2]Karolinska Institutet

Loss aversion, a central concept in human decision-making, describes the tendency for humans to strongly prefer avoiding losses rather than making equivalent gains. AIM: The aim of this study was to explore the relationship between loss aversion and suicidal behaviour in a large cohort of adolescents recruited in schools of seven European countries for a longitudinal study.

Methods: A mixed monetary gamble task was used to generate loss aversion scores for each participant. The association between loss aversion scores and lifetime suicide attempts were then estimated on a cross-sectional sample, using a logistic regression model which included a number of known risk factors for suicide. As a next step, participants who reported life-time suicide attempts at baseline were excluded. Loss aversion scores at baseline were then used as predictors of new suicide attempts at a 4 month follow-up. RESULTS: A total of 1836 cases including 127 suicide attempters (approx 7%) were included in the cross-sectional analysis, while 1495 cases were included in the longitudinal analysis, 55 of whom had made a suicide attempt by the 4 month follow-up (approx 4%). Loss aversion was a significant predictor of attempted suicide in both cross-sectional and longitudinal analyses, $p < 0.01$ (OR: 1.14 cross-sectional; OR: 1,21 longitudinal) with depression, anxiety, stress, and gender included in the model. The lower the loss aversion the higher the suicide risk. Comparison of models with and without loss aversion as a predictor showed significant improvement with the loss aversion variable for both cross-sectional and longitudinal analyses ($p < 0.05$). Interestingly, although all other predictors were significantly correlated with suicidal ideation, loss aversion was not ($r= 0.00$, $p= 0.9$). CONCLUSIONS: Study participants whose decision-making was less affected by potential losses were more likely to attempt suicide in this sample. We propose that when individuals consider suicide as a possible solution to their suffering, they also consider the consequences of the act, even if only briefly. For individuals with lower levels of loss aversion, negative consequences of suicide may be underestimated or ignored.

16. SUICIDE SCREENING IN PRIMARY CARE

Chair: Guy Diamond, Drexel University
Moderator: Julie Goldstein Grumet, Suicide Prevention Resource Center

Overall Abstract: Suicide is a serious public health problem, particularly for 15 to 24 year olds where it is the second leading cause of death (Hoyert, 2012). Primary care offers an important opportunity to identify suicidal youth and refer them to treatment. A number of national organizations support suicide screening in primary care, as suggested in the National Strategy for Suicide Prevention (US DHHS, 2012). Even the Joint Commission (JCAHO) now requires suicide screening for youth with behavioral health problems in all inpatient and ambulatory services and recommends assessing other behavioral health problems (e.g., child abuse, substance use, etc.). Screening for adolescent depression has also been widely encouraged (US Preventive Services Task Force [USPSTF], 2009; AAP & AACAP, 2009). Unfortunately, the latest USPSTF report on suicide did not recommend screening for suicide risk in primary care (O'Connor et al., 2013). Citing the lack of data and treatment outcomes, the report concluded that standardized screening may be no better than clinical impression and assessment.

Despite years of interest in integrating behavioral and medical services, limited progress has been achieved (AAP, 2000; Frank et al., 2004). Some screening tools and physician training programs have been developed, and several models of collaboration between medical and behavioral health providers have been proposed. Still, adoption into practice is low. In fact, only 51% of physicians say they know how to handle mental health information from adolescents and fewer than half (46%) feel capable of identifying and talking about suicide (Annenberg Adolescent Mental Health Project, 2003). In short, there remains a need for more

effective and adoptable behavioral health screening methods in primary care (IOM, 2002; Johnson & Millstein, 2004).

However, there are many barriers to realizing this possibility (Ellen, et al., 1998). These barriers include primary care provider (PCP) time constraints, lack of training in mental health (MH), discomfort with addressing psychological problems, lack of tools for effective identification, lack of treatment resources once problems are identified, and lack of reimbursement for screening or treatment of mental health problems (Epstein et al., 1998). Some have suggested that addressing any one of these problems without the others will not provide the systemic change needed to sustain depression screening in primary care.

Toward this goal, this investigative team has developed and implemented across Pennsylvania, a comprehensive multi-component screening program that uses technological innovation as its foundation. The Behavioral Health-Works (BH-WORKS) program consists of a) PCP education in behavioral health, b) web-based mental health screening tool, c) case management to assist in triage and navigation of the mental health system, and d) an effort to better integrate, if not collocate, mental health and medical services. This symposium will present on findings from 10 years of research and dissemination efforts. Dr. Diamond will give an over view of the model components and outcomes. Mr. Atte will review how the screening tool works and some of the implementation procedures. Dr. Wintersteen will present on the barriers and solutions to implementing this suicide screening "program." Dr. Herres will review the psychometric data on the screener and several of the scientific findings that this clinical/research data set has produced. Dr. Goldstein will discuss the Zero Suicide initiative and how this BH-Works screening program reflects some of these goals.

16.1 BEHAVIORAL HEALTH-WORKS: OVERVIEW AND FINDINGS

Guy Diamond[1]

[1]Drexel University

This presentation will provide an over view of BH-Works model and the findings to date regarding implementation and screening results. For the past ten years, our team has programmatically developed clinical, community and informatics solutions to many of the problems outlined above. Rather than focusing on a single component (e.g., screening) we take a "systems change" approach (Wintersteen & Diamond 2013). Our approach is consistent with implementation science models that encourage the simultaneous targeting of structural (e.g. policy), organizational (e.g. leadership), and clinical operations (Chaudoir, Dugan & Barr, 2013). Therefore, we target five different domains.

Component #1: Stakeholder Development. Implementation of new clinical procedures that cross over systems of care will only be successful if a wide group of stakeholders support the project and has input on development, implementation and evaluation. Therefore, this is the first step in our implementation plan.

Component #2: Medical Staff Training in Suicide Risk Assessment. Medical staff feel they lack adequate training in suicide risk assessment (Feldman et al., 2007; Mann & Tylee, 1998) and mental health in general. Therefore, we educate PCPs in suicide risk assessment using the Recognizing and Responding to Suicide Risk in Primary Care-Youth program (RRSR-PC-Y), developed by the American Association of Suicidology (AAS). This is now a 90-minute web-based program for which providers receive Category 2 Patient Safety CME.

Component #3: Web-based, Standardized Assessment of Suicidal Patients. Even with education, most medical and health professionals do not have the time or skills to accurately identify suicidal risk. Therefore, we developed the Behavioral Health Screen (BHS; Diamond et al, 2010). (See below)

Component #4: Family and Patient Engagement. A critical challenge for medical staff is what to say to patients and parents once treatment is indicated (Spirito et al., 2002). To address this challenge, we borrow procedures from the first session of Attachment-Based Family Therapy (Diamond et al., 2010). These clinical strategies are purposefully designed to engage teens and parents as well as to motivate them to engage in treatment.

Component #5: Increase Collaboration Across Systems of Care. Medical and behavioral health providers typically have minimal communication (Knesper, 2010; Ballard et al., 2008). To narrow this gap, we use procedures identified in the Preventing Suicide in Rural Primary Care Tool Kit (SPRC, 2009) and the mental health tool kit, developed by the American Association of Pediatrics (AAP, 2012).

To date, this program has been implemented in 35 primary care practices, medical emergency departments, psychiatric emergency departments, college health centers, and schools. We have screened over 20,000 youth and continue to screen 500 new patients a month. Within our primary care screening systems we find that the majority of youth are between 14 and 16 years of age, 66% are female, 65% are Caucasian and the remaining percent are a mix of other racial groups. In general about 18% of youth report moderate to severe depression and 12% report a having suicide ideation some time in their lifetime. About 4.5% report current suicidal ideation and of those, 16% report having immediate access to a gun. Other descriptive data regarding substance use, eating disorder and other risk behaviors (risky sexual activity) will also be presented.

16.2 LESSONS LEARNED FROM A DECADE OF SUICIDE PREVENTION IN PRIMARY CARE

Matthew Wintersteen[1]

[1]Thomas Jefferson University

Despite recommendations from numerous national organizations and entities (e.g., AAFP, AAP, National Action Alliance for Suicide Prevention), the integration of behavioral health services into primary care remains fraught with challenges. Thus, while recognizing primary care as an important gatekeeper for suicide prevention efforts, implementation is met with similar obstacles. This paper supplements Diamond (this symposium) by exploring the methodological, practical, and ethical barriers to this important work.

The physical and behavioral health communities operate in separate silos. Primary care providers (PCPs) are not only responsible for general health but also more heavily involved in specialty care when access issues arise. Suicide prevention is another initiative placed on their taxed agendas. Yet, there are many PCPs with ties to suicide, and most have a strong desire to reduce suicide attempts and deaths. Behavioral health providers (BHPs) fear losing professional autonomy by joining medical homes. This paper will highlight strategies to building these collaborations under a larger umbrella of positive mental health promotion, including developing relationships with provider organizations, speaking at professional meetings, and developing partnerships with state leadership in health care.

Key linkages between the PCP community and BHPs are needed. PCPs fear that the behavioral health system is inadequate and unable to support their efforts (Diamond et al., 2012) while also concerned that BHPs hide behind HIPAA and other guidelines that may interfere with open communication. Those same BHPs often fail to see PCPs as key referral sources. We have discovered that assisting these two entities to see value in this process while not imposing demands and mandates over their roles helps generate collaboration. Relationship building enables PCPs to be more confident in their referrals.

PCPs need adequate training in the management of suicidal individuals. PCPs seek knowledge but also tools to support their work. On the practical side are considerations such as cost, accessibility, who should be trained, and when this will occur. Each practice has its own solutions. Some common successes include providing training support, building training into general practice meetings (before or after work, or during lunch), and utilizing web-based training programs.

Finally, our project highlights a behavioral health screening tool. This raises practical and ethical considerations. The largest barrier to full implementation of our project is reimbursement. State and federal insurance providers are beginning to reimburse for depression and substance abuse screening. Utilizing a tool that allows for such billing improves compliance. Other screening barriers involve technological challenges (including access to EMR), cost, workflow, and legal concerns over the responsibility for managing care.

The Behavioral Health Works model has shown great promise for identifying youth at risk for suicide. Flexible and persistent efforts targeted at stakeholder development, improving linkages to behavioral health services, training, and screening have yielded these results.

16.3 INSIDE THE BEHAVIORAL HEALTH SCREEN

Tita Atte[1]

[1]Drexel University

This presentation will discuss the detailed workings of the Behavioral Health Screen itself. At the core of BH-Works program is the Behavioral Health Screen (BHS) assessment tool. This is a web based, comprehensive screening tool that targets thirteen different behavioral health domains in 7 to 10 minutes. The BHS has strong psychometric support and has been validated for youth and adults, ages 12 and above. BHS is a validated screening tool designed specifically for multiple healthcare settings and been deployed into primary care, emergency departments, colleges/universities, and schools. It goes beyond most screening tools by offering a full psychosocial assessment on a self-report, web-based system that scores the data for busy clinicians. The BHS can be administered when a patient/student is identified as "at-risk" or as part of regular universal screening for all patient/students.

The BHS contains 61 core items and 40 follow-up items that assess 13 scales. In addition to patient demographics, BHS assesses 13 domains including school, family, safety, substance abuse, sexuality, nutrition and eating, anxiety, depression, suicide, psychosis, trauma, and bullying. These domains cover all the best practice recommendation from the AAP for a wellness visit. Responses typically range from 0 (no symptoms) to 2 (severe symptoms). After completion, data from the BHS are scored and a report is immediately generated that includes scaled scores.

The screen is usually administered as a kiosk model in the waiting or exam room. Medical staff log the patient onto the system and then the patient completes the screen as a self-

report tool. All items must be completed, although patient can chose to not answer by indicating they do not know or do not want to answer. When they done, the web site automatically scores the items and generates a report that prints out in a nursing station. The medical examiner ideally reads the report before meeting with the patient. The report should be used to guild the interview and should not be considered diagnostic information by itself. The BHS is the beginning of the intervention, not the end. The BHS data is saved and stored in a HIPAA compliant protected database where it can later be accessed or transferred into the electronic medical record (EMR) or other systems.

A unique feature of the BHS is the capacity to aggregate identified or deidentified data. At the patient level, the BHS can be repeated and will generate graphs of patient data over time. At the de identified level, the data can be aggregated by provider, office, hospital, county or state, thus allowing for a powerful information management system permitting administrators to monitor patient changes and psychiatric trends in the community.

This presentation will cover the procedures and challenges of implementing the BHS itself, training of providers, interpretation of the report and how to use software within the tool to look at larger trends in the data.

16.4 SCIENTIFIC CONTRIBUTIONS OF THE BEHAVIORAL HEATH SCREEN

Joanna Herres[1]

[1]Drexel University

This presentation will cover the scientific support and findings from the aggregated BHS data. The BHS has undergone vigorous empirical tests to evaluate its psychometric properties. One study (Diamond et al., 2010) demonstrated that the BHS scales were unidimensional, internally consistent (α = .75–.87), and capable of discriminating among adolescents with a range of diagnostic symptoms. Scales for depression, suicide, anxiety, and posttraumatic stress disorder (PTSD) were psychometrically comparable to well-validated scales. Another study that used item response theory found further support for the use of the BHS to identify adolescents with internalizing symptoms (Bevans et al., 2012). These studies show that the BHS is a psychometrically sound screening tool for use in primary care.

Further research on the BHS has examined relationships among the psychiatric scales and other risk factors. One study used recursive partitioning to reveal that current depression and history of alcohol use best differentiated youth engaging in NSSI with low versus high risk for suicidal ideation and attempts (Jenkins et al., 2014). Another used latent class analysis to identify constellations of known risk factors (Diamond et al., under review). Response patterns on 20 BHS items, particularly those measuring current substance use, history of sexual assault, history of same-sex behavior, and unsafe sex, differentiated teens who reported recent and lifetime suicidality from those who did not. Yet another study found that youth who reported past year but not current suicidal ideation engaged in risky behaviors to the same degree as youth who reported current suicidal ideation, suggesting the value in assessing past suicidal ideation among youth not currently suicidal (Singer et al., 2013). The BHS has also been used to examine risk for eating disorders amongst lesbian, gay, bisexual, and questioning individuals (Shearer et al., under review).

In addition to describing the empirical findings of the BHS, the presentation will discuss implications for its clinical utility. The research demonstrates how medical providers can identify youth who would benefit from more intensive assessment and intervention for

behavioral health concerns. We will also describe plans to test whether these findings replicate in samples of youth presenting to urban emergency departments.

17. CELLS TO CIRCUITS: NEUROBIOLOGY OF SUICIDAL BEHAVIOR

Chair: Charles Nemeroff, University of Miami Miller School of Medicine

17.1 BIOMARKERS RELATED TO AN ENHANCED SENSITIVITY TO SOCIAL EXCLUSION

Philippe Courtet[1], Joel Swendsen[2], Emilie Olié[1]

[1]University of Montpellier, [2]University of Bordeaux

Nearly all suicide victims experienced adverse life events (interpersonal conflict, job and financial problems, bereavement) in the year before their death, the incidence of suicide decreased with increasing social integration, and suicide attempters are more often isolated.
This social context leads to feelings of social exclusion, which in turn may lead to suicidal ideation [1]. Conversely, randomized intervention trials suggest a reduction of suicidal behaviour (SB) by enabling at-risk individuals to feel more connected to others. We hypothesize that the sensitivity to social exclusion may represent a core component of the suicidal vulnerability. People who are more sensitive to experiences of social disconnection may activate specific brain areas, which may be associated with inflammatory activity and psychological pain, which in turn lead to a greater risk of developing SB [2]. Our group and others found that: (i) impaired decision-making, a cognitive trait of SB, was correlated with troubled affective relationships [1]; (ii) suicide attempters were less sensitive to positive social cues and more sensitive to signals of rejection (fMRI) [1]; (iii) an increased perception of psychological pain contribute to SB [3]; (iv) painful feelings of social disconnection partly rely on the same neurobiological substrates as SB; (v) pro-inflammatory cytokine release are present both in threats to social connection and SB [2,4,5]; (vi) repeated daily assessments with mobile technologies showed that suicidal patients are specifically sensitive to social stressors [6]. The merging of social neuroscience and immunological perspectives may help to study the strong link between social ties and suicide, and may provide biomarkers of sensitivity to social exclusion and SB.

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17.2 NEUROIMAGING OF SUICIDE-RELATED BRAIN CIRCUITS

Kees van Heeringen[1]

[1]Ghent University

Uncovering the neural basis of suicidal behavior may contribute to the understanding, detection and treatment of the vulnerability to suicidal behavior. Postmortem and early imaging studies have identified suicide-related changes in cortical and subcortical brain areas based on which a network-based diathesis to suicidal behavior has been suggested. Advances in imaging provide the opportunity to study the brain as a complex, integrative network and its involvement in the processing of emotional responses to salient stimuli. Recent studies have focused on structural and functional network connectivity (the 'connectomic' approach) that is valuable for the study of diagnostic biomarkers and treatment evaluation. Network analyses of structural data demonstrate structural connectivity disturbances in association with suicidal behavior. Resting-state and task-dependent functional connectivity studies show abnormalities in neural circuitry implicated in emotional processing in self-harm and attempted suicide patients. Remarkably, functional connectivity may normalize following self-injurious behavior. While the relationship between structural and functional disturbances still is unclear, the findings suggest that functional abnormalities are related to gray and white matter deficits, which may thus lead to the maladaptive cognitive processes commonly involved in suicidal behavior.

17.3 NON-CODING RNAS: IMPLICATIONS FOR SYNAPTIC PLASTICITY, STRESS, AND SUICIDE PATHOGENESIS

Yogesh Dwivedi[1]

[1]University of Alabama at Birmingham

miRNAs are small non-coding RNA transcripts, which by binding to the 3' UTR of specific mRNA targets, regulate their translation and/or stability. In this presentation, the role of miRNAs in synaptic plasticity, susceptibility/coping to stress response will be discussed using data from human postmortem brain and animal model studies. miRNA expression was studied in postmortem brain of depressed suicide subjects and healthy normal controls by deep sequencing. Role of microRNAs in synaptic plasticity was studied by examining miRNA expression in total and synaptonerosome fractions of human postmortem brain. To dissect the role of miRNAs in stress pathophysiology, we examined miRNA expression in brain of rats given chronic administration of exogenous corticosterone (CORT) as a means to study the elevated CORT levels that would occur as a consequence to stress exposure. We found a global downregulation of miRNAs in depressed subjects. Many of them were synaptically enriched and encoded at nearby chromosomal loci, shared motifs within the 5'-seeds, and shared putative mRNA targets. In addition, we found a dramatic reorganization of microRNAs in a coordinated and cohesive fashion in depressed subjects. Animals given chronic CORT administration showed key behavioral features that resembled phenotypic characteristics of clinical

depression. miRNA microarray expression analysis revealed differential regulation of 26 miRNAs in PFC of CORT-treated rats. Chromosomal coordinates, seed sequences and transcriptional units for these altered miRNA show very strong overlapping patterns indicating that the CORT response occurred in a coordinated manner. Eight significantly affected miRNAs were encoded at adjacent genomic positions, and presumably arose from the same primary miRNA gene transcript or even from the same pre-miR hairpin precursor. Further analysis examining interaction between altered miRNAs and target genes showed a very dense affected molecular network. To examine the phenotypes associated with miRNA changes, we performed mapping of genes that are predicated to be affected by CORT-induced altered miRNAs to known human diseases and disorders. The results revealed top 5 disorders including behavior, developmental disorder, inflammatory response, protein degradation, and psychological disorders. Analysis of the two most significantly affected miRNAs miR-124 and miR-218 showed target genes that have been reported to be associated with stress-related disorders. Altogether, our studies show that miRNA dysregulation of key gene networks may be critical in stress-induced behavior including suicidal behavior.

17.4 GENETIC VULNERABILITY, TIMING OF SHORT-TERM STRESS AND MOOD REGULATION IN DEPRESSION AND SELF INJURY

Gil Zalsman[1], Avihay Gutman[2], Liat Shbiro[3], Ruth Rosenan[3], John Mann[4], Aron Weller[3]

[1]Geha Mental Health Center, Sackler School of Medicine, Tel Aviv University, Israel, [2]Tel Aviv University, [3]Bar Ilan University, [4]Columbia University & New York State Psychiatric Institute

Early stressful life events predict depression and anxiety in carriers of specific polymorphisms and alter brain responses but brain structural phenotypes are largely unknown. We studied the interaction between short-term stress during specific time-windows and emotion-regulation using a genetic animal model of depression, the Wistar-Kyoto (WKY) rat. Brain structural alterations were analyzed using Diffusion Tensor Imaging (DTI). WKY (n=49) and Wistar (n=55) rats were divided into experimental groups: Early stress (ES): From postnatal day (PND) 27 rats were exposed to three consecutive days of stressors; Late stress (LS): From PND 44 rats were exposed to the same protocol; Control: No stressors. From PND 50, all animals were behaviorally tested for levels of anxiety- and despair-like behaviors and then scanned. Gene x Environment x Timing (GxExT) interactions ($p=0.00022$ after Hochberg correction) were found in ventral orbital cortex, cingulate cortex, external capsule, amygdala and dentate gyrus and in the emotion regulation measures. WKY showed longer immobility in forced swim test, but no effect of ES was detected. ES increased open-field anxiety-like behaviors in Wistar rats but not in WKY, possibly indicating a ceiling effect in WKY. Stress in pre-pubertal or adolescent phases in development may influence structural integrity of specific brain regions and emotion regulation behaviors depending on genetic vulnerability, consistent with a GxExT interaction in mood dysregulation (Eur Neuropsychopharmacology. in press)

18. CHILDREN AND ADOLESCENTS AT RISK

Chair: Jill Harkavy-Friedman, American Foundation for Suicide Prevention

18.1 IDENTIFYING YOUTH AT RISK FOR SUICIDE IN THE EMERGENCY DEPARTMENT

Cheryl King[1], David Brent[2], Jacqueline Grupp-Phelan[3]

[1]University of Michigan Medical School, [2]UPMC/ Western Psychiatric Institute & Clinic, [3]Cincinnati Children's Hospital Medical Center

Despite the fact that suicide is a leading cause of death among adolescents, most youth at high risk for suicide go unrecognized and untreated, and for half of adolescent suicides, the first suicide attempt is fatal.

The emergency department (ED) is a particularly promising venue for adolescent suicide risk screening as it is a common portal into mental health services. Approximately one-third of all adolescents visit the ED each year, and adolescents are the age group most likely to present to the ED for suicide attempts and NSSI. This presentation will provide a brief update of research findings pertaining to youth suicide risk screening in the ED, highlighting four primary challenges: (1) sensitivity and specificity (the problem of false positives), (2) the identification of risk in adolescent boys and others who may not present with suicidal ideation or a suicide attempt, (3) the identification of risk in adolescents who may be motivated to deny or conceal suicidal thoughts, and (4) the heterogeneity of risk factors for suicide, which can result in extended screening scales. The limitations of "static" screening scales and the advantages of computerized adaptive screening will be described. Finally, the presentation will provide a brief overview of a recently launched large-scale study, Emergency Department Screening for Teens at Risk for Suicide (ED-STARS). The primary goals of this research project are to develop and validate a personalized adolescent suicide risk screening tool, using computerized adaptive testing, that can be used in large numbers of EDs to accurately identify youth at elevated suicidal risk.

18.2 TREATMENT OF SELF-HARM IN ADOLESCENTS - WHAT WORKS?

Lars Mehlum[1]

[1]National Centre of Suicide Research and Prevention, Institute of Clinical Medicine, University of Oslo

According to population studies 5-10% of adolescents report past-year self-harm (nonfatal self-poisoning or self-injury with or without suicide intent), with cutting as the most commonly reported method. Although a very common motive for self-harm in adolescents is to get relief from strongly negative emotions, many self-harm episodes are, nevertheless, motivated by a wish to die. A large proportion of adolescents who have self-harmed, receive no treatment for their emotional and behavioral problems. Among those adolescents who have indeed been referred to specialized care, many drop out prematurely because of their treatment interfering behaviors or lack of support from families or clinical services. Self-harm is a powerful predictor of completed suicide. There is thus a strong need to develop effective interventions that are accessible and acceptable to self-harming adolescents and their families, as well as feasible to deliver in community mental health settings. This has been the aim of substantial amounts of research published over the last two decades, but the first trials to demonstrate effectiveness of

treatments in preventing repetition of self-harming and suicidal behavior have emerged only during recent years. Among these are the so-called integrated cognitive behavior therapy (iCBT) combining standard CBT with motivational interviewing and family therapy targeting parent-adolescent communication; this seems to reduce the risk of suicide attempts in suicidal and cannabis or alcohol abusing adolescent inpatients (Espositio-Smythers C. 2011). A year of weekly individual sessions and monthly sessions of mentalization based therapy (MBT) has, furthermore, been found to reduce the rate of self-harm repetition in adolescents with borderline traits and at least one episode of self-harm over the last month (Rossouw and Fonagy 2012). Nineteen weeks of dialectical behavior therapy adapted for adolescents (DBT-A) with borderline traits was found to lead to significant reductions in the number of self-harm episodes during the treatment and at 12 months follow-up in adolescents with recent and repetitive self-harm (Mehlum et al. 2014). These clinical interventions have all been able to demonstrate efficacy with respect to the risk of overt self-harm behaviors although none of the trials have so far been replicated. Among important aspects of efficacious interventions addressing self-harm in adolescents seem to be improving family and parental functioning, teaching skills in interpersonal functioning and emotion regulation, fostering an increased ability to observe and describe behaviors in terms of emotions and thoughts, strengthening treatment adherence and motivation for change and providing validation and social support.

Whereas treatment research with suicidal and self-harming adolescents and their families remains one of the most complex and demanding tasks clinical researchers can undertake, a lot of progress has been made over recent years that gives reason for treatment optimism provided we are able to disseminate the new knowledge into routine clinical practice in the many contexts self-harming adolescents are encountered.

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18.3 SUICIDE IN CHILDREN AND ADOLESCENTS: THE GLOBAL PICTURE

Diego de Leo[1], Kairi Kolves[1]

[1]Griffith University

The recent World Health Organization's report Preventing Suicide: A Global Imperative (2014) has shown that suicide represents the second cause of death among individuals aged 15-29 years, but in girls aged 15-19 years suicide constitutes the first cause of death worldwide. Despite smaller numbers, suicide is also a leading cause of death in children younger than 15 years of age. Not all countries report data on this age group. The very WHO has commenced publication of them in1 999, breaking the silence that traditionally surrounded this

demographic age group. Yet, many jurisdictions deliberately avoid publishing data on children suicide; others – such as Australia – aggregate data on a five-year basis, trying to limit identification of individual cases. In addition, many coroners appear reluctant (for various reasons) to close a case as suicide when the age of the subject is particularly young. Thus, it is possible that under-reporting of suicide in individuals under the age of 15 years can reach a significant dimension in a number of countries.
This presentation will show recent trends of international suicide rates in children based on data retrieved from the WHO Mortality Database and the World Bank Dataset. Only countries with suicide data for at least 5 years per decade are included in the examination. Remarkable differences in suicide rates between regions and countries do exist even if mortality registration procedures might justify a proportion of these differences for some countries. Rates of suicide in children appear particularly critical in some countries of South America (namely Guyana and Suriname) and in some former USSR republics, such as Kazakhstan, Kyrgyzstan and Russia.

18.4 UNIVERSAL INTERVENTION AND POPULATION BASED PREVENTION APPROACHES

Holly Wilcox[1]

[1]Johns Hopkins University School of Medicine

In the United States suicide was the second leading cause of death among 15 to 19 year olds in 2013 (Centers for Disease Control and Prevention [CDC], WISQARS, 2015). According to estimates extrapolated from the CDC's national Youth Risk Behavior Surveillance System, well over one million high school students are treated by a nurse or doctor annually for a suicide attempt (National Action Alliance for Suicide Prevention, 2014). Very few evidence-based 'upstream' suicide prevention programs exist. Most existing programs involve case-finding and responding to those already in crisis. This presentation will discuss the evidence-base on existing approaches such as Gatekeeper Training, Universal Screening, Skill Building Interventions, and Means Restriction. Several unanswered questions remain regarding the effectiveness of youth suicide prevention approaches. Current initiatives will be discussed which aim to facilitate the use of data and health information technology to support public health and population-based suicide prevention efforts.

19. ADVANCING THE PREDICTION AND PREVENTION OF SUICIDAL THOUGHTS AND BEHAVIORS

Chair: Jessica Ribeiro, Harvard University
Moderator: Thomas Joiner, FSU

Overall Abstract: The goals of the three projects described in the present symposium were to (a) advance knowledge about risk factors for suicidal thoughts and behaviors and (b) create a novel treatment based on this knowledge that has the potential to be distributed on a very large scale for very little cost.
In the first talk, we will present data from a meta-analysis of all studies that have ever attempted to predict suicide ideation, suicide attempt, or suicide death. This analysis spanned 50 years,

346 studies, and 4,062 separate predictors. Results revealed many surprising and sobering findings for all outcomes, including: (1) overall prediction was only slightly better than chance; (2) no specific risk factor category (e.g., prior attempt) predicted substantially better than chance; (3) risk factor magnitude and accuracy have not improved since the inception of suicide research; (4) there were very few short-term prediction studies (i.e., one month or less) and no acute prediction studies (i.e., less than one week), and longer follow-ups were associated with poorer prediction. These results demonstrate the need for novel risk factors and short-term prediction studies.

In our second talk, we will present data from a project that addresses these critical gaps in the existing risk factor literature. This project included 510 high risk participants and assessed self-injurious thoughts and behaviors on a weekly basis for four weeks and on a monthly basis for four months. Results revealed that several novel factors were strong risk factors for future suicidal thoughts and behaviors, including: implicit affect toward self-injury, suicide, and death; implicit affect toward the self; and agitation and insomnia. Shorter intervals tended to produce stronger prediction.

In our third talk, we will present data from a project that targets some of these novel risk factors within a brief game-like phone app treatment. This new treatment is called Therapeutic Evaluative Conditioning (TEC) for Self-Injurious Behaviors and it has two major treatment targets. First, TEC uses evaluative conditioning techniques to condition a more positive association with the self; second, TEC uses these same techniques to condition a more negative association with self-injury, death, and suicide-related stimuli. We compared this treatment version of TEC to a control version in three separate randomized control trials. The first study included 110 young adults with a past month history of self-injury and/or suicidal behaviors. Even after controlling for past week and past month self-injurious thoughts and behaviors, intent to treat analyses revealed significant reductions in the active treatment group for nonsuicidal self-injury, suicide plans, and suicidal behavior (40-90% reductions) across weekly and monthly analyses. These findings were replicated in a second study with 130 past-month self-injurers and a third study with 200 individuals with a past year suicide attempt. TEC is an effective treatment that has the potential to be released on a population level for very little cost; accordingly, TEC has the potential to stimulate a large-scale reduction in suicidal behaviors.

19.1 RISK FACTORS FOR SUICIDAL THOUGHTS AND BEHAVIORS: A META-ANALYSIS OF 50 YEARS OF RESEARCH

Joseph Franklin[2], Kathryn Fox[2], Jessica Ribeiro[3], Evan Kleiman[2], Kate Bentley[4], Tianyou Qiu[5], Bernard Chang[6], Matthew Nock[2]

[2]Harvard University, [3]Military Suicide Research Consortium; Harvard University, [4]Boston University, [5]University of Cambridge, [6]Columbia University

Suicidal thoughts and behaviors are major public health problems. Despite steady advances in psychological and medical science, rates of these phenomena have remained nearly constant for several decades. One of the first steps to improving the prevention and treatment of these thoughts and behaviors is to establish risk factors (i.e., longitudinal predictors). To provide a summary of current knowledge about risk factors, we conducted a meta-analysis of all risk factors from all studies that have ever attempted to longitudinally predict a specific suicide-related outcome. This included 332 studies (4,062 total prediction cases) from the past 50 years.

The present meta-analysis produced several surprising and sobering findings. In terms of odds ratios, hazard ratios, and diagnostic accuracy statistics, overall prediction was only slightly better than chance for all outcomes, and near chance when publication bias was considered. For example, weight mean odds ratios were 1.12 for suicide ideation, 1.20 for suicide attempt, and 1.12 for suicide death. Given that the absolute odds of suicidal behavior during a given year in the United States are very low (e.g., .000129 for suicide death), increasing these odds by 12-20% has little clinical utility. These findings were consistent with diagnostic accuracy analyses, which produced weighted AUCs of .58 for suicide attempt and .56 for suicide death. These poor AUCs were due to moderate specificity levels and very poor sensitivity levels. In other words, current risk factors identify many true negative cases and almost no true positive cases. Moreover, the low base rates of suicidal behaviors and risk factors artificially inflate the true negative rate (i.e., specificity). Results indicated that random prediction according to base rates was superior to prediction with current risk factors.

Risk factors have been highly homogeneous across the past 50 years, with five broad risk factor categories (demographics, internalizing psychopathology, externalizing psychopathology, prior suicidal behavior, life events) accounting for nearly 75% of risk factors. No broad risk factor category predicted far above chance levels, and no risk factor category approached clinical significance for any outcome. Additionally, results showed that the average study was nearly 10 years long, but longer studies were not associated with better prediction.

Although the number of studies have increased exponentially over the past five decades (60% of relevant studies were published in the last 10 years), overall risk factor magnitude and accuracy have significantly decreased during this time. Similarly, risk factors have become more homogenous, with the five risk factor categories noted earlier accounting for 70% of risk factors during the first decade of suicide risk factor research and 80% of risk factors during the last decade. In other words, the present meta-analysis shows that the rapid rise in research has not translated into novel risk factors or improved prediction of suicidal thoughts and behaviors.

19.2 SHORT-TERM PREDICTION OF SUICIDAL THOUGHTS AND BEHAVIORS

Jessica Ribeiro[1], Joseph Franklin[1], Kathryn Fox[1], Evan Kleiman[1], Matthew Nock[1]

[1]Harvard University

As one of the leading causes of injury and death worldwide, suicidal behavior represents a tremendous public health problem. Each year, suicide claims the lives of nearly one million people. This figure is in addition to 10-25 estimated nonfatal attempts for every death. The scope and urgency of the problem have prompted drastic increases in research. Results of these efforts have been largely ineffective, however. According to a recent comprehensive meta-analysis of all prospective studies predicting suicidal thoughts or behaviors, our ability to predict suicide remains weak and virtually unchanged.

A substantial pitfall of research has been that the vast majority has focused on the prediction of eventual death by suicide. This is a major problem because clinicians are typically tasked with determining whether an individual is at risk of imminent suicidal behavior. It is therefore alarming that we know virtually nothing about that critical time period. Of all prospective studies to date, less than 1% involve follow-up periods of less than one month and no studies have examined risk over less than one week. Although recommendations about "warning signs" for imminent suicidal behavior exist, they were primarily derived from expert clinical

consensus. Moreover, there have been no empirical efforts to test their short-term predictive validity as indicators of imminent suicidal behavior.

The aim of the present project was to address several critical gaps in the existing risk factor literature. Specifically, we examined the predictive power of several novel risk factors over the course of one-week and one-month intervals in a sample of 510 high-risk self-injuring participants. Self-injurious thoughts and behaviors were assessed on a weekly bases for four weeks and monthly basis for four months. Several novel indicators emerged as strong predictors for future suicidal ideation, plans, and attempts. These indicators included: heightened arousal symptoms (i.e., agitation, insomnia), capability for suicide, implicit affect toward self-injury, suicide, and death, and implicit affect toward the self. Over one week, agitation (OR=28.30), insomnia (OR=7.62), and capability for suicide (OR=12.16) significantly predicted ideation. Agitation (OR=75.53), insomnia (OR=41.12), capability for suicide (OR=52.03), and implicit affect toward death/suicide (OR=1.59) also significantly predicted plans over a one week interval. Effects over one month were similar, though attenuated. The only predictor at baseline that significantly predicted suicide attempts over the course of the study was capability for suicide (OR=68.47).

Taken together, results suggest that several novel factors may be strong and clinically useful risk factors for suicidal thoughts and behaviors, especially over the short-term.

19.3 A NOVEL PHONE APP SUBSTANTIALLY REDUCES SELF-INJURY, SUICIDE PLANS, AND SUICIDAL BEHAVIORS: EVIDENCE FROM THREE RANDOMIZED CONTROL TRIALS

Joseph Franklin[1], Kathryn Fox[1], Christopher Franklin[1], Jessica Ribeiro[2], Evan Kleiman[1], Jill Hooley[1], Matt Nock[1]

[1]Harvard University, [2]Military Suicide Research Consortium; Harvard University

Millions of people worldwide engage in suicidal behaviors each year. Yet most of these individuals do not access treatments, and most of those who do access treatments do not appear to benefit from them. Although the evidence is mixed, randomized control trials suggest that some interventions may be potentially efficacious for the prevention of suicidal behaviors. Unfortunately, the face-to-face format of these interventions greatly limits their ability to impact rates of suicidal behaviors on a population level. Major barriers such as availability, cost, time, patient effort, and stigma make it difficult for many people to access these treatments. One potential solution is to retrofit promising traditional treatments into new technologies (e.g., smartphone apps); however, much is lost in this translation. Our solution was to develop a phone app treatment that is novel, brief, game-like, and highly effective.

We call our treatment Therapeutic Evaluative Conditioning (TEC) for self-injurious behaviors. TEC draws on evaluative conditioning techniques to change associations with stimuli and concepts. TEC is essentially a matching game that becomes more challenging over time and awards points for faster and more accurate performance. It takes 1-2mins to complete one instance of TEC. Based on our recent risk factor studies, we designed TEC to normalize two aberrant associations that strongly predict future self-injurious behaviors: (1) a negative association with the self; and (2) a positive association with self-injury, suicide, and death. We have tested this novel intervention in three randomized control trials.

In study one, we recruited 115 people who reported self-injury during the past month. Participants were randomly assigned to receive either the active version of the app (described

above) or a control version (only included neutral pictures). Participants were allowed to play the apps as much as they desired over a one month period. Self-injurious thoughts and behaviors were assessed at the end of this month. Compared to the control group, the active treatment group reported significantly less nonsuicidal self-injury (39% reduction, $p<.001$), suicide plans (67% reduction, $p<.001$), and suicidal behaviors (49% reduction, $p =.08$). These effects remained after controlling for past month self-injurious behaviors, psychopathology, and many other variables. Greater use of TEC was associated with larger treatment effects. We replicated these findings in a second study with 130 recent self-injurers, with a 36% reduction in nonsuicidal self-injury, 37% reduction in suicide plans, and 65% reduction in suicidal behavior (all $ps<.001$). We again replicated these findings in a third study of 200 people with a past year suicide attempts. Results showed a 43% reduction in nonsuicidal self-injury, 32% reduction in suicide plans, and an 85% reduction in suicidal behaviors (all $ps<.001$).

These three studies indicate that TEC is a highly effective treatment that can be easily disseminated on a population level.

20. ADAPTING INTERVENTIONS FOR SUICIDAL YOUTH: CONSIDERATION OF COMOBIDITY, CULTURE, AND SETTING

Chair: Christianne Esposito-Smythers, George Mason University
Moderator: Anthony Spirito, Alpert Medical School, Brown University

Overall Abstract: Adolescent suicidal behavior and substance use disorders commonly co-occur among adolescents. Our research group has successfully developed an integrated family based cognitive–behavioral treatment protocol for adolescents with co-occurring suicidality and substance use disorders. When compared to enhanced standard care delivered by community based therapists, this integrated treatment protocol was associated with lower rates of suicide attempts, binge drinking, marijuana use, emergency room visits, and inpatient hospitalizations (Esposito-Smythers, Spirito, Kahler, Hunt, & Monti, 2011, JCCP). Due to the success of this trial, this protocol has been adapted for use with suicidal youth across multiple settings. The primary purpose of this symposium is to describe the treatment development process for each adaptation and lessons learned through these experiences. Dr. Esposito-Smythers will describe how this protocol was adapted into a family based suicide, substance abuse, and HIV prevention workshop for adolescents in mental health treatment. She will also present results from a randomized clinical trial designed to evaluate this program. Dr. Kimberly O'Brien will describe how components of this protocol were adapted into a brief intervention for adolescents psychiatrically hospitalized for a suicide attempt who have comorbid alcohol use. She will also present preliminary results of her pilot trial. Dr. Yovanska Duarté-Vélez will discuss how this protocol was adapted to best meet the needs of Latina youth, and will provide an overview of pilot data obtained from families. Dr. Jennifer Wolff will discuss how this protocol was adapted for clinicians in the community who deliver intensive outpatient home-based services. She will present preliminary results of a randomized clinical trial comparing this adapted intervention to standard care. Dr. Anthony Spirito will serve as the discussant for this symposium and lead the question and answer period.

20.1 THE DEVELOPMENT OF A SUICIDE, ALCOHOL, AND HIV PREVENTION PROGRAM FOR TEENS IN MENTAL HEALTH TREATMENT

Christianne Esposito-Smythers[1], Wendy Hadley[2], Larry Brown[2], Timothy Curby[1]

[1]George Mason University, [2]Alpert Medical School of Brown University

Youth in mental health treatment are at heightened risk for suicidal behavior, alcohol abuse, and risky sexual behavior. Moreover, these three behaviors commonly co-occur among high-risk youth. In this presentation, the development and testing of an adjunctive family-based cognitive-behavioral suicide, alcohol, and HIV prevention workshop for adolescents in community based mental health treatment will be described. This workshop was created by integrating core components of two evidence-based, theoretically consistent, intervention protocols, including a treatment for adolescents with co-occurring suicidality and substance use disorders (Esposito-Smythers, Spirito, et al., 2011) and an HIV prevention program (Brown, Hadley, et al., 2014). This workshop was 12 hours in length and delivered over the course of two consecutive weekends. The workshops included separate adolescent and parent groups, which merged for joint family exercises. There was also one brief individualized booster session, designed to reinforce the use of skills developed during the workshop. Two masters level interventionists led each group. Broadly, the workshops included psychoeducation delivered in a fun and interactive format, the development of risk prevention plans, skills training (communication training, affect management, parental monitoring, condom use) around high risk areas, and the provision of community based resources for adolescents and families.

A small randomized clinical trial was conducted to compare this prevention workshop to an assessment only control condition. Assessments were completed at pre-intervention as well as 1, 6, and 12 months post-enrollment. Eighty-one adolescents (Mage = 15.4) in mental health treatment and a parent participated in this trial. The prevention program was found to be associated with lower odds of deliberate self-harm, greater odds of refusal of sexual intercourse to avoid a sexually transmitted infection, and a trend toward lower odds of binge drinking at 12 but not 6 month follow-up, relative to the assessment only control condition. No significant differences were found in odds of any suicidal ideation, alcohol use, or sexual intercourse across groups. The prevention program was also successful in improving the primary proximal intervention targets, including parent-child communication around all three high-risk behaviors and adolescent perceptions of parental disapproval of alcohol use and sexual behavior. The results of this trial suggest that further development of adjunctive family based protocols that target multiple high-risk behaviors is warranted. Strengths and shortcomings of this protocol, which will be discussed in detail, may help inform future prevention efforts in this area.

20.2 DEVELOPING AND TESTING A BRIEF ALCOHOL INTERVENTION FOR ADOLESCENTS IN INPATIENT TREATMENT WHO HAVE ATTEMPTED SUICIDE

Kimberly O'Brien[1], Erina White[2], Anthony Spirito[3]

[1]Simmons College, [2]Simmons School of Social Work, [3]Alpert Medical School of Brown University

Adolescent inpatient psychiatric units most often only cursorily address alcohol use because of the short length of stay, making suicide risk the primary focus of treatment. Given the significant role alcohol plays in subsequent suicide-related behaviors, greater attention to alcohol use in adolescent inpatient psychiatric settings is critical. The purpose of this study was

to develop and test the feasibility and acceptability of a brief motivational enhancement therapy (MET) in an inpatient psychiatric unit with adolescents who have attempted suicide and have comorbid alcohol use.
The MET is a 60-90 minute session which includes the following components: establishing rapport, assessing and enhancing motivation for change, envisioning the future, establishing and completing goals, and change plan worksheets. The protocol was specifically adapted for this study to address alcohol use as a risk factor for continued suicide ideation, plans, and attempts. Additionally, personalized feedback is developed for the adolescents, designed to help them recognize the potential link between their alcohol use and suicide-related thoughts and behaviors, which they review with the interventionist during the session.

We conducted an open trial with 5 adolescent inpatients who had attempted suicide and reported alcohol use. We found that one session was an adequate amount of time to address the functional relationship between alcohol use and suicide-related thoughts and behaviors with the adolescent and to create goals, strategies, and a change plan to decrease alcohol use. However, we determined that adding a brief family session would be a feasible way to strengthen the protocol. Indeed, two of the adolescents spontaneously shared their personalized feedback with their parents without any prompting by the research staff or clinical team. Consequently, we added a 30-45 minute family session to the protocol in which the interventionist facilitates a discussion between the adolescent and his/her parent(s) about the adolescent's goals, strategies, and change plan for reducing alcohol use, focusing on specific ways in which the parent(s) can support the adolescent in the change process.

Five adolescents have been enrolled in a randomized pilot trial comparing the experimental intervention to treatment as usual (TAU) to date. Two of the five participants were randomized to the experimental intervention, and both completed the assessments, individual intervention (M = 76 minutes), and family intervention (M = 24 minutes) during their inpatient psychiatric hospitalization. These two adolescents and their families expressed particular satisfaction with the family component of the intervention in their exit interviews and session evaluation forms. Preliminary findings from the randomized pilot trial on feasibility and acceptability will be presented, as well as data exploring intervention effects on alcohol outcomes, suicidal ideation, suicide plans, and suicide attempts, relative to TAU.

20.3 ADAPTING A COGNITIVE-BEHAVIORAL PROTOCOL FOR SUICIDAL LATINO/A ADOLESCENTS IN PUERTO RICO AND THE USA

Yovanska Duarté Vélez[1], Paloma Torres Dávila[1], Gisela Jiménez Colon[2], Anthony Spirito[3]

[1]University of Puerto Rico, [2]University of Puerto Rico, [3]Alpert Medical School of Brown University

Latino/a adolescents in the US have been identified as at higher risk for suicidal ideation and attempts compared to other ethnic-gender groups (CDC, 2005-2014). This is particularly true of females. There are currently no evidence-based treatments for Latino/a adolescents with suicidal behavior. In this presentation, the development of a socio-cognitive behavioral treatment protocol developed for Latino/a adolescents in Puerto Rico will first be described. Then, the process of making adaptations for transporting the protocol to the US for use with Latino/a adolescents will be described including both qualitative interviews with clinicians and a small open trial.
The initial step in developing the protocol for use in Puerto Rico consisted of combining two CBT protocols with empirical evidence in different domains: one proven to be efficacious in

treating depression and suicidal ideation in Puerto Rican adolescents. This protocol was initially translated and adapted for Puerto Rican depressed adolescents (http://ipsi.uprrp.edu/pdf/manuales_tara/group_manual_eng.pdf) and has been used in three further randomized trials with this population (Duarté-Vélez & Bernal, 2012). The second protocol had positive outcomes in reducing suicide attempts in adolescents with major depression, substance abuse, and suicidality (Esposito-Smythers et al., 2011), but had not been translated into Spanish, nor adapted or tailored to the needs of Latino/a adolescents or other minority groups. The second step was to ensure that every session was culturally sensitive to ecological, family systems, developmental, and gender perspectives. The protocol was then tested in an open trial in Puerto Rico.

After testing in Puerto Rico, the protocol's applicability was expanded to the needs and realities of suicidal Latino/a adolescents living in the US. First, 10 interviews of clinicians working in Rhode Island were conducted to understand the challenges faced by providers in caring for Latino families and the challenges confronted by these families in receiving care. Interviews were transcribed, a code book was developed, and codification was completed with two coders per interview. A thematic analysis was performed. Two of the most salient themes will be discussed, Latino family challenges and the disconnect among family members, especially parents and teens. Following these interviews, adaptations to the protocol were made followed by a small open trial of the protocol. Descriptive results from the open trial will be discussed including effects of the intervention on treatment engagement and suicidal outcomes. The modified protocol developed takes into account cultural sensitivity and competency, and includes bilingual and bicultural material, all of which are critical to working with this population, particularly when parents or teens are first generation immigrants. The protocol will be tested in the future in a small RCT with suicidal Latino/as in the Northeast.

20.4 IMPLEMENTING A COGNITIVE BEHAVIORAL PROTOCOL FOR DUALLY DIAGNOSED ADOLESCENTS IN AN OUTPATIENT COMMUNITY MENTAL HEALTH CLINIC INTENSIVE OUTPATIENT PROGRAM

Jennifer Wolff[1], Elisabeth Frazier[2], Sara Becker[2], Christianne Esposito-Smythers[3], Anthony Spirito[2]

[1]Alpert Medical School, Brown University, [2]Brown University, [3]George Mason University

Mental health (MH) disorders are strongly related to and often precede the onset of adolescent substance use (SU) and SU disorders (SUDs). This presentation describes a randomized clinical trial comparing an evidence-based protocol, Cognitive Behavioral Therapy – Integrated (CBT- I), for adolescents with MH and SU disorders as well as suicidality, to standard care (SC), i.e. an eclectic mix of therapy techniques that includes use of CBT techniques. Both conditions are delivered by Masters level licensed mental health counselors at a community mental health clinic Intensive Outpatient Program that treats dually diagnosed adolescents who have failed prior outpatient therapy. Clinicians in the CBT-I condition receive weekly supervision that focuses on use of the CBT-I protocol. Clinicians in SC were trained in the CBT techniques used in CBT-I in a workshop and provided a manual. They then receive standard weekly supervision that is more eclectic in nature, i.e. supervisors recommend a broad range of techniques including cognitive – and less frequently behavioral – strategies without using a specific protocol.

The CBT-I protocol includes sessions for the adolescent as well as parent training and family sessions because parent-adolescent conflict is a risk factor for suicidality, MH, and SU

problems. The protocol is flexible enough so it can adjust to the inevitable fluctuation of primary treatment targets, e.g. MH vs SU, but also allows ongoing attention to both problems. It uses a synthesis of treatment principles with an emphasis on how impulsive behavior and affect regulation underlie both SU and MH problems. The core individual skills taught are affect regulation, problem solving/cognitive restructuring, impulse control, and behavioral activation. The rationale for focusing on core skills is that even the most difficult families to retain in regular treatment will have been exposed to 1-2 core therapeutic skills at a minimum if they terminate prematurely. Parenting training is the primary focus of the parent sessions. Separate therapists treat the parents and teenager in both conditions.

Due to the turnover so common in community mental health clinics, five masters level clinicians have been trained in the protocol to date. Based on coded videotaped sessions used for supervision, fidelity to the protocol averaged from 70% to 90% across the counselors. Average competency ratings ranged from slightly below criterion on the Cognitive Therapy Rating Scale to significantly above. Competency was significantly higher in the CBT-I than SC condition. Fidelity and competency ratings will be compared to the same ratings of doctoral level clinicians who participated in the original efficacy trial. Preliminary findings on symptomatology, including suicidality and suicidal behavior, from the first 90 patients randomized to the two conditions at 6 month follow-up up will be presented as will data on psychiatric hospitalizations and legal involvement.

21. PSYCHOSOCIAL INTERVENTIONS FOR SUICIDAL BEHAVIOR

Chair: Barbara Stanley, College of Physicians & Surgeons, Columbia University

21.1 INTERNET-BASED THERAPIES FOR DEPRESSION AND SUICIDALITY; POSSIBILITIES AND CHALLENGES OF AN EMERGING FIELD

Pim Cuijpers[1]

[1]EMGO Instituut/Leuphana University

Internet interventions have been proven to be effective for depression and anxiety disorders, and possibly suicidality and self-harm. A considerable number of randomized trials have shown that these interventions are equally or about equally effective as face-to-face therapies. Most research has been done in the treatment of depression and anxiety disorders, and much work still has to be done in the fields of suicide prevention and self-harm. Research is now focusing more on how to apply the knowledge that these interventions are effective in routine care. In this presentation an overview will be given of the research in these fields, and the different settings in which the aquired scientific knowledge about effectiveness and efficacy can be applied. Furthermore, a view on the future will be given, and the new generation of innovative technologies, such as mobile applications, serious gaming, and avatars.

21.2 CLINICAL TRIALS OF THE COLLABORATIVE ASSESSMENT AND MANAGEMENT OF SUICIDALITY (CAMS)

David Jobes[1]

[1]The Catholic University of America

The Collaborative Assessment and Management of Suicidality (CAMS) is both a philosophy of suicide-specific care as well as an evidence-based therapeutic framework that is designed to

form a strong clinical alliance and increase patient motivation. Central to CAMS is the collaborative use of a multi-purpose clinical tool called the Suicide Status Form (SSF) that guides all CAMS-related assessment, treatment-planning, tracking, and outcomes. CAMS is primarily designed to keep suicidal patients out of inpatient care through the use of the SSF Stabilization Plan and a problem-focused treatment plan that targets patient-defined "suicidal drivers" (i.e., problems that compel the patient to consider suicide). The SSF documentation that is used in CAMS is designed to help decrease malpractice liability by ensuring on-going and thorough assessment of suicidal risk, a suicide-specific treatment plan that is routinely modified and updated, and follow-through to optimal clinical outcomes. CAMS is supported by seven published non-randomized clinical trials and one randomized controlled trial (RCT). There are now five RCT's of CAMS in various stages of completion in the US and abroad. This presentation will review all CAMS-related RCT work to date and describe CAMS adaptations (e.g., inpatient use and CAMS-groups), future research, and implementation/dissemination using a blended model of training for the effective use of CAMS.

21.3 SAFETY PLANNING AND STRUCTURED FOLLOW-UP: A BRIEF INTERVENTION FOR SUICIDE PREVENTION IN EMERGENCY DEPARTMENT SETTINGS

Gregory Brown[1]

[1]Perelman School of Medicine University of Pennsylvania

The Safety Planning Intervention (SPI), developed by Barbara Stanley and Gregory Brown (2012), is a brief intervention which takes approximately 20-45 minutes to complete, provides patients with a prioritized and specific set of coping strategies and sources of support that can be used should a suicidal crisis occur. The intent of the safety plan is to help individuals lower their imminent risk for suicidal behavior by consulting a pre-determined set of potential coping strategies and a list of individuals or agencies whom they may contact; it is a therapeutic technique that provides patients with more than just a referral at the completion of suicide risk assessment during an acute care evaluation. The Safety Plan Intervention plus follow-up services were delivered by clinicians in multiple emergency departments (ED) in the Veterans Health Administration (Knox et al, 2012). Evidence supporting the effectiveness of the Safety Plan Intervention plus follow-up on suicidal behaviors with Veterans from an ED, cohort comparison project will be described.

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21.4 SUICIDE RESEARCH AND TRAINING: A CRITIQUE

Marsha Linehan[1]

[1]University of WA

This presentation will discuss the limitations of current suicide research as well as the critical issues that need to be addressed to move the field forward and improve the treatment of suicidal

individuals. It will include a summary of the suicide intervention research trials to date and the directions the field is heading toward addressing the complex problem of suicidal behaviors

22. MECHANISMS OF ALTERED TRANSCRIPTION IN MENTAL ILLNESS AND SUICIDE

Chair: John Mann, Columbia University & New York State Psychiatric Institute

22.1 THE FUNCTIONAL SEROTONIN 1A RECEPTOR PROMOTER POLYMORPHISM, RS6295, IS ASSOCIATED WITH PSYCHIATRIC HOSPITALIZATION, SUICIDE ATTEMPTS, AND DIFFERENCES IN TRANSCRIPTION

Zoe Donaldson[1], Brice le Francois[2], Tabia Santos[3], Victoria Arango[1], Craig Stockmeier[4], Maura Boldrini[1], Paul Albert[2], Hanga Galfalvy[5], Kerry Ressler[6], Rene Hen[5]

[1]Columbia University/New York State Psychiatric Institute, [2]University of Ottawa, [3]New York State Psychiatric Institute, [4]University of Mississippi Medical Center, [5]Columbia University/New York State Psychiatric Institute University of Ottawa, [6]HHMI/Emory University

The G/C single nucleotide polymorphism (SNP) in the serotonin 1a receptor promoter, rs6295, has previously been linked with depression, suicide, and antidepressant responsiveness, indicating that it may contribute to the risk for suicide and differences in treatment outcomes. In vitro studies suggest that rs6295 may have functional effects on the expression of the serotonin 1a receptor gene (HTR1A) through altered binding of a number of transcription factors, including Deaf1/NUDR and the development-specific factors, Hes1 and Hes5. In order to further explore the relationship between rs6295, mental illness, and gene expression, we undertook dual epidemiological and biological studies. In a cohort of 1350 individuals, we found that the rs6295G allele is associated with increased risk for psychiatric hospitalization and suicide attempts. In conjunction, we investigated the potential impact of rs6295 on HTR1A expression in post-mortem human brain tissue. Using allelic imbalance assays, we found that the rs6295C allele is associated with increased HTR1A expression compared with the rs6295G allele in the prefrontal cortex but not in the midbrain of control subjects. Further, in the fetal cortex, rs6295C is associated with increased expression as early as gestational week 18 in humans. Finally, we found that relative increase in expression from the rs6295C allele was not found in the prefrontal cortex of subjects with Major Depressive Disorder who committed suicide, indicating that normal patterns of transcription may be disrupted in suicide. Our data support in vitro studies showing that in adulthood, rs6295 may have region-specific effects on HTR1A expression. Moreover, our results suggest that effects of the polymorphism may be occurring during both gestational development and adulthood. These findings further support a role for rs6295 in modulating HTR1A expression and contributing to psychiatric illness.

22.2 REGIONAL DIFFERENCES IN EXPRESSION OF THE ASTROCYTIC MARKER GFAP IN THE HUMAN BRAIN: A POSTMORTEM COMPARISON OF SUICIDE COMPLETERS AND HEALTHY CONTROLS

Naguib Mechawar[1], Corina Nagy[1], Susana Torres-Platas[1], Marina Wakid[1], Gustavo Turecki[1]

[1]McGill University

There is mounting evidence to suggest aberrant astrocytic function in depression and suicide. Independent studies have reported astrocytic abnormalities in certain brain regions, but it remains unclear whether this is a brain-wide phenomenon. We examined this question by measuring glial fibrillary acidic protein (GFAP) expression in postmortem brain samples from suicides completers and matched non-psychiatric controls. Suicide completers were selected based on their recent characterization as low GFAP expressers in prefrontal cortex (Brodmann areas 8/9 [BA8/9] & BA10). Real-time PCR and immunoblotting were used to measure GFAP gene expression and protein levels in BA4 (primary motor cortex), BA17 (primary visual cortex), cerebellar cortex, mediodorsal thalamus, and caudate nucleus. We found downregulation of GFAP mRNA and protein in the mediodorsal thalamus and caudate nucleus of suicides compared to controls, whereas GFAP expression in other brain regions were similar between groups. Furthermore, a regional comparison including all samples revealed that GFAP expression in both subcortical regions was, on average, between 11- and 15-fold greater than in cerebellum and neocortex. Examining astrocytic morphology by immunohistochemistry showed that although less numerous, astrocytes in both thalamus and caudate displayed larger cell bodies and extended more ramified processes across larger domains than the previously described cortical astrocytes. This study reveals that astrocytic abnormalities in suicide are not brain-wide, but rather restricted to cortical and subcortical networks known to be affected in mood disorders. Additionally, our results reveal a greater diversity of human astrocytic phenotypes than previously thought.

22.3 MICRORNA BIOMARKERS OF DEPRESSION AND ANTIDEPRESSANT RESPONSE

Gustavo Turecki[1], Juan Pablo Lopez[1], Raymond Lim[2], Laura Fiori[1], Naguib Mechawar[1], Paul Pavlidis[2]

[1]McGill University, [2]University of British Colombia

Major depressive disorder (MDD) is a prevalent mood disorder that associates with differential prefrontal brain expression patterns. Non-coding RNAs (ncRNAs) are functional RNA molecules that are not translated into proteins. From controlling the availability of protein-coding RNA transcripts to regulating the activity of genes, ncRNAs play critical regulatory roles in cell function. Among the different types of ncRNAs, microRNAs are of particular interest, as several lines of evidence demonstrate that genes are regulated through the activity of microRNAs (miRNAs), which act as fine-tuners and on-off switches in gene expression patterns. In this talk, I will present recent data from my lab investigating differential brain expression of miRNAs in the prefrontal cortex of individuals who died during an episode of major depressive disorder as compared to psychiatrically healthy controls. Subsequently, I will discuss the characterization of specific miRNAs that we found as differentially expressed in depression, particularly miR-1202, a miRNA specific to primates and enriched in the human brain. I will also present a series of functional experiments that indicate that miRNA-1202 regulates the expression of the metabotropic glutamate receptor 4 (GRM4) gene, and finally, I will discuss encouraging data from clinical trials in patients with major depressive disorder, suggesting that miR-1202, as well as other miRNA, can act as biomarkers of depression and antidepressant response.

22.4 TRANSCRIPTIONAL INTEGRATION OF GENOTYPE-ENVIRONMENT INTERACTIONS AT THE HTR1A GENE

Paul Albert[1]

[1]University of Ottawa

Serotonin is a key monoamine neurotransmitter implicated in the etiology and treatment of multiple facets of mood and emotion, including depression, anxiety, eating disorders, aggression, etc., ultimately contributing to suicide ideation, attempt, and completion. Our research addresses the long-term regulation of serotonergic activity by specific transcription factors, and its modulation by genetic changes and chronic stress. We have focused on focusing on the transcription of the serotonin (1A) receptor gene (HTR1A), a critical regulator and transducer of serotonin action. In particular, the 5-HT1A autoreceptor expressed on serotonin neurons in the raphe nuclei functions as an important negative regulator of serotonin activity. Genetic and stress-induced epigenetic alterations lead to changes in the transcription of the HTR1A lead to reduced serotonin activity and are associated with upregulation of 5-HT1A autoreceptors in depression and suicide.

Using 5'-deletion analysis of HTR1A promoter-luciferase constructs, we have dissected its key transcriptional regulatory elements, including a functional C(-1019)G HTR1A gene polymorphism rs6295 that is associated with depression and suicide. The risk allele (G-1019) prevents the binding and activity of specific transcription factors Deaf1 and Hes1/5 resulting in increased expression of the 5-HT1A autoreceptor and reduced serotonin content. Using genetic knockout models, we find that loss of Hes1 leads to embryonic HTR1A upregulation, while loss of Deaf1 leads to increase expression of the 5-HT1A autoreceptor and reduced serotonin content. Interestingly, chronic unpredictable stress also leads to increase in HTR1A transcription and in 5-HT1A autoreceptor expression, but this effect involves DNA methylation of a conserved Sp4 repressor site located near the polymorphism. Thus both genetic and epigenetic changes converge on increasing transcription of 5-HT1A autoreceptors. Recent PET imaging data show increased 5-HT1A autoreceptors strongly associate with depression in male subjects, with the GG-1019 HTR1A genotype and with increased lethality and suicidal intent in suicide attempters.

We propose that convergence of specific gene regulatory mechanisms lead to up-regulation of the transcription of 5-HT1A autoreceptors to increase in susceptibility to depression and suicide. Targeting these regulatory mechanisms may provide novel and multimodal new treatments for depression.

FUNDING: CIHR, AstraZeneca/CIHR/Rx&D/CPRF, Canada. Neurobiology Program.

23. ADVANCES IN UNDERSTANDING COMPLETED SUICIDE IN LESBIAN, GAY, BISEXUAL, AND TRANSGENDER POPULATIONS

Chair: Ann Haas, American Foundation for Suicide Prevention
Moderator: Jill Harkavy-Friedman, American Foundation for Suicide Prevention

Overall Abstract: Sexual orientation and gender identity are not systematically recorded at time of death, limiting understanding of the prevalence and patterns of completed suicide in lesbian, gay, bisexual, and transgender (LGBT) people and the development of targeted interventions and prevention strategies. The proposed symposium discusses recent efforts to

close knowledge gaps about completed suicide in LGBT populations using innovative research methods and new data collection strategies.

Dr. Ann Haas, Chair, will introduce the symposium by summarizing the methodological challenges in studying completed suicide in LGBT people, noting in particular the weaknesses of psychological autopsy methods which until recently, provided the only research data on the occurrence of suicide death in sexual minorities. She will also discuss the implications of current knowledge gaps for understanding and preventing LGBT suicide. Dr. Annette Erlangsen will discuss findings from new studies, including her own, linking a growing Danish database of individuals who have registered as same-sex domestic partners to the national suicide mortality registry. Used in concert with national data on heterosexual marriages, the partnership registry provides a unique opportunity to compare suicide rates among same-sex and opposite sex-partnered adults. Dr. Erlangsen will also discuss the opportunities of the Danish registries for identifying and tracking suicide mortality among transgender persons. Dr. John Blosnich will summarize findings from various U.S. studies that have linked LGBT participants in existing survey and other samples to the National Death Index, including his research on completed suicide among persons identified in Veterans Administration records as having Gender Identity Disorder or another diagnoses indicating transgender status. Dr. Blosnich will also discuss a current project at the American Foundation for Suicide Prevention that is developing and testing a protocol to collect sexual orientation and gender identity data on decedents who die by suicide and other violent means. The protocol, which is designed to be used by death investigators who work in concert with local Medical Examiners and coroners, is the first step in a long-range effort to include decedents' sexual orientation and gender identity among the demographic characteristics that are routinely and systematically recorded as part of official U.S. mortality data.

Following the presentations, Dr. Jill Harkavy-Friedman, Moderator/Discussant, will comment on the work described in the presentations, noting strengths and limitations for closing knowledge gaps as well as the potential for replication in other countries. To close the symposium, he will pose questions for symposium attendees and moderate an interactive discussion among attendees and participants.

23.1 METHDOLOGICAL CHALLENGES IN STUDYING COMPLETED SUICIDE IN LGBT POPULATIONS

Ann Haas[1]

[1]American Foundation for Suicide Prevention

This introductory presentation by the Symposia Chair will briefly review research evidence of elevated lifetime rates of non-fatal suicidal behavior among LGBT people from early studies of convenience samples and more recent population-based surveys. Differences between patterns of attempted and completed suicide in the general population will be noted, which suggest caution in drawing conclusions about LGBT completed suicide using suicide attempt data. Findings from psychological autopsy studies undertaken to determine whether sexual minority individuals are over-represented in consecutive samples of suicide decedents will be reviewed, as well as the methodological weaknesses of such studies that challenge their consistent conclusion that suicide does not occur at a disproportionate rate among gay people. The impact of the current lack of reliable information about LGBT suicide on intervention and prevention efforts will be discussed.

23.2 ATTEMPTED SUICIDE AND DEATH BY SUICIDE AMONG PERSONS LIVING IN SAME-SEX UNIONS IN DENMARK, 1980-2011

Annette Erlangsen[1]

[1]Mental Health Centre Copenhagen

BACKGROUND: Sexual minority, or generally preferred, lesbian, gay, bisexual and transgendered (LGBT) populations, are emphasized as an underserved high risk group with respect to suicide prevention. As the first country in the world, Denmark introduced same-sex partnerships in 1989. The aim of the current study is to calculate rates of suicide attempts and death by suicide among persons who can be considered as proxies for lesbian and gay persons (registered as living in same-sex partnerships; LG), and transgender persons (diagnosed with 'gender dysphoria' or have received transgender surgery; T).

METHODS: A prospective cohort study design was applied to study longitudinal, individual-level register data covering all individuals living in Denmark during January 1st, 1989 through December 31st, 2011 are considered as subjects (N= 7,154,921). Complete, historic household record data was used to identify LG individuals. Hospital records were assessed to identify transgender persons. We calculated rates of suicide attempt and death by suicide separately.

RESULTS: In 1990, approximately 600 persons living in same-sex couples were registered; in 2011, more than 10,000 persons were listed. During the 22 year follow-up, a total of 130,070 person-year of registered same-sex partners were observed while opposite-sex couples accounted for 6,605,5783 persons-years.

In all, 539 suicide attempts and 56 deaths by suicide were identified among LG persons during 1989-2011. The corresponding rates of suicide attempt and suicide among LG persons were 421 and 70 per 100,000, respectively. In comparison, the rates of suicide attempt and suicide for persons living in opposite-sex relationships were 114 and 22.8 per 100,000 person-years, respectively.

People with transgender identity accounted for 77 suicide attempts and 10 suicides during 1980-2011. Calculations of exposed person-years are rates for this group are on-going.

DISCUSSION: Record data, available in Denmark as in other Nordic countries, allow studies of unselected LG groups, ensure complete follow-up, and allow for unbiased analysis. Our study indicates that suicide attempts and death by suicide occurs more frequently among LGT groups as compared to heterosexuals. In addition, the strengths and limitations of using registered same-sex couples and hospital diagnoses as proxies for LGT populations will be discussed.

23.3 FOLLOWING FORWARD AND TRACING BACK: INITIATIVES IN LGBT SUICIDE RESEARCH IN THE UNITED STATES

John Blosnich[1], George Brown[1], Sybil Wojcio[1], Kenneth Jones[1], Robert Bossarte[1]

[1]Department of Veterans Affairs

Background: Despite concordant evidence of disparities in suicide morbidity among LGBT and non-LGBT populations, very little is known about whether LGBT individuals die by suicide at higher rates than non-LGBT individuals. Two studies in the US capitalized on survey data from respondents with same-sex sexual behavior and linked these data with the National Death Index (NDI). One study used the National Health and Nutrition Examination Survey and the other used the General Social Survey; each with conflicting findings about suicide

mortality. To date, no studies in the US have examined suicide mortality among transgender populations.
Methods: Using US Department of Veterans Affairs (VA) electronic medical record data, we identified a cohort of patients who had ever had diagnoses related to Gender Identity Disorder (GID) based on the International Classification of Diseases (ICD-9), a common set of diagnoses among transgender individuals that is often required for specific forms of medical care (e.g., counseling, cross-sex hormone prescription). The analytic sample included 5,117 patients with a GID-related diagnosis, of whom 3,327 were crossed referenced with in NDI from 2000-2009 for date of death and cause of death.

Results: Over the 10-year period, there were 309 deaths, of which 15 (4.8%) were indicated as suicides. The average age of death for suicide decedents was 49.4 years, with a range of 25.0 to 73.0 years. The crude rate of suicide death across the study period was 81.9/100,000 person-years.

Discussion: The crude rate of suicide death among patients with GID was similar to rates among patients with serious mental illness within the VA system (e.g., substance abuse, depression). The average age of suicide deaths among this group was somewhat lower than the VA in general (49.4 years vs. 54.5 years, respectively), suggesting that VA patients with GID have a greater burden of years of potential life lost to suicide. This study is prone to several limitations, of which one key limitation is shared by previous US studies of LGBT suicide mortality: identification of LGBT status prior to death and following individuals forward through time. A new initiative, being developed through the American Foundation for Suicide Prevention, aims to "trace back" by identifying both the sexual orientation and the gender identity statuses of persons who die violence-related deaths. We are piloting tools and methods through which officials involved in the death investigation process can gather evidence of a decedent's LGBT status, similar to how they gather other socio-demographic information about decedents. Together, by following forward and by tracing back, ongoing studies of LGBT suicide mortality ideally will meet in the middle to provide a clearer, evidence-based picture of suicide disparities among LGBT populations.

Moderator: Jill Harkavy-Friedman
American Foundation for Suicide Prevention

24. INTEGRATING RDOC CONCEPTS IN STUDIES OF DEVELOPMENTAL TRAJECTORIES OF ADOLESCENT SUICIDE RISK

Chair: Holly Garriock, National Institute of Mental Health
Moderator: David Brent, UPMC/ Western Psychiatric Institute & Clinic

Overall Abstract: The goal of the symposium is to discuss developmental trajectories using prospective studies of suicide risk, and how the Research Domain Criteria (RDoC) of NIMH can be used in these studies to further elucidate etiology, prediction and eventual prevention of suicidal behaviors. This symposium will highlight four research programs that focus on developmental trajectories of suicide risk during adolescence. This is a key developmental period to study suicide-related behaviors due to the increase in suicidal behaviors during adolescence into early adulthood.

Dr. Goldston will cover the identification of four trajectories of suicidal behaviors risk and their associated characteristics and outcomes. He will highlight the clinical and behavioral distinctions between groups with Increasing and Highest risk profiles from those that are decreasing or at low risk across adolescence and through young adulthood.

Dr. Prinstein will present his longitudinal data on female adolescents and the ability to predict suicide attempts above and beyond traditional predictors using HPA responses to a lab stressor task and interpersonally-themed stressors.

Dr. Liu will shed light on our ability to predict recurrent suicide attempt in psychiatrically hospitalized adolescents during the critical six months that follow discharge. He will show support for differences in reward sensitivity between suicide attempters and non-attempters, as well as the importance of dependent versus independent stressor assessments for attempt prediction.

Dr. Bridge will discuss his findings from a longitudinal study of early adolescents with depression, and how the assessment of neurocognitive dysfunction and impulsive aggression can be used for predicting future suicide attempts.

All presenters will discuss the opportunities and challenges to using the RDoC constructs in their studies, and the extent to which it might help guide current and future prospective developmental studies of suicide risk. They will review what construct and levels of analysis they are focusing on, and where they think gaps in the field exist. Drs. Goldston and Bridge will discuss how their data fit in to the positive valence domain of the RDoC matrix while focusing on the 'approach motivation' construct more broadly. More specifically within this construct, the sub-construct 'reward valuation' will be discussed by Dr. Liu. Response selection, inhibition or suppression is a sub-construct within the cognitive control construct and cognitive systems domain that will be covered by Dr. Liu and Dr. Bridge. The construct of loss and frustrative non-reward within the negative valence domain will be integrated into Dr. Prinstein's and Dr. Bridge's presentation, respectively.

A discussion led by Dr. Brent will cover unifying themes across the presentations, and identify specific strengths of each approach. He will share his thoughts on integrating RDoC into prospective longitudinal studies of suicide risk, current challenges to progress, and critical next steps to significantly advance the field of developmental suicide research, to ultimately improve prevention efforts.

24.1 DEVELOPMENTAL TRAJECTORIES OF SUICIDAL THOUGHTS AND BEHAVIOR FROM ADOLESCENCE THROUGH ADULTHOOD: A STUDY OF MECHANISMS INFORMED BY THE RESEARCH DOMAIN CRITERIA

David Goldston[1], Stephanie Daniel[2], Nicole Heilbron[1], Joseph Franklin[3], Alaattin Erkanli[4]

[1]Duke University School of Medicine, [2]University of North Carolina Greensboro, [3]Vanderbilt University, [4]Duke University

In a prospective study of 180 formerly hospitalized adolescents followed through adulthood (~2300 observations over an average of 14 years), we are examining the mechanisms associated with developmental trajectories of suicidal thoughts and behavior (STB). Four trajectories of STB were identified: a Low Risk Class (44%), Decreasing Risk Class (33%), Increasing Risk Class (11%), and Highest Overall Risk Class (12%). Relative to the Lowest Risk Class, the Highest Risk Class was associated with greater time in episodes of Major Depression and Generalized Anxiety Disorder; higher likelihood of sexual abuse; higher trait anxiety,

hopelessness, and lower survival and coping beliefs; more impulsivity in adulthood; and more adult functional impairment and social adjustment difficulties. The Increasing Risk Class had more trait anxiety; more impulsivity and impulsive aggression in adulthood; and more adult functional impairment and social adjustment difficulties, particularly with family. The Decreasing Risk Class had higher trait anxiety and weaker survival and coping beliefs, but otherwise was similar to the Lowest Risk Class.

Informed by the NIMH Research Domain Criteria, we are examining the relationship of these trajectories and their covariates with four indices hypothesized to reflect underlying behavioral processes associated with STB. As a measure of approach motivation and decision-making bias, we are examining the preferences for immediate vs. delayed rewards with the Iowa Gambling Task. As an additional measure of approach motivation, we are examining automatic (implicit) affective responses to pleasant, neutral, unpleasant, and death-related visual cues using the Affect Misattribution Procedure. Last, we are examining appetitive (reward-motivated) and defensive psychophysiological responding (postauricular and startle eyeblink reflex) in response to visual cues. Preliminary findings and translational implications will be described.

24.2 NEUROCOGNITIVE FUNCTIONING IN DEPRESSED ADOLESCENTS WITH A HISTORY OF SUICIDE ATTEMPT OR SUICIDAL IDEATION

Jeffrey Bridge[1], Arielle Sheftall[1], John Ackerman[2], Kendra Heck[1], Brady Reynolds[3], John Campo[4], David Brent[5]

[1]The Research Institute at Nationwide Children's Hospital, [2]Nationwide Children's Hospital, [3]University of Kentucky, [4]The Ohio State University College of Medicine, [5]University of Pittsburgh

The severe consequences of adolescent suicidal behavior make the accurate identification of youth at high risk an important clinical, research, and public health objective. This presentation will discuss preliminary findings from the first large-scale prospective study of the developmental antecedents of adolescent suicidal behavior in depressed youth. The presentation will focus on the specific behavioral and neurocognitive pathways contributing to the etiopathogenesis of adolescent suicidal behavior with an emphasis on three Domains in the National Institute of Mental Health (NIMH) Research Domain Criteria (RDoC) matrix: Negative Valence Systems, Positive Valence Systems, and Cognitive Systems. Participants aged 12 to 15 years with a history of depression and suicide attempt at the baseline assessment will be compared to participants with a history of depression and suicidal ideation but no history of suicide attempt and a depressed only group on a battery of neurocognitive measures assessing decision-making, executive function, impulse control, spatial planning, and working memory. In addition, the three groups will be compared on a computerized behavioral measure of impulsive aggression, the Point Subtraction Aggression Paradigm (PSAP). Preliminary longitudinal data examining the predictive ability of neurocognitive dysfunction and impulsive aggression on future suicide attempt will also be presented.

24.3 PHYSIOLOGICAL AND GENOMIC MARKERS OF NEGATIVE VALENCE SYSTEMS (LOSS) AS PROSPECTIVE PREDICTORS OF ADOLESCENT GIRLS' SUICIDAL IDEATION AND ATTEMPTS

Mitchell Prinstein[1], Matteo Giletta[2], Karen Rudolph[3], Paul Hastings[4], George Slavich[5], Matthew Nock[6]

[1]University of North Carolina at Chapel Hill, [2]Tilburg University, [3]University of Illinois Urbana Champaign, [4]UC Davis, [5]UCLA, [6]Harvard University

Particularly among adolescent girls, suicidal behavior typically occurs subsequent to a stressful interpersonal event. Yet little is known regarding acute stress responses that may predict suicidal ideation and attempts. The RDoC construct of "loss" captures biological responses to experiences of social adversity that deprive individuals of relationships, social status, or intimate interactions. This study examined biomarkers of loss across multiple units of analysis as prospective predictors of suicide ideation and behavior within a sample of clinically-referred adolescent girls. A focus of these analyses was the prediction of suicidality beyond known distal-risk factors, such as prior suicidal thoughts and behavior and depressive symptoms.

Both physiological and genomic markers were examined. Both the HPA axis system and the measures of the ANS (i.e., respiratory sinus arrhythmia, RSA) are useful for measuring stress-response and stress-regulation systems. Adverse social experiences also trigger widespread alterations in the activity of literally hundreds of genes that regulate pro-inflammatory cytokine production, as well as viral immunity. Little longitudinal data are available to understand how each of the physiological and genomic biomarkers of loss may predict later suicidality among adolescents, especially when considering how these acute responses interact with ongoing interpersonally-themed stress. It was hypothesized that acute responses to experimentally-induced interpersonal stress responses (HPA, RSA, and pro-inflammatory cytokines) would predict later suicide ideation and attempts when combined with the occurrence of actual interpersonal stressful experiences.

A total of 220 adolescent females, aged 12-16, recruited from inpatient and outpatient psychiatric facilities completed semi-structured diagnostic (MINI-kid) and self-injurious behavior (SITBI) interviews and participated in a Trier Social Stressor Task (TSST). Salivary cortisol was measured to capture baseline (pre-stress) and reactive (at 20, 30 and 40 minutes post-stress) HPA functioning. Salivary data also were used to assay two cytokines associated with pro-inflammatory gene expression pre- and during the speech. Cardiovascular measures were collected throughout the study protocol, and RSA before and during the TSST was computed. Follow-up SITBI interviews were conducted by phone at 3, 6, and 9 months post-baseline. At 9 months post-baseline, the semi-structured Youth Life Stress Interview was administered to obtain context, timing, and objective implications of stressors in each of five domains, coded by independent raters (ICC = .90).

A total of 43.2% of the sample reported suicide ideation, and 16.7% attempted suicide during the follow-up period. Analyses indicated that hyper-reactive HPA and RSA withdrawal were associated longitudinally with suicide ideation. Hyperactive HPA responses, when combined with interpersonally-themed stressors during the follow up period predicted suicide attempts above and beyond depression, prior suicidal ideation and attempts. Cytokine reactivity (IL1- and IL-6) x interpersonal stress also predicted depression longitudinally.

24.4 LIFE STRESS, IMPULSIVITY, REWARD SENSITIVITY, AND SUICIDAL BEHAVIOR IN ADOLESCENTS

Richard Liu[1], Daniel Dickstein[2], Jennifer Wolff[2], Shirley Yen[2], Anthony Spirito[2]

[1]Alpert Medical School, Brown University, [2]Brown University

Existing studies that follow suicidal adolescent inpatients prospectively have found that suicidal risk is particularly pronounced during the first six to twelve months following discharge, with 13% to 36% reattempting suicide within that time period. A basic question that naturally follows, and yet remains largely unaddressed in the empirical literature, is why? What processes account for the often recurrent nature of this behavior?

One process that may underlie the relationship between past and future suicidal behavior is stress generation, the tendency to experience higher rates of stressful life events that are at least in part influenced by the individual's behaviors and characteristics (i.e., dependent stressors). That is, adolescent suicide attempters, when compared to non-attempters, may consistently experience elevated levels of dependent stressors, which in turn place them at chronically greater risk for reattempting. Additionally, according to the stress generation hypothesis, suicide attempters and non-attempters should not differ in rates of stressful life events outside their control (i.e., independent stressors).

The current study examined this stress generation hypothesis within the framework of the Research Domain Criteria (RDoC) using a sample of psychiatrically hospitalized adolescents who were assessed during their inpatient visit and at a 6 month follow-up point. Potential stress generation mechanisms were examined with measures reflecting the RDoC constructs of reward valuation and response selection, inhibition or suppression using self-report measures and neuropsychological indices of cognitive and behavioral impulsivity. Preliminary cross-sectional ($n = 80$) and longitudinal analyses ($n = 64$) revealed that suicide attempters differed from non-attempters in terms of reward sensitivity ($d = .72$, $p < .05$). In addition, after covarying for depressive symptoms, there was an indication that attempters experienced more dependent stressors than non-attempters at baseline ($d = .46$, $p < .05$) and 6-month follow-up ($d = .44$, $p < .1$). The two groups did not differ in terms of independent stressors at baseline ($d = .05$, $p = .83$) or 6-month follow-up ($d = .25$, $p = .32$). By the time of this presentation, a larger sample will be available as will behavioral task data for a subset of the entire sample. The larger sample will add power to these preliminary findings while the behavioral task data will supplement the self-report and interview data for the cross-sectional analyses. Data will also be available to preliminarily examine whether dependent stressors appear to mediate the relationship between these RDoC-measured constructs and prospective suicide attempts.

If support for stress generation in suicidal behavior is upheld in the larger sample, intervention efforts for adolescents with a history of suicidality would benefit from an emphasis on behavioral strategies targeting stress generation mechanisms.

25. SUICIDE RISK, PREVENTION AND RESPONSE IN VULNERABLE OLDER ADULTS

Chair: Martha Bruce, Weill Cornell Medical College

Overall Abstract: Suicide Risk, Prevention and Response in Vulnerable Older Adults Identified in Community Settings

While rates of suicide ideation and death by suicide are, on average, especially high in older adults, this risk is largely concentrated in vulnerable subgroups of seniors characterized by combinations of depression, medical burden, disability, cognitive impairments and social isolation. Interventions to reduce this risk are hampered by suicide ideation not being acknowledged by many seniors or detected by family or providers. The use of traditional mental health services as a prevention strategy is also limited by poor availability (insufficient geriatric mental health workforce), access (many are homebound status or lack transportation), and acceptability (stigma and other psychological barriers to mental health services use). Consequently, this hard to reach population requires novel suicide risk, assessment and interventions.

Our group has focused on the provision of mental health care in community settings that commonly care for high risk seniors but are unfamiliar with detection of risk and delivery of quality mental health care. In this symposium we will present data on the suicide risk, prevention and intervention response from four different NIMH funded clinical trials. Each study brings a different perspective on the clinical complexity (e.g. medical burden, cognitive impairment, disability) presented at risk of suicide. In addition, each of the four psychosocial intervention studies was implemented in the context of community-based services (e.g., primary care, home-delivered meal programs and other aging social services, home healthcare) that serve these vulnerable older adults.

25.1 SUICIDE IDEATION IN HOME HEALTHCARE PATIENTS: THE DEPRESSION CAREPATH TRIAL

Martha Bruce[1]
[1]Weill Cornell Medical College

Background: Home health (HH) patients are characterized by medical, functional, and social risk factors of suicide; most HH agencies have experienced one or more patient suicides. Over 12% of patients receiving Medicare HH for medical problems report that life is not worth, wanting to die, or having thoughts of suicide. In a representative sample, passive (wanting to die) and active (thoughts of suicide) suicide ideation persisted over time for 36.7%, and the incidence of suicide ideation was 5.4% (Raue 2007). The Depression CAREPATH intervention was designed to integrate depression care management into the routine practice our medical HH nurses. Our randomized trial reported that among patients with clinically significant depression, CAREPATH was associated with a significant and clinically meaningful decrease in depressive symptoms over one year. (Bruce 2014). In this study, we examine the intervention in the context of passive and active suicide ideation.

Methods: The Depression CAREPATH effectiveness trial was conducted in six regionally-diverse HH agencies. The study randomized nurse-teams to Intervention (12 teams) or Enhanced Usual Care (EUC; 9 teams). Based on the Medicare-mandated assessment, patients who screened positive for depression were recruited, assessed, and followed at 3, 6, and 12-months by research staff. The intervention requires HH nurses to manage depression during routine home visits. Clinical functions include weekly symptom assessment, medication management, care coordination, patient education, and goal setting. Nurses are trained in suicide risk assessment and response. The intervention did not increase the number or duration of nursing visits.

Results: The 306 patients averaged age 76.5 years, were 70% female, 18% Black and 16% Hispanic. 16/306 (5.2%) patients reported active suicidal thoughts at some point in the study year. Another 23 (7.5%) reporting passive ideation (wishing to be dead) and 56 (18.3%) felt like life was not worth living. Among 20 patients reporting passive or active ideation at baseline and having follow-up data, 50% (6/12) of EUC vs. 0% (0/8) CAREPATH patients reported active suicide ideation at follow-up (p=.02). Among patients who felt life was not worth living or had active/passive ideation at baseline (n=52), the intervention was associated with greater decrease in suicide ideation (controlling for depression severity and medical morbidity).

Discussion: HH patients are at high risk for suicide. In addition to the effects on patients and their families, the experience of a HH nurse entering a patient's home to discover that the patient has died by suicide has long lasting effects personally and agency-wide. HH nurses are well positioned, however, to identify and intervene with patients at high risk. These data demonstrate that the Depression CAERPATH intervention has the potential for helping HH nurses reduce suicide risk at an especially vulnerable period.

25.2 IMPACT OF SHARED DECISION-MAKING ON ELDERLY DEPRESSED PRIMARY CARE PATIENTS WITH SUICIDAL IDEATION

Patrick Raue[1], H. Charles Schulberg[1], Samprit Banerjee[1], Martha Bruce[1]

[1]Weill Cornell Medical College

Background: The objectives of this study are to: 1. identify rates and correlates of suicidal ideation among elderly depressed, inner-city primary care patients; and 2. examine whether the presence of suicidal ideation moderates the impact of a shared decision-making intervention on 12-week reduction in depressive symptoms.

Methods: 202 primary care participants aged 65+ who scored positive on the PHQ-9 (>10) via routine physician screening were randomized at the physician-level to receive a brief Shared Decision-Making intervention or Usual Care. Participants were interviewed prior to intervention and assessed for diagnostic status (SCID), depression severity (HAM-D), suicidal ideation (HAM-D and Suicide Risk Protocol), and other medical, functional, and psychosocial factors.

Results: Participant age ranged from 65 to 88 years (mean=71.4+5.3), and 85% were female. Most classified themselves as ethnic/racial minorities: 85% were Hispanic and 12% were non-Hispanic Black; 20% had less than a high school education; and 83% reported an annual income below $13,000. Most (63%) met criteria for major depression as assessed by the SCID, and 33% for minor depression. Across study conditions, 28% of patients reported passive and 3% active suicidal ideation. We will use logistic regression to determine sociodemographic, clinical, functional, and psychosocial factors independently associated with presence of any level of suicidal ideation. We will then use a mixed-effects linear regression model incorporating repeatedly measured HAM-D suicidal ideation scores (baseline, weeks 4, 8, and 12) to determine whether the presence of suicidal ideation moderates the impact of a shared-decision making intervention on 12-week reduction in depressive symptoms.

Discussion: The high rate of suicidal ideation in our sample of elderly depressed, inner-city primary care patients underscores the relevance of this underserved population for suicide prevention efforts. We also expect to identify clinical and psychosocial factors associated with

suicidal ideation that are modifiable, and thus potentially effective targets for suicide prevention interventions. Lastly, we will report data on whether our brief shared decision-making is effective among patients with suicidal ideation.

25.3 REDUCING DEPRESSION AND SUICIDE RISK IN VULNERABLE OLDER ADULTS BY IMPROVING LINKS TO MENTAL HEALTH TREATMENT

Jo Anne Sirey[1]

[1]Weill Cornell Medical College

Background: Older adults receiving in-home meals are a vulnerable population with high rates (12.2%) of clinically significant depression and suicidal ideation (13%) recorded in routine depression screening (Sirey et al., 2008). This hard to reach population is not likely to present to traditional providers for help with depression, hopelessness or suicidal thoughts and includes a high number of 85 years plus elders known to have the second highest rate of suicide. A potential strategy to reduce risk among this vulnerable group is to improve their acceptance of a referral to mental health services.

The aim of the Open Door Study (R01 MH079265) was to test the effectiveness of a brief, psychosocial intervention (Open Door) to improve engagement in mental health care among homebound older adults not in treatment. Accepting a referral and making a first visit is an initial step to full engagement in mental health care.

Methods: Older adults identified as potentially depressed by aging service staff eligible for home meal service were eligible for study participation. All referred adults received an in-home assessment of depression, suicide risk, functioning and attitudes towards mental health care. Eligible older adults were randomized to the Open Door intervention or an attention control condition. Assessment were conducted at baseline, 12 weeks, and 24 weeks. Acceptance of a referral was defined as attending at least one visit with a traditional provider able to offer mental health assessment and care.

Results: 161 subjects were randomized. Based on the SCID interview criteria, 47% of the clients had major depression with an additional 13.7% having minor depression. At baseline, 27% (43/161) endorsed suicidal ideation requiring a risk assessment (Raue et al., 2006). Among the adults with suicide risk, 21% (9/43) reported intermediate risk (including a wish to die, a plan, or recent attempt) requiring immediate intervention. Rates of suicidal ideation were highest among adults who met criteria for major depression, but ideation was still present in those adults with minor depression and no depression diagnosis.

Acceptance of a referral for mental health for the entire sample during the 6 month follow-up was 67.7%. For the older adults with immediate suicide risk, 8 of the 9 (89%) accepted a mental health referral and saw a provider within the 6 month follow-up. While the suicide risk sample was small (N=43), there is a trend suggesting that participants in Open Door group had higher referral acceptance (86%) than the attention control group (62%) .

Discussion: Among this vulnerable older adult population receiving in-home aging services, the rates of depression and suicidal ideation are high. Brief psychosocial interventions to improve acceptance of a mental health referral delivered by aging service providers offer a potential strategy to reduce risk and improve treatment engagement.

25.4 SUICIDAL IDEATION IN OLDER ADULTS WITH MAJOR DEPRESSION AND COGNITIVE IMPAIRMENT

Dimitris Kiosses[1], James Gross[2], Paul Duberstein[3], Samprit Banerjee[1], George S. Alexopoulos[1]

[1]Weill Cornell Medical College, [2]Stanford University, [3]University of Rochester School of Medicine and Dentistry

Background: Adult suicide rates in the US have increased gradually from 2006-2011, reaching 12.68 in 2011. Among different age groups, middle-aged and older adults have been the most vulnerable groups to suicide and the highest risk group is white males 85 years of age or older (Suicide rate in 2011: 47.3 per 100,000). Major depression, cognitive impairment (especially executive dysfunction) and suicidal ideation are risk factors for suicide in older adults.

Methods: The present study examines prevalence and course of suicidal ideation during two home-delivered psychosocial treatments [Problem Adaptation Therapy (PATH) vs. Supportive Therapy for Cognitively Impaired Older Adults (ST-CI)] in 74 older adults with major depression, cognitive impairment, ranging from mild cognitive deficits to moderate dementia, and disability. PATH focuses on improving emotion regulation. To achieve that, it utilizes a problem solving approach, environmental adaptations and compensatory strategies to bypass the patients' cognitive, behavioral and functional limitations, and selectively engages caregiver to participate in treatment. ST-CI focuses on non-specific therapeutic factors such as providing a supportive environment, fostering empathy, and emphasizing positive experiences.

Results: At study entry, 43% of subjects (N=32) had suicidal ideation, with most reporting life-weariness or fleeting thought of suicide. PATH and ST-CI had comparable reduction in suicidal ideation over the course of 12 weeks. In a subgroup analysis of pharmacotherapy resistant patients (N=35), PATH participants had significantly greater reduction in suicidal ideation than ST-CI participants. Baseline correlates of suicidal ideation include social support and executive dysfunction. Finally, improved emotion regulation was a mechanism of action through which these two home-delivered psychosocial interventions reduced suicidal ideation.

Conclusion: Suicidal ideation is highly prevalent in older adults with major depression, cognitive impairment and disability. Even though both psychosocial interventions reduced suicidal ideation over the course of 12 weeks, PATH was more efficacious than ST-CI in reducing suicidal ideation in pharmacotherapy resistant patients.

26. STUDIES ON YOUTH SUICIDAL IDEATION AND BEHAVIOUR IN A LIFE-COURSE PERSPECTIVE - THE ROLE OF PSYCHIATRIC DISORDERS AND RELATED HEALTH CARE

Chair: Ellenor Mittendorfer-Rutz, Karolinska Institutet

Overall Abstract: Studies on youth suicidal ideation and behavior in a life-course perspective - the role of psychiatric disorders and related health care

Research on risk and prognostic factors of youth suicidal ideation and behaviour is challenged by the often high attrition rate in studies on young individuals with mental health problems and/or suicidality. Here, studies are often subject to short follow-up times or selective loss to

follow-up. In this symposium we want to discuss four examples of studies covering a long age span - from childhood to mid adulthood - which approached these challenges in different methodologically ways. Two studies are based on adolescents from schools in different parts in the US, one study is a register based study with national coverage on young inpatients due to suicide attempt from Sweden and one study focusses on a birth cohort from Dunedin, New Zealand. Follow-up in the studies ranges from 2 to 15 years. Attrition rates are low in all studies. Findings highlight the role of psychiatric disorders and related health care and identify a number of risk and prognostic factors which might be targeted for primary, secondary or tertiary youth suicide prevention programs.

The symposium will include following presentations:

When self-reliance isn't safe: associations between reduced help-seeking and subsequent mental health symptoms in suicidal adolescents

Presenter: Christa Labouliere, Columbia University

Childhood trajectories of depression, aggression, concentration problems and anxiety symptoms in future suicide attempters

Presenter: Holly Wilcox, John's Hopkins University

Suicide attempt in young people: a signal for long-term health care and social needs

Presenter: Sidra Goldman-Mellor, University of North Carolina at Chapel Hill

Clinical and social determinants of subsequent labor market marginalization in young suicide attempters

Presenter: Thomas Niederkrotenthaler, Medical University Vienna

26.1 WHEN SELF-RELIANCE ISN'T SAFE: ASSOCIATIONS BETWEEN REDUCED HELP-SEEKING AND SUBSEQUENT MENTAL HEALTH SYMPTOMS IN SUICIDAL ADOLESCENTS

Christa Labouliere[1], Marjorie Kleinman[2], Madelyn Gould[2]

[1]Columbia University Medical Center, [2]The New York State Psychiatric Institute at Columbia University Medical Center

The majority of suicidal adolescents have no contact with mental health services, and reduced help-seeking in this population further lessens the likelihood of accessing treatment. A commonly-reported reason for not seeking help is youths' perception that they should solve problems on their own. In this study, we explore associations between extreme self-reliance (i.e., the belief that one should solve problems on their own all of the time), help-seeking behavior, and mental health symptoms in a community sample of adolescents. Approximately 2150 adolescents across six schools participated in a school-based suicide prevention screening program, and a subset of at-risk youth completed a follow-up interview two years later. Extreme self-reliance was associated with reduced help-seeking, clinically-significant depressive symptoms, and serious suicidal ideation at the baseline screening. Furthermore, in a subset of youth identified as at-risk at the baseline screening, extreme self-reliance predicted level of suicidal ideation and depressive symptoms two years later even after controlling for baseline symptoms. Given these findings, attitudes that reinforce extreme self-reliance may be an important target for youth suicide prevention programs. Reducing extreme self-reliance in youth with suicidality may increase their likelihood of appropriate help-seeking and concomitant reductions in symptoms.

26.2 SUBTYPES OF SUICIDE ATTEMPTERS BASED ON EARLY TO MID CHILDHOOD LATENT SYMPTOM PROFILES OF ANXIETY, DEPRESSION, CONCENTRATION PROBLEMS AND AGGRESSIVE, DISRUPTIVE BEHAVIORS

Holly Wilcox[1], Shelley Hart[2], Kathryn Van Eck[3], Rashelle Musci[4], Elizabeth Ballard[5], Alison Newcomer[6]

[1]Johns Hopkins University School of Medicine, [2]University of California Chico, [3]Johns Hopkins School of Medicine, [4]Johns Hopkins Bloomberg School of Public Health, [5]National Institute of Mental Health Intramural Program, [6]Catholic University

Background: This is the first prospective, longitudinal study to identify distinct middle through later childhood developmental trajectories of depressive, anxious, concentration and aggressive-disruptive symptoms among individuals who attempted suicide by age 30. This study examined heterogeneity of early symptoms among community-residing lifetime suicide attempters using longitudinal latent profile analysis. Methods: The sample included 191 young adults (35.6% male; 58.6% African American) who attempted suicide by age 30 from a large, urban community-based, longitudinal prevention trial (n=2,311). Depressive, anxious, concentration and aggressive symptoms measured at four time points between ages 7-11 years were used to define longitudinal latent classes of suicide attempt subtypes. Differences in psychiatric diagnoses, suicide attempt characteristics, criminal convictions, and in suicide attempt polygenic scores were studied between subtypes. Results: Three latent classes (subtypes) were identified. The first was characterized by lower levels of depression and anxiety (LOW dep/anx). The second by higher levels of aggression, concentration problems, and anxiety (HIGH con/anx/agg) and the third had low aggression and concentration problems (LOW agg/con). The HIGH con/anx/agg subtype reported significantly higher rates of antisocial and drug use disorders by age 30 and significantly more violent criminal convictions. The suicide attempt polygenic score interacted with gender to predict membership in the three classes. Differences were not evident between the classes on MDD, PTSD, and other psychiatric diagnoses, outcomes related to suicide attempt (age of onset, multiple attempts, plan, etc.). Conclusions: High childhood aggression in the context of concentration problems and anxiety symptoms defined a group of suicide attempters with increased likelihood of substance use disorders and violent criminal histories.

26.3 SUICIDE ATTEMPT IN YOUNG PEOPLE: A SIGNAL FOR LONG-TERM HEALTH CARE AND SOCIAL NEEDS

Sidra Goldman-Mellor[1], Avshalom Caspi[2], HonaLee Harrington[2], Sean Hogan[3], Shyamala Nada-Raja[3], Richie Poulton[3], Terrie Moffitt[2]

[1]University of California, Merced, [2]Duke University, [3]University of Otago

Background. Suicidal behavior has increased since the onset of the global recession, a trend that may have long-term health and social implications. The current study tested whether suicide attempts among young people signal increased risk for later poor health and social functioning above and beyond a preexisting psychiatric disorder.

Methods. We followed up a cohort of young people (the population-representative Dunedin Multidisciplinary Health and Development Study) and assessed multiple aspects of their health and social functioning as they approached midlife. The sample involved 1037 birth cohort members comprising 91 young suicide attempters and 946 nonattempters, 95% of whom were followed up to age 38 years. Outcomes among individuals who had self-reported a suicide attempt up through age 24 years (young suicide attempters) were compared with those who reported no attempt through age 24 years (nonattempters). Outcomes were selected to represent

significant individual and societal costs: mental health, physical health, harm toward others, and need for support. Psychiatric history and social class were controlled for.

Results. As adults approaching midlife, young suicide attempters were significantly more likely to have persistent mental health problems (eg, depression, substance dependence, and additional suicide attempts) compared with nonattempters. They were also more likely to have physical health problems (eg, metabolic syndrome and elevated inflammation). They engaged in more violence (eg, violent crime and intimate partner abuse) and needed more social support (eg, long-term welfare receipt and unemployment). Furthermore, they reported being lonelier and less satisfied with their lives. These associations remained after adjustment for youth psychiatric diagnoses and social class.

Discussion. Many young suicide attempters remain vulnerable to costly health and social problems into midlife. As rates of suicidal behavior rise with the continuing global recession, additional suicide prevention efforts and long-term monitoring and after-care services are needed.

26.4 MEDICAL AND SOCIAL DETERMINANTS OF SUBSEQUENT LABOUR MARKET MARGINALISATION IN YOUNG SUICIDE ATTEMPTERS

Thomas Niederkrotenthaler[1], Petter Tinghoeg[2], Kristina Alexanderson[3], Sidra Goldman-Mellor[4], Holly Willcox[5], Madelyn Gould[6], Ellenor Mittendorfer-Rutz[7]

[1]Medical University of Vienna, Center for Public Health, Institute for Social Medicine, Suicide Research Unit, [2]Karolinsak Institute, Department of Clinical Neuroscience, Division of Insurance Medicine, 17 177 Stockholm, Sweden, [3]Karolinska Institute, Department of Clinical Neuroscience, Division of Insurance Medicine, 17 177 Stockholm, Sweden, [4]University of California, Merced, Public Health, Merced, CA, [5]Johns Hopkins, Baltimore, USA, [6]Columbia University, NYS Psychiatric Institute, New York, NY 10032, USA, [7]Karolinska Institutet, Department of Clinical Neuroscience, Division of Insurance Medicine, 17 177 Stockholm, Sweden

Introduction: Individuals with a history of suicide attempt have a high risk for subsequent labour market marginalization. Exclusion from the labour market can be measured in different terms. The most frequently used indicator is long-term unemployment, which is different from other markers of labour market marginalization because it is not based on any medical assessment. Research disregarding work-related functional impairment based on medical assessments underestimates the detrimental effect of suicide attempt on labour market participation. In spite of this, little is known about determinants of different indicators of labour market marginalization in suicide attempters.

Methods: We conducted a prospective cohort study based on register linkage of 5649 individuals who in 1994 were 16–30 years old, lived in Sweden and were treated in inpatient care for suicide attempt during the three years preceding study entry, i.e. 1992-1994. Hazard ratios (HRs) for long-term unemployment (>180 days), temporary medically assessed work-disability of > 90 days (which is called 'sickness absence' in European countries), and permanent, medically assessed work-disability (i.e. so-called 'disability pension') in 1995–2010 were calculated by Cox regression models for a number of parental and individual risk markers.

Results: Medical risk factors, particularly any earlier diagnosed specific mental disorders (e.g., schizophrenia: HR 5.4 (95% Confidence Interval CI: 4.2, 7.0), personality disorders: HR 3.9,

95% CI: 3.1, 4.9), repetitive suicide attempts (HR 1.6, 95% CI: 1.4, 1.9) and somatic hospitalisation (HR 1.2, 95% CI: 1.1, 1.4) were associated with a higher risk of granted disability pension. These medical factors were of smaller relevance to long-term sickness absence, and of only marginal relevance to long-term unemployment. Long-term sickness absence was correlated with female sex (HR 1.6, 95% CI: 1.4, 1.7), age above 20 years (HR 1.7, 95% CI: 1.5, 1.9) and parental low educational level (HR 1.2, 95% CI: 1.1, 1.4). Male sex and country of birth outside Europe were associated with a lower risk for disability pension but a higher risk for long-term unemployment, while low educational level predicted both outcomes.

Conclusions: In young suicide attempters, granting of disability pension, a measure of labour market marginalisation based on a medical assessment, seems to be driven by the medical severity of the underlying mental disorder. Migrant status from non-European countries seems to be associated with a lower likelihood for granted disability pension, while female sex appears to be a risk factor. The opposite seems to be true for determinants of long-term unemployment in this patient group.

27. NEW DIRECTIONS IN SCREENING MEDICAL PATIENTS FOR SUICIDE RISK: STAT-ED, ASQ AND BEYOND

Chair: Lisa Horowitz, National Institute of Mental Health
Moderator: Jane Pearson, National Institute of Mental Health

Overall Abstract: Detection and early intervention of patients at elevated risk of suicide is a key suicide prevention strategy, yet high-risk patients are often not recognized by healthcare providers. Recent studies show that the majority of individuals, both youth and adults, who die by suicide have had contact with a healthcare provider within months prior to their death. Whereas medical visits afford clinicians an opportunity to identify and refer patients at risk for suicide, unfortunately, individuals struggling with suicidality often present solely with somatic complaints and infrequently discuss their thoughts and plans unless asked directly.
Hospital settings like Emergency Departments (ED), medical inpatient units, and outpatient clinics are critical venues for identifying patients at risk for suicide. Nevertheless, evidence-based guidelines for screening and intervention programs do not exist, highlighting the significance and timeliness of research aimed at improving care for patients in the medical setting who are identified as being at risk for suicidal behavior. Furthermore, given that medical patients are at elevated risk for suicide, the ED and the medical inpatient unit are important venues for identifying both adult and pediatric patients at risk for suicide.

Regulatory agencies in the United States, such as the Joint Commission, are recommending that hospitals screen all medical patients for suicide risk; yet non-mental health clinicians on the frontlines of this public health threat lack valid, population-specific and site-specific instruments to accurately identify patients who are at risk for suicide. This is true especially for individuals with developmental delays, intellectual disabilities, or Autism Spectrum Disorder (DD/ID/ASD), who are often excluded from suicide risk studies. These individuals require revisions in our current screening tools in order to accurately capture those at risk.

The goal of this symposium is to discuss suicide screening for youth and adults in the medical setting, including the pediatric ED, and the adult and pediatric medical inpatient units. We will present on several studies, including 1) learnings from the Suicidal Teens Accessing Treatment (STAT)-ED, a study examining adolescents seeking ED treatment for non-psychiatric concerns but identified via universal screening in the ED as being at risk for suicide; 2) the Ask Suicide-Screening Questions (ASQ) developed for the pediatric ED and undergoing validation on the inpatient medical unit; 3) the Ask Suicide-Screening Questions to Everyone in Medical Settings (asQ`em) study designed to create a suicide risk screening tool for adult medical inpatients in the hospital setting; and 4) screening patients with DD/ID/ASD for suicide risk in the healthcare setting. Topics discussed will include: suicide risk screening and intervention, feasibility, and medical patient opinions about screening.

27.1 SCREENING FOR SUICIDE RISK ON A PEDIATRIC MEDICAL INPATIENT UNIT

Lisa Horowitz[1], Elizabeth Wharff[2], Jeffrey Bridge[3], Abigail Ross[2], Erina White[2], Daniel Powell[1], Sally Nelson[2], Martine Solages[4], Maryland Pao[1]

[1]National Institute of Mental Health, [2]Boston Children's Hospital, [3]Research Institute at Nationwide Children's Hospital, [4]Children's National Medical Center

According to the most recent World Health Organization statistics, suicide has advanced to the second leading cause of death for youth worldwide. A recent study revealed that nearly 80% of youth who killed themselves had been evaluated by a healthcare professional in a medical setting such as the emergency department, the inpatient medical unit and the primary care clinic, months prior to their death. These points of contact create not only an opportunity but a responsibility to capture young patients at risk for suicide; yet the majority of clinicians in healthcare settings do not screen for suicide risk.

Recently in the United States, the U.S. national hospital accreditation board, the Joint Commission, issued a Sentinel Event Alert recommending suicide screening for all patients at elevated risk on medical/surgical units. Data reveal that medical patients are known to be at higher risk for suicidal ideation and behavior, positioning the pediatric medical inpatient unit as a valuable place to identify pediatric medical/surgical patients at-risk for suicide.

A major barrier to screening is the lack of brief, validated instruments available for non-psychiatric clinicians, who are on the frontlines of this severe public health threat. While the feasibility of screening youth for suicide risk has been studied in medical settings such as the ED and primary care clinics, it is unclear whether or not suicide screening tools used in these settings can be adapted to the medical inpatient unit. In September of 2013, an IRB-approved multisite study was launched to test the use of the Ask Suicide-Screening Questions (ASQ), a brief, 4-item screening tool, on the pediatric medical inpatient unit.

The purpose of this presentation will be to discuss the feasibility of screening for suicide risk on a pediatric medical inpatient unit. Data from 200 pediatric medical inpatients collected at an urban hospital will be presented. Feasibility was assessed in four domains: 1) Acceptability: Do parents of pediatric medical patients allow their children to be screened for suicide risk? 2) Prevalence: Are self-reported suicidal ideation and behavior prevalent enough in this setting to warrant screening? 3) Practicality: Can pediatric medical patients who screen positive for suicide risk be managed effectively without straining existing mental health resources? 4)

Patient opinion: Do pediatric medical patients support screening for suicide risk on the inpatient unit?

Results highlight that routine screening on the inpatient unit can help identify at-risk patients and allow a bridge too much needed mental health resources. Medically ill young people offered revealing comments describing the importance of prevention through proactive inquiry. These data lend further evidence to the importance of screening youth for suicide risk in the medical setting.

27.2 SCREENING AND BRIEF INTERVENTION FOR SUICIDAL YOUTH IDENTIFIED IN THE PEDIATRIC EMERGENCY DEPARTMENT SETTING

Jeffrey Bridge[1], Lisa Horowitz[2], Elizabeth Ballard[2], Jack Stevens[3], Maryland Pao[2], Jackie Grupp-Phelan[4]

[1]The Research Institute at Nationwide Children's Hospital, [2]NIMH, [3]Research Institute at Nationwide Children's, [4]Cincinnati Children's Medical Center

Early identification and treatment of patients at elevated risk of suicide is a key suicide prevention strategy, yet high-risk patients are often not recognized by healthcare providers. Recent studies show that the majority of individuals who die by suicide have had contact with a healthcare provider within three months prior to their death; nearly 40% have had a recent visit to an ED. Whereas medical visits afford clinicians an opportunity to identify and refer patients at risk for suicide, unfortunately, young people often present solely with somatic complaints and infrequently discuss suicidal thoughts and plans unless asked directly.
The ED is a promising venue for identifying young people at risk for suicide. In the United States, ED clinicians are often the sole connection with the healthcare system for millions of youth and their families; they are uniquely positioned to provide screening, brief intervention, and referral to treatment (SBIRT). Nevertheless, evidence-based guidelines for screening and intervention programs do not exist, highlighting the significance and timeliness of research aimed at improving care for patients in the ED who are identified as being at risk for suicidal behavior.

The goal of this symposium is to discuss suicide screening and brief intervention for patients in pediatric EDs. We will first present data on the development of a brief suicide screening instrument for the pediatric ED, the Ask Suicide-Screening Questions (ASQ). Next, screening and triage findings from the STAT-ED Study (Suicidal Teens Accessing Treatment after an Emergency Department Visit) will be discussed.

27.3 SCREENING FOR SUICIDE RISK IN ADULT MEDICAL INPATIENTS: THE ASQ'EM STUDY

Elizabeth Ballard[1], Deborah Snyder[2], Daniel Powell[2], Elizabeth Clayton[2], Maryland Pao[2], Lisa Horowitz[2]

[1]NIMH, [2]National Institute of Mental Health

Hospital-based suicides are rare but devastating events. According to the US Joint Commission (JC), there have been more than 1300 hospital suicides since 1995. In 2010, the JC issued a Sentinel Event Alert which recommended screening all patients on medical/surgical units for suicide risk. While some hospitals have started to implement suicide risk screening in the medical inpatient setting, clinicians lack validated tools to rapidly identify patients at risk for

suicide. As many clinicians without extensive mental health training may be on the front lines of screening medical inpatients, screening instruments with clear guidance on administration and wording are crucial. In addition, the majority of existing suicide screening instruments have been developed utilizing patients with psychiatric chief concerns and have not been empirically tested on medical populations. In order to accurately identify adult medical patients who are at risk for suicide, the development of a psychometrically-sound instrument for non-mental health clinicians is a critical next step.

This presentation will describe the efforts of our team to create a valid instrument to screen adult medical inpatients for suicide risk. As part of an ongoing IRB-approved research study, patients on medical inpatient units consent to complete a battery of questionnaires that assess suicidal ideation, suicidal behavior and depressive symptoms. Participants also complete a demographics and exploratory variable questionnaire. Responses to 20 candidate items will be compared to a positive score on the gold standard Adult Suicidal Ideation Questionnaire. Sensitivity/specificity as well as negative and positive predictive values will be calculated in order to develop an instrument with the fewest number of items and sound psychometric properties. Opinions from patients and staff about screening for suicide risk in the hospital are also captured for qualitative analysis.

The goal of this presentation is to discuss preliminary findings from the Ask Suicide-Screening Questions to Everyone in Medical Settings (asQ`em) study, a multisite project led by a research team at the National Institute of Mental Health. Recruitment is ongoing, with over 120 participants already enrolled. Results discussed will include: feasibility of suicide risk screening in the inpatient medical setting, patient opinions about screening, and the relationship between suicidal ideation and depression in a medical population.

27.4 SCREENING FOR SUICIDE IN YOUTH DIAGNOSED WITH DEVELOPMENTAL DELAYS, INTELLECTUAL DISABILITIES AND AUTISM SPECTRUM DISORDER

Lisa Horowitz[1], Elizabeth Ballard[1], Daniel Powell[1]

[1]National Institute of Mental Health

At one time, it was suggested that lowered intellectual capacity protected individuals with developmental delay (DD) and intellectual disability (ID) from suicidal thoughts and behaviors. However, a review of the literature confirms that young people with DD and ID think about, attempt and die by suicide. Similarly, people diagnosed with Autism Spectrum Disorder (ASD) are at an increased risk for various medical and psychiatric concerns such as hypertension, obesity and depression, compared to individuals without ASD. Most notably, the prevalence of suicide attempts is 433% higher in individuals with ASD compared to those without ASD. Distinct factors, like psychiatric co-morbidities and immediate psychosocial stressors, are associated with suicidal ideation and suicidal behaviors (SI/SB) in children and adolescents with DD, ID, and ASD. Unfortunately, there is no standardized measure to assess suicide risk in this population. Utilizing current screening measures for children and adolescents presents a challenge due to the cognitive characteristics of individuals with DD and ID and to limitations of the assessments.

In an ongoing study at Surrey Place Centre in Toronto, we are developing a new suicide screening instrument specifically for patients with these cognitive deficits using a traditional instrument development study design. Patients are screened for suicide risk with 21 candidate items designed for the current study based on published literature and expert opinion and then administered the Suicidal Ideation Questionnaire—Child Version (SIQ-CV). In order to obtain

collateral information, a caregiver questionnaire is also administered to a parent/guardian. Participant therapists' are queried to determine if there was a documented history of suicidal thoughts or behavior prior to screening.

Data collection is ongoing, but pilot data reveals that screening patients with DD, ID and/or ASD is feasible and that patients and caregivers find it acceptable. Opportunities and barriers of suicide screening in this population will be discussed.

28. TELEPHONE CRISIS LINES FOR SUICIDE PREVENTION IN THE USA

Chair: Wendi Cross, University of Rochester Medical Center

Overall Abstract: Since their inception in the 1950s and 1960s, telephone crisis services have become integral to national suicide prevention strategies and mental healthcare systems in the USA. This symposium focuses on three prominent crisis lines: 1) The National Suicide Prevention Lifeline (Lifeline), a network of over 150 community crisis centers in the United States; 2) The Department of Veterans Affairs national suicide prevention hotline for veterans and active military members and their families; and 3) The National Domestic Violence hotline which provides crisis intervention, empowerment -based advocacy, information, and referrals for anyone affected by domestic violence. Two presentations will report studies on the National Suicide Prevention Lifeline. "Helping callers to the National Suicide Prevention Lifeline who are at imminent risk of suicide: Evaluation of caller risk profiles and helper interventions" will present the clinical characteristics of crisis callers assessed by telephone crisis helpers as being at imminent risk of suicide, and the interventions implemented with these callers. Data were derived from 491 call reports completed by 132 helpers at eight crisis centers in the National Suicide Prevention Lifeline network.
'Examining intervention fidelity as a predictor of crisis counselor behaviors with callers' will describe a large trial that tested the impact of a suicide prevention intervention on counselor behaviors in 17 crisis centers. Fidelity of the intervention trainers (n = 34) will be presented and then examined as a moderator of the crisis counselor behaviors with callers. 'Characteristics of callers to the Department of Veterans Affairs 24/7 Crisis Line' will present clinical and psychosocial characteristics of crisis callers assessed by over 350 clinical responders within a large healthcare organization, the Department of Veterans Affairs (VA). Data were derived from 3,660 call assessments completed by responders at The VA's 24/7 Crisis Line located at the Canandaigua VA Medical Center. 'Understanding the intersectionality between intimate partner violence and suicide: Can we prevent both better by working together?' will focus on the separate 'silos' of suicide prevention and intimate partner violence (IPV). Research shows there are shared risk factors among callers to domestic violence and callers to suicide crisis lines indicating a need for prevention efforts that reach across the separate domains. Discussion will focus on findings from these four papers and their implications for crisis line services for suicide prevention.

28.1 EXAMINING INTERVENTION FIDELITY AS A PREDICTOR OF CRISIS COUNSELOR BEHAVIORS WITH CALLERS

Wendi Cross[1], Tian Chen[2], Karen Schmeelk-Cone[2], Xin Tu[2], Madelyn Gould[3], Marjorie Kleinman[4]

[1]University of Rochester Medical Center, [2]URMC, [3]Columbia University/ New York State Psychiatric Institute, [4]Columbia University

Background. The National Suicide Prevention Lifeline is a network of over 160 community crisis centers. Given the numbers of individuals who access Lifeline, it is critical that counselors are trained to assess and intervene with those at- risk for suicide. We describe an evaluation of an internationally disseminated suicide prevention program (LivingWorks' Applied Suicide Intervention Skills Training; ASIST) that has been implemented across the Lifeline network. Outcomes include counselor and suicidal caller behaviors. The intervention uses a train-the-trainer (TTT) model; fidelity of subsequent trainings was also assessed. The relationship between intervention fidelity and program outcomes has implications for this study as well as for future suicide prevention training efforts. Methods. We used a dynamic wait-listed design. Seventeen crisis centers were randomized to one of three cohorts. Two staff members from each center participated in the training and then delivered group-based training to crisis counselors at their centers; these were videotaped. Measures of fidelity were developed for seven core segments of the training and used to code videos. Calls were silent monitored pre and post training by study staff via the Internet. Monitors were blind to the center and training status of the counselor. Outcome data (counselor behaviors, caller behaviors) were analyzed for intervention impact. Fidelity data were analyzed for variability. These data were then combined to examine the moderating effect of trainer fidelity on outcomes. Results: Call outcome data was derived from 1,507 monitored calls from 1,410 suicidal individuals. Trained counselors were more likely to link the callers' invitations to suicidal thoughts, explore reasons for living and ambivalence about dying, and explore informal support contacts as part of the callers' safe plans. Trained counselors were not more likely to ask about or explore the callers' current suicide plans, preparatory behaviors/actions, intent, or prior suicide thoughts or attempts. Trained counselors were also not more likely to be rated as engaging in more positive behaviors overall, or have interventions rated as more effective by the monitors. Callers with trained counselors appeared less depressed, suicidal, and overwhelmed. In terms of fidelity, a total of 324 observations of were coded. On average, trainers delivered two-thirds of the program; 18% of trainers' observations were rated as solidly competent. Significantly higher fidelity was found for lectures and lower fidelity for interactive training activities including asking about suicide. Further analyses to be presented will focus on whether fidelity of the training impacts counselor and caller outcomes. Discussion: This study found few significant changes in trained counselors' interventions; however, improvements in callers' outcomes were linked to trained counselor interventions. There was significant variability in training fidelity across centers. The relationship between fidelity and outcomes is critically important to an understanding what may mediate the relationship between training and outcomes.

28.2 HELPING CALLERS TO THE NATIONAL SUICIDE PREVENTION LIFELINE WHO ARE AT IMMINENT RISK OF SUICIDE: EVALUATION OF CALLER RISK PROFILES AND HELPER INTERVENTIONS

Madelyn Gould[1], Alison Lake[2], Jimmie Lou Munfakh[2], Hanga Galfalvy[3], Marjorie Kleinman[2], Caitlin Williams[4], Andrew Glass[3], Richard McKeon[5]

[1]Columbia University & New York State Psychiatric Institute, [2]New York State Psychiatric Institute, [3]Columbia University, [4]Aurburn University, [5]Substance Abuse and Mental Health Services Administration

Background. The increasing recognition of the urgent need to develop an empirically based definition of imminent risk and to validate procedures for determining who is at risk of attempting suicide in the immediate future is reflected in the aspirational goals of the National Action Alliance (Action Alliance) for Suicide Prevention's Research Prioritization Task Force (RPTF). The Action Alliance RPTF's Aspirational Goals 2 and 3 focus on the formulation and assessment of imminent suicide risk, with an emphasis on suicide risk screening among individuals in diverse populations and in diverse settings (National Action Alliance for Suicide Prevention: Research Prioritization Task Force, 2014). One such setting highlighted by the Action Alliance RPTF is crisis lines. The National Suicide Prevention Lifeline (Lifeline) (www.suicidepreventionlifeline.org) - the national network of over 160 community crisis centers in the United States - responds each year to approximately one million callers, a quarter of whom are suicidal. Determining whether a caller is at imminent risk of engaging in suicidal behavior and in need of emergency intervention is one of the most significant judgments that a Lifeline crisis center helper has to make.

Methods. We examined clinical characteristics of crisis callers assessed by telephone crisis helpers as being at imminent risk of suicide, and the interventions implemented with these callers. Data were derived from 491 call reports completed by 132 helpers at eight crisis centers in the National Suicide Prevention Lifeline network. At the outset of their participation in the study, telephone crisis helpers were asked to complete a one-page self-report questionnaire describing their training and experience as a telephone crisis helper. Thereafter, for the duration of the nine-month data collection period from February—September, 2012, helpers were asked to complete a four-page questionnaire about each call from an individual they deemed to be at imminent risk of suicide.

Results. Helpers actively engaged the callers in collaborating to keep themselves safe on 76.4% of calls, and sent emergency services without the callers' collaboration on 24.6% of calls. Four different profiles of imminent risk calls emerged. Caller profiles and some helper characteristics were associated with the type of intervention implemented during the call, including whether or not the caller collaborated on securing his/her own safety, whether or not the helper initiated an active rescue, and whether or not the helper was able to reduce the caller's imminent risk without involving emergency services. Discussion. Lifeline crisis helpers are at the forefront of crisis interventions with individuals at imminent risk of suicide who are at least ambivalent enough to reach out for help. Their experience has much to teach other providers of services to suicidal individuals. Our findings provide a first step toward an empirical formulation of imminent risk warning signs and recommended interventions.

28.3 UNDERSTANDING THE INTERSECTIONALITY BETWEEN INTIMATE PARTNER VIOLENCE AND SUICIDE: CAN WE PREVENT BOTH BETTER BY WORKING TOGETHER?

Catherine Cerulli[1], Norma Mazzei[2], Katie Ray Jones[2], Hugh Crean[3], Madelyn Gould[4], Wendi Cross[3]

[1], [2]National Domestic Violence Hotline, [3]University of Rochester, [4]Columbia University Medical Center

Background: In the United States, researchers and practitioners reached consensus that both intimate partner violence (IPV) and suicide are public health crisis, yet there is little intersection between the two fields in either the academic and practice communities. Individuals facing victimization and/or suicidal ideation often share risk factors leading to increased morbidity and mortality. To date, science cannot elucidate whether suicidal thoughts and behaviors are caused or exacerbated by victimization, or vice-versa. However, the associations are clear in decades of research both in the US and abroad. We investigate the problem from the perspective of employees at the National Domestic Violence Hotline (NDVH). Methods: This three-phase, mixed-method study included focus groups (pre/post training) and surveys to inform and test a curriculum for NDVH workers to address suicide. Phase I sought input from the hotline advocates regarding their role in suicide prevention. Phase II adapted, implemented and tested an IPV curriculum which incorporated the state of the science regarding the IPV, suicide, and their intersection. Phase III was a longitudinal survey of hotline advocates to assess changes in their knowledge, attitudes and behaviors regarding suicide prevention. Results: Forty-three hotline advocates (approximately 66% of the employees) participated in 7 focus groups (4 pre-training, 3 post-training); 43 advocates participated in the training; 24 (55%) participated in the longitudinal study, and completed surveys at baseline, post-training, and 3 and 6 months. Focus group participants (pre/post-training) reported they believe suicide prevention work is an important component of their services. However, results also indicated that understanding the intersection between suicide and IPV is important for self-care, both on the hotline and in the aftermath of a suicidal caller. Those who had longer tenure at the hotline sustained new knowledge over 6-months while those with less than 2 years at the hotline did not sustain their new knowledge over time. Discussion: We found that NDVH advocates encounter suicide on their calls and benefit from additional training. Longitudinal results suggest training participants newer to the job might benefit from a 'booster' prior to 6-months after training to maintain new knowledge and solidify skills. The NDVH answers calls 24 hours a day, 365 days a year, and can connect callers to 4,500 national providers who speak over 200+ different languages. They have assisted over 3 million people since opening their doors almost 20 years ago. This unique partner is an ally to extend the field of suicide prevention to beyond the silos in which it currently exists. A partnership with the NDVH is consistent with the National Action Alliance for Suicide Prevention: Research Prioritization Task Force, 2014.

28.4 CHARACTERISTICS OF CALLERS TO THE DEPARTMENT OF VETERANS AFFAIRS 24/7 CRISIS LINE

Kerry Knox[1], Wendi Cross[2], Kathy Rasmussen[2], Xin Tu[2], Wan Tang[2], Kimberly Kaukeinen[2], Madelyn Gould[3]

[1]University of Rochester School of Medicine, [2]University of Rochester Medical Center, [3]Columbia University

Background. In 2007 the Department of Veterans Affairs (VA) in collaboration in with the Substance Abuse and Mental Health Services Administration (SAMHSA) implemented a 24/7

VA Suicide Crisis Line (renamed later as the VA Crisis Line) becoming part of the National Suicide Prevention Lifeline network (Knox et al 2010). In contrast to other crisis lines staffed by volunteers, clinicians staff VA's Crisis Line. A significant difference between the VA's Crisis Line and other crisis lines is that it was implemented, and continues to operate within, a large health care organization. We describe our initial efforts to identify the mechanism(s) underlying the willingness of male Veterans to call and seek help for a mental health problem (including suicidal behaviors) from a crisis line. We discuss the challenges of studying this phenomena in a clinical setting whose purpose is to provide care to emergent and ongoing issues that Veterans are experiencing, including suicidal thoughts and behaviors. We are currently studying the important contributions of characteristics of Veteran callers that may inform our understanding and promotion of programs that will encourage help seeking in both Veterans and non-Veteran males across the life cycle. Methods. Data were gathered on calls made by Veterans to the VCL between 07/2013-12/2013. Administrative and clinical data were obtained during each call; these data were not collected as part of a research protocol Due to the high number of variables collected during the call, a factor analysis was conducted in order to create a more succinct set of latent variables for analysis. Three factors emerged; however, factor loadings for some problem areas were quite low. Internal consistency of each factor was assessed, and some problem areas were dropped until an acceptable level of consistency was reached for two of the three factors. Factor 1 consists of economic problem; Factor 2 consists of physical problems; Factor 3 will require further refinement prior to the final analysis for this presentation. Factor 3 currently consists of mental health concerns, such as PTSD symptoms or substance use, as well as items that may contribute to mental health concerns, such as relationship issues or loneliness. Discussion. Earlier research on use of suicide crisis lines found that females were more likely than males to use these lines, and that the callers most likely to benefit were younger females. Thus, when the VCL began operation, it was unknown whether Veterans would utilize the service. Historically, crisis lines have served as anonymous venues of contact with little or no longer-term follow-up, systematic referrals for case management and/or treatment. Our findings suggest that male Veterans predominantly call the VA's Crisis Line; many are already known to the VA system but may prefer to call the crisis line. On-going studies will seek to elucidate further the successful reaching out to male Veterans provided through VA's 24/7 Crisis Line.

29. BIOMARKERS IN SUICIDE AND SUICIDE PREDICTION

Chair: Douglas Meinecke, National Institute of Mental Health
Moderator: Holly Garriock, National Institute of Mental Health

Overall Abstract: Investigations exploring the hypothesis that suicidal syndromes are independent of psychiatric illnesses suggest that suicidal behavior, in addition to the interplay between state-and trait- dependent factors, may have biological markers. This symposium will present new data in three areas of biomarker identification which have utility for suicide prediction: 1) gene expression and epigenetic profiling 2) miRNA analysis by peripheral isolation of neural-origin exosomes 3) CNS measures by neuroimaging modalities. Genome-wide DNA methylation profiling has led to promising early results in suicide prediction. Zachary Kaminsky will discuss recent data identifying an additive epigenetic and genetic association with suicide at rs7208505 within the 3' un-translated region of the SKA2 gene. Specifically, SKA2 gene expression (blood and postmortem brain) is significantly lower in adult suicide cases and is associated with genetic and epigenetic variation of rs7208505.

Mechanistically, the hypothesis that SKA2 variation may modulate cortisol suppression is consistent with its implicated role in glucocorticoid receptor transactivation. The relevance of this mechanism to other HPA axis disorders such as PTSD will be discussed. miRNA alterations are also emerging as putative biomarkers in suicide with the possibility that brain-derived sources are peripherally accessible. Following initial findings for suicide-associated miRNA alterations in postmortem brain, the Dwivedi lab has compelling new data on the emerging concept that exosomes are secreted from brain and contain neural-specific miRNAs. Consequently, assessment of peripheral miRNAs could represent a significant advance in suicide biomarker development. In addition to neuroimaging as a modality to explore the potential neurobiological basis of suicide, its use as a prediction strategy for risk continues to show promise. Among these efforts, Hilary Blumberg's team is seeking to determine the relationship between several imaging parameters in frontal systems (gray-white matter, structural and functional trajectories) to the likelihood of suicidal behavior. A presentation from her laboratory will offer new data on findings associated with the presence of attempts among subjects with BP and MDD as well as possible predictors of future attempts. Maria Oquendo will present complementary neuroimaging imaging findings using PET and [11C]WAY100635, a 5-HT1A receptor antagonist. 5-HT1A receptor binding potential is associated with higher lethality in past suicidal behavior and with suicide intent of the most lethal past attempt. 5-HT1A regulates serotonin neuron firing (serotonin release). Elevated 5-HT1A binding results in less serotonin firing and up-regulation of receptors observed in MDD and suicide attempters may be a compensatory effect. A summary discussion will address peripheral and central biomarker strategies in the context of suicide as an independent biological trait, or a comorbidity correlate of other psychopathologies. Both the sensitivity and specificity of suicide biomarkers will be a core topic of this discussion.

29.1 MULTIMODALITY MAGNETIC RESONANCE IMAGING OF NEURAL CIRCUITRY ASSOCIATED WITH SUICIDE ATTEMPTS IN ADOLESCENTS WITH MOOD DISORDERS

Jennifer Johnston[1], Elizabeth Cox Lippard[2], Amanda Wallace[2], Kirstin Purves[2], Linda Spencer[2], Fei Wang[2], Maria Oquendo[3], Hilary Blumberg[2]

[1]Yale University, [2]Yale School of Medicine, [3]Columbia University

Background: Adolescence is a critical period in the development of suicide behaviors, and adolescents with mood disorders are at especially high risk of suicide. This highlights the need for improved understanding of the biological basis of suicide risk in adolescents with mood disorders. Moreover, it is not known whether risk circuitry is the same or has distinct features across bipolar disorder (BD) and major depressive disorder (MDD). Therefore, neural circuitry associated with attempts was examined within and across both disorders.

Methods: High resolution structural MRI, functional MRI and diffusion tensor imaging were performed in adolescents with BD and healthy volunteers. Neural circuitry associated with suicide attempts was investigated and the relationship between structural and functional deficits explored. To investigate potential similarities and differences in risk for suicide across mood disorders, scanning and analyses were also performed in adolescents with MDD. Relationships between circuitry features and suicide-related symptoms and risk factors were examined. Preliminary longitudinal data were analyzed for neural circuitry patterns predicting future attempts.

Results: Within BD, results indicated prominent ventral frontal system connectivity abnormalities among attempters, including white matter structural integrity decreases in uncinate and ventrolateral frontal regions, gray matter volume decreases in frontal, hippocampal and cerebellar regions, and decreases in functional connectivity from the amygdala to ventral prefrontal cortex in comparison to non-attempters ($p<0.005$). Associations between structural and functional deficits were evident. Moreover, findings demonstrated associations between circuitry deficits and suicide ideation severity, number of attempts and lethality of attempts. Abnormalities in ventral and medial regions were common to both BD and MDD attempters. Distinctions between attempters with each disorder were also detected. More prominent ventral abnormalities were seen in attempters with BD, while more dorsal findings were seen in attempters with MDD. Preliminary longitudinal analyses demonstrated larger reductions in the gray matter volume and white matter integrity over time in the adolescent attempters.

Conclusions: The multimodal structural and functional imaging results support abnormalities in frontal systems in adolescent suicide attempters with mood disorders. Some abnormalities were common across the disorders suggesting they may be associated with trait risk for attempts, whereas others differed between the disorders suggesting that there may be some risk features particular to different disorders. Preliminary findings also suggest that some neural circuitry risk abnormalities may progress over time during adolescence. Further characterization of features of brain structure and function linked to the development of suicidal behaviors within and across disorders can be instrumental in developing early identification, intervention and prevention strategies that may be helpful in reducing suicide risk more generally across disorders and in the setting of specific disorders.

29.2 A PROSPECTIVE STUDY OF SUICIDAL BEHAVIOR: HIGHER DORSAL RAPHE NUCLEUS 5HT1A BINDING POTENTIAL AND MEDICAL LETHALITY

Maria Oquendo[1], HC Galfalvy[1], GM Sullivan[1], ES Sublette[1], JM Miller[1], M Milak[1], RT Ogden[1], RV Parsey[1], JJ Mann[1]

[1]Columbia University & New York State Psychiatric Institute

INTRODUCTION: Violent and highly lethal attempts, as well as future suicide risk 72, 91-96 are associated with low cerebrospinal fluid (CSF) 5-hydroxyindoleacetic acid (5-HIAA), serotonin's main metabolite. Fenfluramine induced serotonin release is also impaired in high lethality attempters as indicated by a blunted prolactin response97. In postmortem studies, suicides exhibit higher 5-HT1A receptor binding localized in ventrolateral prefrontal cortex (PFC)98, 99, although not all studies are consistent100. As well, positron emission tomography (PET) fluorodeoxyglucose (FDG) uptake indicates regional differences in brain activity in high lethality attempters compared with low lethality attempters in several PFC regions; differences that are enhanced upon fenfluramine challenge72. Suicide intent, thought to be linked to medical lethality, is associated with lower 11-C-methyltryptophan uptake in ventromedial PFC101 and to anterior cingulate serotonin transporter binding102. Thus, serotonergic dysfunction appears associated with the medical damage inflicted by suicidal behavior.

The 5-HT1A autoreceptor regulates serotonin neuron firing and serotonin release. Greater 5-HT1A autoreceptor binding90 leads to less serotonin firing. Terminal field receptor upregulation observed in MDD and suicide attempters may be compensatory. We reported that 5-HT1A receptor binding potential (BPF) was associated with higher lethality of past suicidal behavior and with suicide intent of the most lethal past attempt. We examined 5-HT1A BPF

using PET and [11C]-WAY100635, a 5-HT1A receptor antagonist to prospectively determine its relationship to suicidal behavior lethality and to specific features of suicidal ideation.

METHODS: Depressed participants (n=134) had PET scanning at baseline with [11C]-WAY100635 and were followed for 2 years. 13 subjects made a suicide attempt and 2 died by suicide. Attempt lethality was ranked from 0 (no damage) to 8 (death). Suicidal ideation was assessed with the Beck Scale for Suicidal Ideation (SSI). Analyses were weighted by the inverse estimated variance of ROI-specific binding (weights were windsorized to reduce the influence of extreme outliers).

RESULTS: Fifty-five (41%) participants were past suicide attempters. During follow-up, 13 subjects made a suicide attempt. Another 2 died by suicide. Baseline and future maximum lethality scores were not correlated (r=0.47; p=0.107). As in our cross-sectional data, higher lethality of future suicide attempt was associated with higher 5-HT1A BPF in the raphe nucleus, but not in other ROIs (p= 0.042). Higher suicidal ideation was associated with overall 5-HT1A BPF at 3 months (p<0.033) and at 1 year (p=0.015) with region-specific differences in the strength of the association at both time points (p<0.0001). We did not observe this association at 2 years. There was "saturation" at scores of 15 or greater on the SSI with a positive association at scores below 15 with a loss of the relationship at 15 or greater. Scores on the suicide intent scale for the maximal lethality attempt during the follow-up were not associated with baseline 5-HT1A BPF (p= 0.427).

CONCLUSIONS: Consistent

29.3 DISCOVERY, REPLICATION, AND FUNCTIONAL IMPLICATIONS OF THE SKA2 EPIGENETIC BIOMARKER FOR SUICIDE

Jerry Guintivano[1], Holly Wilcox[1], Brion Maher[2], William Eaton[2], Jennifer Payne[1], Lotte Houtepen[3], Elbert Geuze[3], Eric Vermetten[3], Christiaan Vinkers[3], Bart Rutten[4], Marco Boks[3], Kerry Ressler[5], Alicia Smith[5], Zachary Kaminsky[1]

[1]Johns Hopkins University, [2]Johns Hopkins Bloomberg School of Public Health, [3]Utrecht University, [4]Maastricht University, [5]Emory University

Suicide is a major preventable public health problem. Previous research identified that alterations in the reactivity of the hypothalamic pituitary adrenal (HPA) axis are predictive of suicidal behaviors; however, reliable identification of individuals at increased suicide risk remains an unfulfilled priority for suicide prevention. The primary purpose of this study was to identify genes exhibiting epigenetic variation associated with suicide and suicidal behaviors. Genome-wide DNA methylation profiling was employed separately on neuronal and glial nuclei in a discovery set of post mortem brains to identify associations with suicide. Pyrosequencing based validation was conducted in prefrontal cortical tissue from two additional brain cohorts and peripheral blood from three independent living samples. Functional associations with gene expression, self-reported stress and anxiety, and salivary cortisol measurements were assessed. The genome-wide DNA methylation scan identified an additive epigenetic and genetic association with suicide at rs7208505 within the 3'UTR of the SKA2 gene independently in the three brain cohorts. This finding was replicated with suicidal ideation using peripheral blood in three diverse retrospective and prospective cohorts. SKA2 gene expression was significantly reduced in suicide decedents and was associated with genetic and epigenetic variation of rs7208505, possibly mediated by long-range interaction with miR-301a. Analysis of dexamethasone suppression test data and trier social stress test data demonstrate that SKA2 epigenetic variation interacts with trauma exposure to modulate the

sensitivity of the HPA axis and suppression of cortisol. This data is consistent with the implicated role of SKA2 in facilitating glucocorticoid receptor transactivation and suggests SKA2 may be important for other HPA axis related disorders resulting in trauma exposure such as PTSD. Linear models incorporating SKA2 variation and anxiety or trauma status resulted in suicidal behavior predictions ranging from 70-80% across three cohorts. Model application in a pre and post deployment Dutch military sample resulted in 78% predictive accuracy for PTSD. Our findings implicate SKA2 as a novel genetic and epigenetic target involved in the etiology of suicide, suicidal behaviors, and PTSD.

29.4 MICRORNA PROFILING IN POSTMORTEM BRAIN AND PLASMA EXOSOMES: BIOMARKER PERSPECTIVE OF SUICIDALITY

Yogesh Dwivedi[1], Richard Shelton[1]

[1]University of Alabama at Birmingham

Suicide is among the top 10 leading causes of death in the US for all ages and is the third leading cause of death among ages 15-34 years. While the presence of psychopathology is a strong predictor, only a minority of people with such diagnosis commit suicide. Thus, the existence of suicidal syndromes that are independent of psychiatric illnesses has been suggested. It has been hypothesized that suicidal behavior is a function of the interplay between state-dependent factors, such as illness and life events, and trait-dependent factors, which include biological markers. Although research on the biological aspects of suicide is accumulating, there is no testable biomarker to assess suicidality. Thus, there is an urgent need to identify: risk factors associated with suicide, non-invasive, reliable biomarkers that can be used for early detection of suicidality, and markers of treatment outcome.

miRNA, a class of small non-coding RNAs, is a major regulator of higher brain functioning. By modulating translation and stability of a large number of targets in a coordinated and cohesive fashion, they are able to regulate the entire gene circuitry. Since miRNAs show a highly regulated expression, they contribute to the development and maintenance of a specific transcriptome and thus have the unique ability to influence disease phenotypes. Besides their high expression in neurons, miRNAs are released in body fluids such as blood and CSF. Under healthy conditions, these circulatory miRNAs are stably expressed; however, under pathological conditions, the profile of miRNAs changes dramatically, suggesting that peripheral miRNAs can be used as reliable disease biomarkers. Therefore, there is tremendous interest in the use of peripheral miRNAs for translational research in a variety of diseases. The recent discovery, that neurons can actively secrete miRNAs in response to known activating signals, has provided a unique opportunity to examine tissue-specific miRNA as a promising source of biomarker for CNS disease. This presentation will discuss how miRNA dysregulation contributes to suicide pathogenesis and whether peripheral miRNAs can be used as a biomarker to detect suicidality. To this end, findings of miRNA dysregulation in human postmortem brain of suicide subjects and parallel changes which may be detected in plasma exosomes isolated from suicidal patients will be presented.

Sunday, October 11, 2015

1:00 PM - 2:45 PM

Concurrent Oral Sessions

GENES, GENE EXPRESSION AND NEUROBIOLOGY OF SUICIDAL BEHAVIOR
Chair: Gustavo Turecki, McGill University

1. WHITE MATTER OLIGODENDROCYTE PATHOLOGY IN DEPRESSION AND SUICIDE

Gregory Ordway[1], Attila Szebeni[1], Tim DiPeri[1], Craig Stockmeier[2], Katalin Szebeni[1]

[1]East Tennessee State University, [2]University of Mississippi Medical Center

Background: There is rapidly growing evidence of brain white matter pathology in depression. Evidence includes in vivo imaging studies demonstrating white matter hyper-intensities and postmortem brain studies demonstrating altered axonal myelination and disruptions of the expression of genes in cells of white matter. The oligodendrocyte is a principal cell type in white matter and these cells provide dynamic myelination to neuronal axons. Oligodendrocytes differ from astrocytes that are also found in white matter in part because oligodendrocytes are uniquely susceptible to free radical damage. There is a strong link of stress and depression to conditions of elevated oxidative stress and free radical damage, including evidence of elevations of numerous peripheral markers of oxidative damage and reduced blood antioxidant concentrations in patients with major depressive disorder. Hence, we considered that white matter oligodendrocytes in brains from depressed suicide victims might exhibit signs of oxidative cell damage.
Methods: To study this issue, we measured biochemical parameters of free radical damage and antioxidant enzyme function in oligodendrocytes from depressed suicide victims and psychiatrically normal control subjects using postmortem brain tissues obtained from a NIH-funded psychiatric brain collection. Astrocytes (relatively resistant to oxidative stress) from the same tissues were used as a cell comparison group. Both cell types were collected by laser capture microdissection from white matter and cell identities were confirmed by the expression of cell-type specific gene expressions. Gene expressions were normalized with the average expression of three housekeeping genes that did not show differential expression between the two groups of subjects. Parameters of oxidative damage in white matter homogenates were measured using commercially available ELISA kits.
Results: Indices of lipid and DNA oxidation were significantly elevated by 168±37% and 132±10%, respectively, in white matter comparing depressed suicide victims to control subjects. The levels of expression of PARP-1, a sensor of DNA oxidation, were robustly and significantly elevated in white matter oligodendrocytes, but not astrocytes, from depressed suicide victims as compared to normal control subjects.
Discussion: The findings of this study demonstrate evidence of elevated oxidative damage of lipids and DNA in white matter oligodendrocytes from brains of depressed suicide victims. These data are consistent with previous findings from our laboratory showing oxidative damage to oligodendrocyte telomeres and reduced gene expression of antioxidant enzymes in oligodendrocytes in depression and suicide. Indices of oxidative damage have not been

observed in astrocytes from the same white matter regions of the same group of subjects, indicating that oxidative damage to white matter in depression and suicide exerts selective damage to the uniquely susceptible oligodendrocyte. Oligodendrocyte damage in depression is likely to contribute to abnormal axonal conduction of neural information between brain regions and could be a major contributor to the psychopathology of depression. Developing treatments to subvert oligodendrocyte pathology in depression could reduce morbidity and mortality associated with this typically debilitating disorder.

2. BRAIN VITAMIN D RECEPTOR AND CATHELICIDINE EXPRESSION IN DEPRESSED SUICIDES

Teodor Postolache[1], Hui Zhang[2], Ellen Lee[2], Elizabeth Streeten[2], Gustavo Turecki[3], Lisa Brenner[4], Yogesh Dwivedi[2]

[1]University of Maryland, Baltimore, MD, [2]University of Alabama School of Medicine, Birmingham, AL, [3]McGill University , Montreal, CA, [4]Rocky Mountain MIRECC, Denver CO

Background: Low vitamin D levels have been recently associated with suicide and history of suicide attempts. Deficient D levels are often a result of reduced intake or skin production as a consequence of low UV exposure, or abnormalities in its metabolic pathway. Very low levels of Vitamin D are associated with immune dysregulations and implicated in immune mediated pathology (e.g. Multiple sclerosis). Vitamin D deficiency is also associated with impairments in infectious immunity and reactivation of chronic pathogens. Adequate levels of vitamin D are essential for the expression the antimicrobian polypeptide cathelicidine, a component of innate immunity, identified in in the skin and immune cells as a component of innate immunity. The goal of this postmortem study was to investigate, for the first time, to our knowledge, brain expression of Vitamin D related genes in depressed suicides.

Methods: The expression levels of CYP24A1, CYP27B1, Vitamin D receptor (VDR), and cathelicidin AMP (CAMP) genes were measured in the dorsolateral prefrontal cortex (dlPFC) and anterior cingulate cortex (ACC) obtained from age, gender, and postmortem interval matched non-psychiatric controls (n=15) and depressed suicide subjects (n=15). The expression levels of these genes were studied by qRT-PCR using TaqMan® primers and probes. GAPDH and β-actin genes were used as endogenous controls and geometric means of the CT values of these genes were used to normalize the values. The data were analyzed using one-way ANOVA followed by Bonferroni corrections.

Results: We found that the expression of VDR was significantly upregulated in the dlPFC and ACC of depressed suicide subjects compared with non-psychiatric controls. On the other hand, the level of CAMP was significantly reduced in both the brain areas of suicide subjects. No significant differences were noted in the expression of CYP24A1, CYP27B1 genes. Age or gender had no significant impact on the expression of these genes.

Discussion: Elevated Vitamin D receptor gene expression is consistent with deficient Vitamin D levels and may contribute to increased CNS inflammation previously reported in suicidal behavior. A lower expression of cathelicidine may contribute to reactivation of latent chronic infections previously associated with suicidal behavior. Finally, to our knowledge, this is the very first report of cathelicidine gene expression in brain regions areas involved in behavioral modulation, and the first exploration of Vitamin D related genes in suicide.

3. REGULATION OF HIPPOCAMPAL NEUROGENESIS IN SUICIDE

Lauren Bonilla[1], Andrew Dwork[1], Gorazd Rosoklija[1], Victoria Arango[1], John Mann[1], Maura Boldrini[1]

[1]Columbia University

Background: The human dentate gyrus (DG) regulates emotional processing and produces new neurons throughout the lifespan (Eriksson, 1998; Spalding, 2014). Neurogenesis is regulated by neurotrophins (Benraiss, 2001) and serotonin neurotransmission (Santarelli, 2003), both altered in suicide (Mann, 2000; Pandey, 2002). Selective serotonin reuptake inhibitors (SSRI) increase neurogenesis in human DG (Boldrini et al, 2009, 2012) with unknown signaling mechanisms. The cAMP responsible element-binding (CREB) protein is a transcription factor downstream of neurotrophin receptors, G-protein-coupled receptors and others (Carlezon et al, 2005), has a role in learning and memory (Silva et al, 1998), antidepressant action (Nibuya et al, 1996) and has antidepressant-like effects (Chen et al, 2001). Conversely, mice with hippocampal CREB deletion respond faster to antidepressants and have increased neurogenesis (Gunderson et al, 2013; Gur et al, 2007), possibly because of upregulation of CREB-family protein cAMP response-element modulator (CREM) (Gunderson et al, 2013). Understanding mechanisms of SSRI action on neurogenesis may help design more effective and fast-acting antidepressants.

Methods: We assessed the expression of the transcription factor cAMP responsible element-binding (CREB) protein in SSRI-treated (MDD*SSRI, N=12), and untreated subjects with MDD (N=24) and controls (N=24) with no psychiatric disease or treatment. The MDD*SSRI and MDD group contained subjects with suicide and 6 non-suicide subjects with MDD. We also assessed the number of neural progenitor cells (nestin-immunoreactive [-IR]), neuroblast (PSA-NCAM-IR) and mature neurons (NeuN-IR) in the same groups, correlating numbers of these cells with the number of CREB-IR cells in the DG. Whole frozen hippocampi were fixed, sectioned, and immunostained. Cell numbers in the DG were quantified by unbiased stereology. Clinical data were obtained by a published psychological autopsy method, validated for Axis I and II diagnoses (Kelly and Mann, 1996; Currier, 2006); toxicological and neuropathological examinations were performed on all brain samples.

Results: Nestin-IR neural progenitor cells (NPCs). In the anterior DG, there are significantly more nestin-IR cells in the MDD*SSRI group compared to untreated MDD subjects ($p=0.023$), and more nestin-IR cells in controls than in suicide-MDD ($p=0.021$), but not more nestin-IR cells in controls than in non-suicide MDD and no difference between suicide and non-suicide MDD.

PSA-NCAM-IR neuroblasts. No significant difference between MDD*SSRI and untreated MDD or controls and between suicide and non-suicide MDD emerged in the subjects analyzed thus far.

NeuN-IR mature granule neurons. NeuN-IR cell number in the anterior DG were more in the control group compared to subjects with untreated MDD ($p=0.004$) and in MDD*SSRI than in untreated MDD ($p<0.05$). NeuN-IR cell number in the mid DG were also more in the controls compared to untreated MDD ($p=0.006$). Controls had more NeuN-IR cells than suicide-MDD ($p<.001$) and non-suicide MDD ($p=0.046$).

CREB-IR granule neurons and glia. In the anterior DG, there are significantly more CREB-IR granule cells in unterated MDD compared to controls ($p=0.027$) and MDD*SSRI ($p<0.05$). No group differences were found for CREB-IR glial cell number.

Discussion: Anterior DG NPCs are fewer in suicide-MDD, but not in non-suicide MDDs, vs. controls. The smaller non-suicide MDD group makes it harder to detect differences, or there could be a neurobiological and/or stress component in suicide negatively affecting NPCs proliferation in anterior DG, a region implicated in emotional control and pattern discrimination.
Neuroblast number does not change in relationship with suicide or SSRI treatment.

DG neuron number was larger in controls vs. suicide and non-suicide MDD and in SSRI-treated vs. untreated MDD, suggesting an effect of MDD on the maturation and/or survival of NPCs, leading to fewer mature neurons, and a positive effect of SSRIs in sustaining the viability of these cells.

CREB expression in granule neurons, but not in glial cells, was more in untreated vs. SSRI-treated MDD and controls. Further studies on CREB expression in NPCs are needed to understand the regulation of neurogenesis by CREB. Studies assessing CREM are also needed. Most findings on CREB expression were obtained in brain tissue homogenate and we show different findings in DG neurons vs. glial cells. Therefore assessing CREB expression in different cell populations is necessary to understand the reported findings.

4. DISCOVERY OF A DNA METHYLATION STRESS PROXY FOR USE IN SUICIDE PREDICTION MODEL

Makena Clive[1], William W. Eaton[2], Jennifer L. Payne[3], Holly C. Wilcox[4], Zachary A. Kaminsky[3]

[1]Johns Hopkins University School of Medicine, Baltimore, MD, USA, [2]Department of Mental Health Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA, [3]The Mood Disorders Center, Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, USA, [4]Department of Psychiatry and Behavioral Sciences, Johns Hopkins School of Medicine, Baltimore, MD, USA

Background: Suicide is a major public health issue. Previous work out of our laboratory identified DNA methylation changes in the 3'UTR of the SKA2 gene that could be modeled in combination with a metric of stress to predict suicidal ideation. The objective of this study is to determine epigenetic proxies of stress exposure to augment or improve suicide model prediction.
Methods: We used the Illumina 450K Methylation Array to assess genome-wide DNA methylation changes in four suicide cohorts: prefrontal cortex from post-mortem brains, blood from a prospective post-partum depression cohort, and both blood and saliva from GenRED Offspring, an at-risk youth cohort.
Results: A total of 145 loci associated with salivary cortisol measures in the GenRED Offspring cohort. Significantly enriched gene pathways included nervous system development, cellular response to nerve growth factor stimulus, and generation of neurons. Cortisol-associated probes in GenRED Offspring were significantly overrepresented among suicide-associated probes in post-mortem brains. Probes in post-mortem brains that showed a

significant interaction with SKA2 in our original prediction model were averaged to create a stress proxy that predicted suicidal ideation with greater than 70% accuracy in all peripheral tissue cohorts and correlated significantly with salivary cortisol measures in GenRED Offspring.
Discussion: The data support current models implicating an association between suicidality and stress and demonstrate the efficacy of stress proxy use to replace the questionnaire used in our current suicide prediction model.

5. HIPPOCAMPAL CA3 RELATED ORIENTING DYSFUNCTION IN DEPRESSED SUICIDE VICTIMS?

Lars Thorell[1]

[1]Emotra AB

Background: Specific electrodermal orienting responses are most probably evoked by specialized neurons in the CA3 region of hippocampus. Dysfunction of this type of responses has been consistently found in several studies to be strongly related to suicidal propensity in depressed patients. The aim of the present contribution is to further investigate the relationship by a meta-analysis of a larger material.
Methods: Tests of the habituation of electrodermal orienting responses to repeated auditory stimuli were performed in a total of 931 depressed patients and 59 non-clinical controls in four different laboratories. The habituation score (order number of first stimulus not evoking an electrodermal response) was used as an index of electrodermal reactivity. Electrodermal hyporeactivity was defined somewhat differently, however of negligible influence, in the laboratories. The most usual criterion of hyporeactivity was habituation at the fifth stimulus or earlier. Clinical ratings of depression were made using the Montgomery-Åsberg Depression Rating Scale (MADRS) and Beck Depression Inventory (BDI). Two groups of depressed patients at assumed different levels of suicidal propensity were defined: The high level group comprised those who later took their life and the low level group was those who were treated in open care who in turn, according to the recommendations by APA, should not be considered to be in risk of suicide.
Results: During follow-up in one year and in 5 years a total of 42 patients committed suicide. The prevalence of electrodermal hyporeactivity in the group of assumed high suicidal propensity was highly statistically significantly ($p= 6.1x10 -20$) higher than in the group of assumed low suicidal propensity. Among patients who committed suicide within 5 years, 86 % were electrodermally hyporeactive (within 1 year, 97 %), and among patients who were reactive 98 % did not commit suicide. These numbers are related to the concepts of sensitivity and specificity of a test, however with important exceptions that have been discussed before.
Discussion: The results support the thesis that electrodermal hyporeactivity is strongly related to suicide propensity. The hyporeactivity is a loss of normal specific orienting reactions which indicates disturbed information processing in the process of learning the usual (habituation) and disturbed emotional reactions, curiosity, of neutral events. Dysfunction of specific orienting can be expected to interfere with normal cognitions resulting in overgeneral autobiographic memory and rigid and dichotomic thinking. Readiness for leaving the everyday life and capability to ignore pain can be developed.
The specific orienting reactions are initiated by so called novelty detectors and sameness neurons in the CA3 region of the hippocampus of the rabbit. Dysfunctions of hippocampal

neurons have been reported in several studies to be associated to various biological factors, for example severe stress and inflammation, that have clear references to suicide by depressed patients.

The measurement of electrodermal hyporeactivity in habituation experiments may be of importance in clinical suicide risk assessments and in research in understanding the mechanisms behind the depressed suicide with possible reference to dysfunction of hippocampal neurons.

6. ASSOCIATION OF GENES OF THE SEROTONERGIC SYSTEM WITH COMPLETED SUICIDE: A PROTOCOL DEVELOPMENT FOR STUDY IN INDIAN POPULATION

Chittaranjan Behera[1], S K Gupta[2], D N Bhardwaj[2], R M Pande[2], Anupuma Raina[2], Mayadhar Barik[2]

[1]All India Institute of Medical Sciences, [2]AIIMS, New Delhi

Background: Suicide is a leading cause of death worldwide including India. Several studies have provided a possible relationship between genetic factors and suicidal behavior. Many genes pertaining to the serotonergic system have been proposed as candidate genes to establish biological correlates of suicidal behavior. The most studied genes are SCL6A4, HTR2A, HTR2C, HTR1A, HTR1B, TPH-1, and TPH-2.However, till date no study has been conducted to verify these genes in Indian population. To get a comprehensive understanding of the association with suicidal behavior we will conduct genotype assay in Indian population.

Methods: We will conduct a case–control study in the Indian population. The cases for the study samples will comprise of adolescent and adult completed suicide cases brought to medico legal autopsy at Department of Forensic Medicine, AIIMS, New Delhi. Age and sex matched, non-suicidal control sample will be taken for study. A comprehensive psychological evaluation of the deceased will be accessed through interview of the near relative of that deceased. Peripheral blood sample will be taken from all the subjects (cases and controls) at autopsy. Genomic DNA from the leukocytes blood sample will be extracted. The genotypes of interest are distributed in the following genes: SCL6A4, HTR2A, HTR1A, HTR1B, HTR2C, TPH-2 and TPH-1. All the samples will be analyzed using a polymerase chain reaction (PCR) end-point method. We will evaluate the Hardy-Weinberg Equilibrium. The chi-squared test or Fisher's exact test will be used to compare genotype and allele frequencies between control and case groups. The Quanto 1.2 software will measure the sample size of the association. For all the association analyses the level of significance will be set at $p = 0.05$ and the confidence interval at 95%. We will assess according to our available software SPSS and S

Results: The genes of the serotonergic system like SCL6A4, HTR2A, HTR1A, HTR1B, HTR2C, TPH-2 and TPH-1 will be studied for association with completed suicide in Indian population.

Discussion: Suicide and suicidal behavior has been increasing in Indian and mostly affecting the young population. Our study will demonstrate and establish possible association between serotoninergic genes and completed suicide. The findings will be compared with other study results conducted and reported before.

7. INVESTIGATING DNA METHYLATION ALTERATIONS IN SUICIDE COMPLETERS

Marie Breen[1], Fayaz Seifuddin[2], Sarven Sabunciyan[2], Richard Lee[2], Eric Monson[1], Peter Zandi[2], James Potash[1], Virginia Willour[1]

[1]University of Iowa, [2]Johns Hopkins University

Background: The risk of attempted and completed suicide is influenced by many interacting factors including altered DNA methylation patterns in individuals with suicidal behavior. Global hypermethylation and dysregulated expression of critical methylating enzymes have been associated with suicide. Moreover, possible genes related to suicide with altered DNA methylation patterns have been identified through epigenome and candidate gene studies.
Methods: Using the novel SureSelect system, Methyl-Seq, we investigated the methylation status of 3.7 million CpGs throughout the genome in prefrontal cortex (BA46) samples from 23 suicide completers with bipolar disorder, 27 bipolar disorder subjects who died by other means and 33 unaffected controls. This targeted capture sequencing approach focused on epigenetically interesting regions of the genome such as regulatory regions. We implemented an analytic pipeline using BSmooth and BSseq to determine differentially methylated regions (with at least three CpGs and an absolute mean methylation difference > 10%) using a case-only and case-control approach.
Results: The case-only approach identified 159 differentially methylated regions. The top result was in the non-coding RNA gene, PSCA, with a 16.5% increase in methylation found in suicide completers. The case-control approach identified 192 differentially methylated regions. The top result was within the SPATC1L gene with a 12.9% decrease in methylation found in suicide completers. The significant sites in the PSCA region were validated in the original samples using pyrosequencing (17.3% increase; P-value < 0.0001). Validation of other top results is ongoing.
Discussion: Our study further supports a role for DNA methylation alterations in suicidal behavior. Specifically, hypermethylation of the PSCA region may increase the risk of suicide in individuals with bipolar disorder. Replication in additional samples is warranted.

INNOVATIVE POPULATION AND COMMUNITY-BASED INTERVENTIONS TO PREVENT SUICIDE

Chair: Eric Caine, University of Rochester Medical Center

1. SUICIDE RATES AND STATE LAWS REGULATING ACCESS AND EXPOSURE TO HANDGUNS

Michael Anestis[1], Joye Anestis[1]

[1]University of Southern Mississippi

Background: In 2013, a total of 41,149 individuals died by suicide in the United States, resulting in a rate of 13.02 per 100,000. By comparison, in 2012, 10.7 per 100,000 died in traffic accidents. More than half of the deaths by suicide (51.5%) resulted from self-inflicted gunshot wounds, despite the fact that fewer than 5% of all self-harm episodes (nonsuicidal self-injury and suicide) reported that year involved firearms. Indeed, despite the fact that firearms

are used in such a small percentage of self-harm incidents, the 2013 US firearms suicide rate was 6.7 per 100,000, meaning that the number of individuals who died by suicide by this one specific method was more than half the total number of individuals who died in traffic accidents. This discrepancy highlights the high lethality of firearms and, indeed, prior studies have reported lethality rates ranging from 82.5% to 92% for this method. Expanding upon prior research, we examined the impact of four laws (waiting period to complete handgun purchase, universal background checks prior to handgun sales, requirement of use of handgun locks, and regulation of open carrying of handguns) on suicide rates.
Methods: Data on statewide suicide rates (overall and firearms specific) were extracted from the CDC's publicly available website. Data on firearms laws were acquired from the Law Center for the Prevention of Gun Violence. Demographic information was compiled from US Census data.
Results: Results indicated that each of these laws was associated with significantly lower firearm suicide rates and proportion of suicides accounted for by firearms. Additionally, each law except a required waiting period was associated with a lower overall suicide rate. Follow-up analyses indicated that, for each law, there was a significant indirect effect on overall suicide rates through the proportion of suicides accounted for by firearms, indicating that the reduced overall suicide rate was accounted for by fewer suicide attempts, fewer handguns in the home, suicide attempts using less lethal means, or a combination of one or more of these factors. Results also indicated states that implemented any of these laws during the time period for which data were available saw a decreased suicide rate in subsequent years whereas the only state that repealed one of these laws saw an increased suicide rate.
Discussion: These results combine to paint a consistent picture that limiting access at the point of purchase (waiting periods, background checks), placing impediments to access after purchase (gun locks), and limiting day-to-day exposure (open carry) to handguns each impact death by suicide across methods. Taken together with previous studies, it seems apparent that such legislation has a profound impact on public safety. Although previous work in this area has spoken to the impact of regulating gun ownership on suicide outcomes, the present findings suggest a mechanism of action, namely means restriction. Restriction of lethal means is a well-established deterrent to suicidal behavior. Given that suicide by firearm is almost always deadly, these restrictions deter the use of one of the most deadly instruments of self-harm. Furthermore, some have proposed that easy access to firearms and exposure to deadly means can enable an individual to quickly move from thinking about suicide to enacting suicidal behavior. Limiting access and exposure then may slow down this transition in many individuals, thereby increasing the number of opportunities to intervene and mitigate risk. In short, these data make it evident that legislating access and exposure to firearms saves lives.

2. INTERVENTIONS TO REDUCE SUICIDES AT SUICIDE HOTSPOTS

Jane Pirkis[1], Lay San Too[1], Matthew Spittal[1], Karolina Krysinska[2], Jo Robinson[1], Yee Tak Cheung[3]

[1]University of Melbourne, [2]University of New South Wales, [3]Hong Kong University

Background: Various interventions have been introduced to try to prevent suicides at suicide hotspots, but the evidence base as to their effectiveness needs to be strengthened.
Methods: We conducted a meta-analysis designed to inform this evidence base, looking at interventions delivered in combination with other intervention(s) and/or in isolation.

Results: We identified 23 journal articles representing 18 unique studies that examined the following interventions: (a) restricting access to means; (b) encouraging help-seeking; and (c) increasing the likelihood of intervention by a third party. When we removed one outlier and considered all other studies (i.e., those that considered the given intervention delivered in isolation or in combination with other interventions), restricting access to means was associated with a 91% reduction in the number of suicides per year (IRR=0.09, 95%CI=0.03-0.27, p<0.001), encouraging help-seeking was associated with a 51% reduction (IRR=0.49, 95%CI=0.29-0.83, p=0.0086), and increasing the likelihood intervention by a third party was associated with a 47% reduction (IRR=0.53, 95%CI=0.31-0.89, p=0.0155). When only those that examined the particular intervention in isolation were considered, restricting access to means was associated with a 93% reduction (IRR=0.07, 95%CI=0.02-0.19, p<0.001) and encouraging help-seeking was associated with a 61% reduction (IRR=0.39, 95%CI=0.19-0.80, p=0.0101); no studies considered increasing the likelihood of intervention by a third party as a solo activity.
Discussion: The key approaches that are currently being used as interventions at suicide hotspots appear to be effective, although we note some caveats when making this statement. Priority should be given to ongoing implementation and evaluation of initiatives at suicide hotspots, not only because of their self-perpetuating nature as places where suicidal individuals can go and make attempts on their lives that are often fatal, but also because of the impact that suicides at these sites have for those who work at them, live near them, or frequent them for other reasons.

3. ONLINE SUICIDE RISK DETECTION USING AUTOMATIC TEXT CLASSIFICATION

Bart Desmet[1], Kirsten Pauwels[2], Véronique Hoste[1]

[1]Ghent University, Belgium, [2]Flemish Suicide Prevention Centre, Belgium

Background: Identifying individuals at risk for suicide is a key prevention objective. With the growing importance of online networks, signals of suicidal ideation and intent are increasingly expressed on the web. Particular advantages of online communication are that it can offer anonymity and a sense of control. There is evidence that introverted individuals are strongly motivated to communicate online, which leads to more self-disclosure.
Although suicidal expressions may be recognized and responded to by peers, this does not always happen in an appropriate or timely fashion. It is therefore preferable to also have prevention specialists monitor user-generated content, if this is not in conflict with users' preferences, safety and privacy concerns.

The huge volume of online content prohibits manual monitoring, so automatic filtering approaches are required to prevent information overload. Previous research has focused on solutions based on keyword searches. Their efficacy is limited, since search queries can only cover a limited range of explicit suicidal expressions, they typically return many irrelevant hits, and are not robust to spelling errors. This paper presents a suicide prevention approach based on automatic text classification.

Methods: In supervised text classification, a system assigns each text to one of a number of predefined categories. In our use case, a text is an online post, and there are three categories:

alarming posts that should be reviewed, suicide-related posts that are harmless, and irrelevant posts (i.e. the majority class).
A set of 300,000 forum and blog messages was collected and partly labeled by staff and volunteers at the Flemish Suicide Prevention Centre (CPZ). We used natural language processing to represent each text as a rich set of features that should allow suicidality prediction, including words, characters, significant terms derived from transcripts from the CPZ emergency chat hotline, topic models capturing semantically related words, and the emotional orientation of words (positive, negative or neutral) based on two external sentiment lexicons. Support Vector Machines (SVM), a supervised machine learning technique, was trained, evaluated and optimized on the corpus to allow classification of unseen material. In practice, the model will classify newly posted content based on the knowledge it induced from the annotated training corpus, and notify a prevention specialist in case of a possibly alarming post.

Results: The experimental results show that both suicide-related and alarming messages can be detected with high precision (80 to 90%). As a result, the amount of noise generated by the system is minimal: only 1 or 2 out of ten messages flagged by the system is irrelevant. In terms of recall, a measure for how many relevant messages were missed, suicide-related content is almost always detected (90%, i.e. missing one in ten). Recall for alarming posts is lower, at around 60%, a problem mainly attributable to implicit references to suicide, which often go undetected. The text classification approach outperforms a system based on keyword searching, most notably in terms of precision.
In order to evaluate performance in a real-world prevention setting, we also tested the system on datasets of increasing size in which the class skew was augmented and thus the incidence of suicide-related material was decreased. Interestingly, we observe that the system also scores well on large datasets with high class skew, making it usable in big data automated prevention.

Discussion: The results are a first and promising indication that text classification is a viable approach to online message filtering for suicide prevention purposes. Additional positive training data (i.e. messages that can be considered suicide-related) should allow further performance improvements.
The resulting system is currently being validated on the message boards of two Belgian LGBT organizations. Volunteer website moderators, faced with an above-average amount of suicide-related content, receive training on how to screen possibly alarming content and how best to respond, through an e-tool developed by CPZ specialists. The results of this study will be presented at the IASR Summit.

4. SUICIDE PREVENTION AT COMMUNITY LEVEL: FROM RESEARCH TO POLICY THROUGH SCIENCE / ARTS COLLABORATION

Kevin Malone[1], Seamus Mc Guinness[2], Ann Sheridan[3], Cecily Kelleher[1]

[1]University College Dublin, [2]Galway / Mayo Institute of Technology, [3]Health Service Executive

Background: Young adult suicide death constitutes a significant public health problem in many countries, cultures and communities. The associated mantle of stigma is a recognized obstacle in suicide intervention and prevention, and the frequent inclination is to "look away".

Stigma also impacts prevention implementation efforts by policy makers. An alternative strategy may be to "look toward", and to deepen the gaze into the body and mind, heart and soul of the problem and its effects on society to create a new collective understanding of suicide and its aftermath together with communities and their policy makers.

Methods: Over the past decade, we have established a science / arts collaborative in a novel suicide research initiative that looks toward suicide-bereaved families to engage with them around the lived lives of the loved ones they have lost to suicide. 104 families volunteered and were recruited. The suicide deaths were aged under 21 years in 36 cases. Engagement with families was an essential step towards subsequently engaging with communities. The methods included a combined Psycho-biographic and Visual Arts Autopsy not previously described. Dissemination of results and findings have included "Lived Lives", a dynamic Arts installation initiative which has brought the project from private grief to public acknowledgement and mourning. The Lived Lost Lives exhibition has been placed for periods in public spaces in several urban and rural communities in Ireland, including Donegal as a pilot approach, and has been mediated by the Artist and scientist, and facilitated by local suicide prevention policy makers. Bereavement counselling support was made available throughout.

Results: Public feedback from hundreds of attendees was simple and profound, with no adverse effects reported. Policy makers significantly advanced local prevention implementation initiatives in consultation and collaboration with the scientist, the artist and community.

The co-presenters from science / arts and policy will present the journey of the project in words, and images from the private and intimate stories with suicide bereaved families through to "Lived Lost Lives" presented in the public domain. We include feedback from statutory agencies and community voices, including 120 16-18 year olds, whose reflections include: "I had thought about doing it, but would never do it now after seeing the wile (terrible) pain of the families left behind....teenagers don't think about their families missing them, they think about their friends...wile (terrible) sad" (16 year old participant, Lived Lost Lives, Letterkenny Arts Centre, Nov 2013).

The project has most recently been tailored to facilitate engagement with the topic of suicide within an indigenous ethnic minority (Irish Travellers, who bear a significant increased risk for suicide), and has received a Wellcome Trust People Award to manifest in Dublin in November 2015.

Discussion: The statutory and voluntary feedback indicates that our approach has provided a new and sensitive model for public engagement with the problem of suicide that dismantles stigma, acknowledges bereavement and grief, and restores dignity and humanity to lives lost to suicide, which can facilitate change, and support for new local suicide prevention policy initiatives. We propose that such an approach may have universality potential that will resonate across cultures and communities and uniquely contribute to local suicide prevention action. It may also serve as a model for suicide intervention initiatives with hard-to-reach indigenous ethnic minority groups internationally.

5. UNLOCKING THE POTENTIAL FOR PUBLIC EDUCATION CAMPAIGNS TO SUPPORT SUICIDE PREVENTION INITIATIVES: AN EXAMINATION OF THE USE OF TARGETED PUBLIC HEALTH MESSAGING TO PROMOTE HELP SEEKING

Elizabeth Karras[1], Heather Elder[2], Thomas Brown[2], Janet McCarten[2], Brady Stephens[2]

[1]VA Rocky Mountain MIRECC for Suicide Prevention, Department of Veterans Affairs, [2]VA VISN 2 Center of Excellence for Suicide Prevention, Department of Veterans Affairs

Background: Communication efforts such as public education campaigns have drawn increased attention for their potential as interventions for suicide prevention and mental health promotion. For example, the 2012 National Strategy for Suicide Prevention notes the important role messaging can play in facilitating help seeking by influencing individual characteristics (e.g., knowledge and attitudes) and supporting the development of larger environments that validate and motivate healthy behavior (e.g., shifts in perceptions of normative behavior). While the use of communication strategies as universal interventions is becoming increasingly popular in public health approaches to suicide prevention, little is known of the effects of such initiatives as limited empirical data has been published to date. As such, the objective of this presentation is to discuss methods that can be used to identify public messaging effects including their influence on knowledge, attitudes, and help seeking behaviors. Specifically, analyses will be presented on data collected from a national evaluation that assesses outcomes associated with exposure to the Department of Veterans Affairs' Veterans Crisis Line suicide prevention campaign among U.S. Veterans.

Methods: Models regularly implemented in the field of health communication to evaluate such efforts will be discussed to provide a framework for study results Data were obtained from a national cross-sectional telephone-based survey conducted in 2014-2015 with a representative (random) sample of U.S. Veterans as part of a larger ongoing assessment of VA suicide prevention-related communication and outreach activities. Responses from 338 Veterans were included in the analyses and consist of self-reported measures of: (1) VA suicide prevention messaging exposure (past 30 days); (2) knowledge of resources and attitudes towards help seeking; and (3) service use. Limited demographics were also collected. Data were weighted by age and gender, and less than 5% were imputed. Odds ratios were calculated to describe outcomes associated with recent exposure to VA messaging.

Results: Analyses reveal that exposure to VA public messaging is significantly associated with an increased likelihood to: (a) report awareness of VA mental health services (OR=4.54, 95% CI 2.54, 9.14), (b) discuss suicidal feelings, thoughts or behaviors (OR= 2.04, 95% CI 1.25, 3.35), and (c) have used or known someone else to have used services for mental health concerns including the Veterans Crisis Line (OR= 4.07, 95% CI 2.31, 7.14), general practitioner (OR= 1.76, 95% CI 1.02, 3.04), and online resources (OR=1.77, 95% CI 1.04, 3.01). More positive attitudes towards seeking treatment and fewer perceived barriers to care were also observed among those with reported exposure.

Discussion: Findings suggest that the use of public messaging may enhance mental health and suicide prevention initiatives targeting Veteran populations as exposure was associated with more positive cognitions and behaviors related to help seeking and the use of mental health services. Preliminary evidence that VA messaging may spur interpersonal conversation about suicide with social networks is also presented, and can lead to the diffusion of key messages and sharing of available resources such as crisis lines. The presentation will conclude with discussion of next steps and implication for the use of such public health interventions with targeted (Veteran) and broad populations.

6. INTERNATIONAL RISES IN THE INCIDENCE OF HELIUM SUICIDE: EPIDEMIOLOGY, THE INTERNET AND PUBLIC HEALTH RESPONSES

David Gunnell[1], Caroline Coope[1], Vanessa Fearn[2], Claudia Wells[2], Shu-Sen Chang[3], Keith Hawton[4], Nav Kapur[5], Jane Derges[1], Lucy Biddle[1]

[1]University of Bristol, [2]Office for National Statistics, [3]National Taiwan University, [4]University of Oxford, [5]University of Manchester

Background: Increased awareness and use of novel, high lethality methods of suicide can have a marked impact on the overall incidence of suicide. In Taiwan and Hong Kong, suicide from carbon monoxide poisoning by burning barbecue charcoal increased rapidly in the 2000s and had an impact on overall suicide rates. In the west there is evidence of increasing use of helium as a method of suicide. This paper will review a) UK and international trends in helium suicide, b) information about the method available on the web; c) outline possible preventive responses.
Methods: we used several sources of data: National suicide mortality data for England 2001-2014; a review of the international literature on suicide using helium; Google search trend data; Analysis of hits on the Wikipedia article on helium suicide and review of coroner inquest records of people who used helium as a suicide method.
Results: The incidence of helium suicide rose from 5 cases in 2001-02 to over 120 cases (1.5% of all suicides in England) in 2013-14. Individuals using this method were more likely to be male (83% vs. 75%) and from higher socioeconomic groups (35% vs. 12%) than those using other methods, though their mean age was similar to other suicides. Similar rises have been reported in the USA, Netherlands, Hong Kong and Australia. The coroners' records of four of the eight individuals dying by helium inhalation whose records were reviewed showed evidence of Internet involvement in their choice of method
We found no evidence of increases in Google searching for information about suicide using helium. On average, 700 people per day visited the Wikipedia helium suicide article between November 2013 and September 2014. The Wikipedia article may have been temporarily maliciously altered to increase awareness of helium as a method of suicide around the time of Robin Williams' suicide. Approximately one third of the links retrieved using Google searches for suicide methods mentioned helium.

Discussion: Increases in suicide by helium inhalation have occurred in several countries. There is evidence that individuals researched the method on-line. Public health measures to respond to the rising incidence include: a) legislation or voluntary agreements to restrict direct to customer sales of the gas by high street and Internet retailers; b) working with the media and websites, particularly Wikipedia, to remove detailed information about the method and avoid reporting suicides using the method; c) close monitoring / surveillance of incidence to enable a rapid response should there be a sharp rise in incidence.

7. EVALUATING THE EFFECTS OF A SCHOOL-BASED SCREENING FOR CURRENT SUICIDALITY IN 11 EUROPEAN COUNTRIES

Michael Kaess[1], Peter Parzer[2], Franz Resch[2], Romuald Brunner[2]

[1]University Hospital Heidelberg, [2]University of Heidelberg

Background: Early detection and intervention of mental health problems are considered an important public mental health goal. One way to support adolescents' help-seeking are screening procedures. This study aimed to implement a school-based screening for current suicidality in 11 European countries, and to investigate the effects of clinical interviewing and subsequent referral after screening.

Methods: A two-stage screening was implemented within the project "Saving and Empowering Young Lives in Europe" (SEYLE). The whole study sample (n=12,395) was screened for acute suicidality (Emergency Cases; EC). Screened students were assessed by healthcare professionals using a semi-structured interview, and referred to subsequent public mental health care if needed. At one-year follow-up, students were assessed for professional help-seeking, suicidal behavior, psychopathology, and quality of life.

Results: 515 (4.15%) students were screened as EC, but only 193 (37.5%) attended the clinical interview. Attendance at clinical interview predicted professional help-seeking (OR= 3.12; 95%CI: 1.70- 5.75; p<.001) but also reduction of suicidal behavior and psychopathology as well as improvement of general well-being.

Discussion: These results indicate that a screening with subsequent clinical interviewing and referral may support help seeking among adolescents, and subsequently improve these individuals' mental health. However, interview participation rates were low, and effects on both help-seeking and mental health outcomes were moderate.

Proactive interventions may improve help-seeking among suicidal youth and thereby reduce prospective risks. However, there is a need to develop better strategies for improvement of suicidal adolescents' help-seeking, which seems to be generally low.

LONGITUDITUNAL STUDIES OF SUICIDAL BEHAVOR

Chair: Ping Qin, University of Oslo; National Center for Suicide Research and Prevention

1. THE EFFECT OF HOSPITALIZATION FOLLOWING SUICIDE ATTEMPT ON RE-ATTEMPT RISK AND DEATH AMONG VETERANS

Claire Hoffmire[1], Brady Stephens[2], Robert Bossarte[3]

[1]VA Rocky Mountain MIRECC for Suicide Prevention, [2]VA VISN2 Center of Excellence for Suicide Prevention, [3]VA Office of Public Health, Epidemiology Program

Background: Acute inpatient hospitalization following suicide attempt is typically reserved for individuals believed to be at greatest risk for repeat attempt(s) and death, yet too little is known about the effect of hospitalization on reducing risk. This paucity of information can be attributed, in part, to recognized limitations of non-fatal suicide event surveillance systems. Too often it is simply not possible to identify attempters who were not hospitalized following a suicide attempt nor is it often feasible to reliably document re-attempt and death, regardless

of initial hospitalization. The Veterans Health Administration (VHA) is the nation's largest integrated healthcare system, and is a leader is suicide surveillance. In 2008, the VA implemented a national suicide event tracking system. This system, the Suicide Prevention Applications Network (SPAN), made it possible address the key knowledge gaps related to hospitalization following a suicide attempt. Specifically, this analysis aimed to compare the risk for suicide re-attempt and death among VHA-utilizing suicide attempters who are and are not hospitalized following their first suicide attempt.

Methods: VHA-utilizing Veterans who had an index suicide attempt between October 1, 2008 and December 31, 2010 documented in SPAN were eligible for inclusion in this study. An index attempt was defined as an individual's first SPAN-reported attempt with no self-reported prior attempts or diagnosed suicide events in the medical record for the preceding year. Eligible attempters were divided into two cohorts based upon admission for inpatient mental health care within the 7 days following attempt. Attempters who were hospitalized were compared to those who were not. Attempters with extended hospitalizations (greater than 30 days) were excluded. SPAN and VHA administrative and medical records were reviewed for one year following the index attempt to determine the occurrence and date of re-attempt and all-cause mortality. Staff Perception of patient's intent to die upon index attempt, index attempt method, and demographic information were compared between the two cohorts. Finally, Kaplan-Meier survival curves were used to compare days to re-attempt and death between those who were and were not hospitalized following their index attempt.

Results: The final study sample included 8,855 attempters; 4,396 (49.6%) were hospitalized within 7 days of their index attempt and 4,459 (50.4%) were not. Hospitalized attempters were more likely to be males (91.1% vs. 88.5%) between 45 and 54 years of age (26.0% vs. 23.7%) when compared to non-hospitalized attempters. Index attempt methods also varied between those who were and were not hospitalized, with hospitalized attempters more like to have used a sharp object or jumped and less likely to have used a firearm. Staff were more likely to perceive a high intent to die among hospitalized attempters (62.6%), however they also perceived a high intent to die among the majority who were not hospitalized (57.9%). Over the full year of follow-up, no significant differences in the cumulative risk of re-attempt or all-cause mortality were identified between the two cohorts. A difference in re-attempt risk over the first 90 days was noted, however; early re-attempt rates were higher among those who were not hospitalized following their index attempt, particularly in the first 45 days.

Discussion: Approximately half of VHA-utilizing Veterans are hospitalized following their first known suicide attempt. Hospitalization is related to age, gender, suicide method and staff perceptions of intent to die in this sample. Although hospitalization appears to decrease suicide risk in the first 45 to 90 days following a first attempt, the effect of hospitalization on cumulative risk over the year following attempt is not significant. Early decreases in re-attempt risk may be due, in part, to the hospitalization period itself. Research focusing on risk after discharge from inpatient hospitalization is therefore warranted. Furthermore, this analysis did not account for mental health problems or substance abuse disorders which are likely to be related both to the decision to hospitalize following attempt and risk for re-attempt, nor did the analysis consider outpatient mental health treatment for either cohort. Given the high cost of acute psychiatric hospitalization as compared to outpatient mental health services, further research is warranted to better understand what subgroup(s) of Veteran attempters benefit most inpatient treatment.

2. NATURE AND DETERMINANTS OF THE LONGITUDINAL COURSE OF SUICIDAL IDEATION AMONG U.S. VETERANS: RESULTS FROM THE NATIONAL HEALTH AND RESILIENCE IN VETERANS STUDY

Noelle Smith[1], Natalie Mota[2], Lindsey Monteith[3], Ilan Harpaz-Rotem[4], Steven Southwick[1], Robert Pietrzak[1]

[1]National Center for PTSD/ Yale School of Medicine Department of Psychiatry, [2]Yale School of Medicine, [3]Denver VA Medical Center/ University of Colorado Anschutz Medical Campus, [4]U.S. Department of Veterans Affairs National Center for PTSD, VA Connecticut Healthcare System/ Yale School of Medicine/ VA Northeast Program Evaluation Center

Background: Suicidal thoughts and behaviors among veterans are a major public health concern, as veterans are at increased risk for death by suicide compared to their civilian counterparts. Better characterization of the longitudinal course of suicidal ideation can be helpful in understanding suicide risk, as risk factors may have a delayed impact and better identification of high-risk individuals could lead to enhanced clinical care. To date, however, data are lacking regarding the nature and correlates of predominant longitudinal courses of suicidal ideation in the U.S. veteran population.

Methods: We evaluated the prevalence and correlates of longitudinal courses of suicidal ideation in a contemporary, nationally representative sample of 2,107 U.S. veterans who participated in the National Health and Resilience Veterans Study (NHRVS), a 2-year prospective cohort study (Wave 1 conducted in 2011; Wave 2 in 2013). Veterans completed measures assessing sociodemographic characteristics, and potential suicide risk (psychiatric, physical health difficulties, substance use, previous suicide attempt) and protective (psychosocial factors, social connectedness, and active lifestyle) correlates.

Results: Although the majority of veterans did not report SI (no SI at Wave 1 or 2; 86.3%), 5.0% had SI onset (no SI at Wave 1, SI at wave 2), 4.9% had chronic SI (SI at both Wave 1 and 2), and 3.8% had remitted SI (SI at Wave 1, not at Wave 2). Higher scores on a factor assessing psychiatric distress were associated with an increased risk for these symptomatic SI courses (OR ranges: remit: 3.43-5.96; onset: 1.45-2.49; chronic: 3.94-7.01). Physical health difficulties were associated with SI onset (OR: 1.32-1.97) and chronic SI (1.44-2.44) and substance abuse history was associated with chronic SI (OR: 1.31-2.25). Higher scores on a factor assessing protective psychosocial characteristics (e.g., resilience, purpose in life, gratitude, optimism, and curiosity) were associated with decreased risk of all three symptomatic courses of SI (odds ratio ranges: remitted: 0.54-0.94; onset: 0.44-0.66; chronic: 0.46-0.83). Greater social connectedness was additionally associated with decreased risk of remitted SI (OR: 0.32-0.66) and SI onset (OR: 0.46-0.79).

Discussion: These results indicate that a significant minority of U.S. veterans has chronic, new-onset, or remitted SI. They further suggest that prevention and treatment efforts designed to mitigate psychiatric distress and physical health difficulties, and bolster protective psychosocial characteristics and social connectedness may help decrease risk for SI in this population.

3. METHODS AND OUTCOMES OF TRIBALLY INITIATED COMMUNITY-BASED SUICIDE SURVEILLANCE AND FOLLOW-UP

Mary Cwik[1], Alexandra Maschino[1], Lauren Tingey[1]

[1]Johns Hopkins

Background: Suicide rates among AIs aged 10 to 24 are the highest of any U.S. racial/ethnic group, and suicide is the second leading cause of death for AIs aged 15 to 24. Surveillance has been recommended as part of the National Strategy for Suicide Prevention, but many challenges have precluded widespread and timely implementation of reporting. The White Mountain Apache Tribe (Apache), with technical support from Johns Hopkins, has been able to address these limitations through a comprehensive system which can serve as a model for other communities.
Methods: This presentation describes the background, methods, process data from 2007-2011, and implications for other rural and disadvantaged communities (Cwik et al., 2014). Apache community mental health workers attempt to complete an in-person follow-up visit within 24 hours of receipt of the initial report and will make repeated attempts for up to 90 days for youth <25 years of age (longer limit because higher risk) and 30 days for adults. In addition to facilitating connections to care, the follow-up visit with the at-risk individual gathers confirmed behavior intent and type, further detail about the event, mental health and substance use history, service utilization, and other risk and potential protective factors.
Results: From 2007 to 2011, the total volume of reports received by the Apache Surveillance System was 2,640, including 976 for suicide ideation, 758 for NSSI, and 906 for suicide attempt for a community of approximately 17,000 members. In the five most recent years, reports increased from 519 to 627, which appear to be related to greater awareness and willingness to report events. In addition, the proportion of individuals referred who report subsequently seeking treatment has nearly doubled in five years from 39% in 2007 to 71% in 2011.
Discussion: Mandating reporting of self-injurious behavior is an innovative public health approach to suicide prevention reflecting the tribe's dedication to give similar attention to mental health as to infectious diseases and child abuse. The system holds promise to reduce morbidity, mortality and burden to the health care system through use of paraprofessionals to promote identification, engage and connect at-risk individuals, and develop prevention strategies based on the resulting data.

4. SUICIDE IN DANISH, ICELANDIC, AND NORWEGIAN PRISONS, 1980-2012

Britt Morthorst[1], Britt Reuter Morthorst[2], Lars Mehlum[3], Sigurður P Pálsson[4], Charlotte Mühlmann[5], Yngve Hammerlin[6], Trine Madsen[5], Merete Nordentoft[2], Annette Erlangsen[2]

[1]Health Science University of Copenhagen, [2]Mental Health Centre Copenhagen, Denmark, [3]National Centre for Suicide Research and Prevention Institute of Clinical Medicine, University of Oslo, Norway, [4]Unit of Forensic Psychiatry, Iceland, [5]Research Unit, Mental Health Centre, Copenhagen, Denmark, [6]Correctional Service of Norway Staff Academy, Norway

Background: People in prison are found to have a three to eight-fold excess mortality due to suicide when compared to the general population. Recent studies of previous incarcerated show

that younger age, mental disorders, violent crimes (vs. other types of crimes), recent prison contact, and numerous contacts to the juridical system are linked to elevated risks of suicide.
People incarcerated differ from the general population by typically being a younger population. While we in the general population tend to observe the highest suicide rates in the oldest age groups, it is furthermore plausible that this is different in a prison population. The excess suicide mortality among people in prisons could be calculated more precisely by using a direct age standardisation approach.

The aim of the current study is to examine the incidence of suicide among persons being imprisoned in Denmark, Iceland, and Norway using direct age standardisation. A secondary aim is to examine the trends in suicide rates among persons in prison by age and gender during recent years.

Methods: The study was designed as a cohort study and conducted for the period of 1980-2012. Data on number of deaths by suicide and person-years spend being incarcerated were obtained from the Criminal Justice Departments in Denmark, Iceland, and Norway. All deaths recorded as ICD-8:E950-959 or ICD-10: X60-X84 were considered as deaths by suicide. Information on deaths by suicides included calendar year, gender, age, and incarceration type (custody vs. regular incarceration). Population data was obtained from the statistical offices of the respective counties.
Suicide rates were calculated by age and gender for persons incarcerated and the general population. A direct standardisation method was applied to compare the frequency in the two populations. The 95%-confidence intervals were used as indicator of statistical significance.

Results: Based on preliminary data, suicide rates for people in prison and the general population have been calculated for the examined countries during 1980-2009/2011.
The suicide rate among incarcerated was 127.4 [CI-95%: 91.4 -163.4] in Denmark, 310.9 [CI-95%: -40.9 -662.7] in Iceland, and 116.1 [CI-95%: 78.7 -153.5] in Norway, respectively. Compared to the suicide rate of the general population aged 15 years and over, this corresponded to a rate ratio of 8.8 [CI-95%: 6.5 - 11.0] in Denmark, 24.9 [CI-95%: -3.8 - 47.1] in Iceland, and 7.8 [CI-95%: 5.4 - 14.2] in Norway.

At the time of the conference, we anticipate to present gender and age-specific suicide rates for the prison populations in the three examined countries as well as updated results for the overall suicide rate.

Discussion: Our findings indicate that the excess suicide mortality among persons in prisons might be between five to nine fold higher when compared to the general population of the Nordic countries; Iceland being as an outlier with a 25-fold higher rate ratio.
Persons being kept in custody remain a high risk group with respect to suicide. It therefore seems highly relevant to assess for suicide risk among persons incarcerated, particularly in relation to mental disorders and those being kept in custody.

5. IS THE WAR REALLY OVER? A 17-YEAR LONGITUDINAL STUDY ON SUICIDAL IDEATION AMONG FORMER PRISONERS OF WAR

Yossi Levi-Belz[1], Gadi Zerach[2], Zahava Solomon[3]

[1]Ruppin Academic Center, [2]Ariel University, [3]Tel Aviv University

Background: War captivity is one of the most severe human-inflicted traumatic experiences with wide and substantial long-term negative effects. However, only one retrospective study examined suicidal ideation (SI) among ex-prisoners of war (ex-POWs).
This study aimed to prospectively assess SI among ex-POWs and its associations with posttraumatic stress disorder (PTSD) symptoms over a 17-years period.

Methods: Two groups of male Israeli veterans from the 1973 Yom Kippur War were examined: ex-POWs and comparable veterans who were not taken captive. Both groups were assessed via self-report measures of SI and PTSD symptoms at three time points: T1 18 (1991), T2 30 (2003), and T3 35 (2008) years after the war.
Results: Latent growth curve modeling (LGM) results showed that ex-POWs reported higher levels of SI at T2 and T3 and a pattern of increase in SI levels trajectory over time, compared to control veterans. Furthermore, among ex-POWs, PTSD symptoms at T1 contributed to the increase in rate of change in SI overtime. In addition, PTSD symptoms affected SI at the same measurement, above and beyond above the trajectories of SI.
Discussion: This study yielded several important findings. This is the first study to document long-term and enduring SI pattern among ex-POWs that increases when they are in their late fifties. Furthermore, this study points to the contribution of PTSD symptoms to the growth of SI reports among ex-POWs, over the years. Importantly, the findings of this study have significant clinical implications. They reveal that traumatized survivors of man-made intimate trauma, such as war captivity, may be at increased risk not only for mental distress but also for persistent experiences of SI. Furthermore, while anxiety disorders are often not diagnosed and treated accordingly, the current findings suggest that in order to prevent suicidal behavior clinicians should be aware of the close links between PTSD and SI over time among traumatized veterans.

6. DOES PSYCHOSOCIAL THERAPY PROVIDED TO PERSONS AFTER DELIBERATE SELF-HARM IMPROVE SOCIAL OUTCOMES? - A REGISTER-BASED, NATIONWIDE MULTICENTRE STUDY USING PROPENSITY SCORE MATCHING

Annette Erlangsen[1], Elizabeth A. Stuart[2], Ping Qin[3], Elsebeth Stenager[4], August G. Wang[5], Ann C. Nielsen[1], Christian M. Pedersen[6], Kim J. Larsen[7], Kim J. Knudsen[7], Anna Winsløv[8], Jan-Henrik Langhoff[9], Charlotte Muehlmann[1], Merete Nordentoft[1]

[1]Mental Health Centre Copenhagen, [2]Johns Hopkins Bloomberg School of Public Health, [3]University of Oslo, [4]University of Southern Denmark, [5]Mental Health Centre Amager, [6]University of Aarhus, [7]Psychiatry, Region of Southern Denmark, [8]Psychiatry, Region of Northern Jutland, [9]Psychiatry, Region of Mid Jutland

Background: Deliberate self-harm is a strong predictor of repeat self-harm as well as death by suicide. Effective risk management for people after an episode of self-harm is indicated. However, the evidence of effective interventions is meagre.
In Denmark, psychosocial therapy has been provided to people at risk of suicide in specialised clinics in Denmark since 1992. The therapy is offered to persons after an episode of self-harm or suicidal ideation. Often, the intervention focuses on the social circumstances related to the suicidality, for instance, by entailing cognitive therapy addressing problem-solving strategies. It is, thus, possible that the provided therapy might improve social and work-related outcomes. Specifically, it could be expected that people who received the therapy might experience fewer adverse events, such as divorce, having a child removed from home by authorities, unfinished education, unemployment, and having to retire with disability pension when compared to those who did not receive therapy.

The aim of the study was to examine whether psychosocial therapy after an episode of deliberate self-harm was linked to lower risks of adverse social and work-related outcomes.

Methods: Clinical data on people who received psychosocial therapy was obtained from the suicide preventive clinics while information on socio-demographics and examined outcomes were obtained from nationwide register data.
The intervention consisted of up to 8-10 individual sessions provided in an outpatient care setting. It focused on suicide prevention using different psychotherapeutic elements, such as cognitive therapy and enhancement of problem-solving skills. Standard aftercare after deliberate self-harm for person who did not receiving the intervention consisted of psychiatric hospitalisation, referral to outpatient treatment or general practitioner, or discharge with no referral.

The examined outcomes were marital/partnership break-up, child placed out of home by authorities, unfinished higher educational degree, unemployment, sick leave, and pension payments. Propensity score matching was applied to adjust for differences in observed characteristics between the intervention vs no comparison group. Using a 1:3 ratio, participants were matched on socio-demographic characteristics, clinical profile and previous suicidal behaviour; resulting 31 matching factors.

Incidence rates and odds ratios were calculated for each outcome over short term (one year of follow-up) and long term (5, 10, and 20 years of follow-up).

Results: All persons receiving who received psychosocial therapy after an episode of deliberate self-harm (n=5,678) at seven of eight suicide prevention clinics in Denmark during 1992-2010 were compared to persons who did not receive the intervention after deliberate self-harm (n=58,282). Using a 1:3 ratio, 17,034 persons from the comparison group were matched on observed characteristics. A total of 42,828 person-years was observed for the participants while 544,602 and 133,306 person-years were observed for the unmatched and matched comparison group, respectively.
The analyses are currently on-going and findings for the examined outcomes will be reported at conference.

Discussion: To the author's knowledge, this is the largest assessment of psychosocial intervention provided after self-harm in a developed country. It has seemingly not previously been assessed whether psychosocial therapy for people at risk of suicide has an impact on social events.
Limitations and strengths: Random assignment would have been preferred but was not feasible is this study; thus, propensity score matching was applied. By having a 20-year follow-up

period, we are able to examine whether therapy might have had a long term effect with respect to social and work-related outcomes. Register data allows for complete follow-up and nationally representative findings.

Given the lack of concise information on effective treatments for people at risk of suicide, the findings of large-size study populations are likely to provide results needed for advancement of the field. This will enable us to optimise the support for people at risk of suicide as well as allow policymakers to make evidence-based decisions regarding therapeutic support for people at risk of suicide.

7. LONGITUDINAL ASSOCIATION BETWEEN TRUANCY AND SUICIDE ATTEMPTS IN A LARGE SAMPLE OF ADOLESCENTS

Vladimir Carli[1], Camilla Wasserman[2], Christina Hoven[2], Marco Sarchiapone[3], Danuta Wasserman[4]

[1]NASP, Karolinska Institutet, [2]Columbia University, [3]University of Molise, [4]Karolinska Institutet

Background: Suicidal behaviour is often the expression of a complex interplay between psychological, genetic, family, social, cultural and situational risk and protective factors. Among risk factors, behaviours such as substance abuse and delinquency are frequently associated with future suicidal ideation and attempt among adolescents and may therefore be regarded as warning signs of suicidal behaviour. Truancy, which is characterised by prolonged school absenteeism without a valid reason might represent such a risk behaviour. Prevalence data on truancy suggest that it is a significant problem among adolescents. Truancy is also associated with many risk behaviours, which are related to suicidal behaviour. For example, truants are more likely to engage in risk behaviours such as substance use and alcohol consumption, delinquency, risky sexual behaviours, adult criminality, smoking and violent behaviour.

The aim of this study is to evaluate the relationship between truancy and suicide attempts in a large prospective cohort of adolescents recruited in eleven European countries. The main hypothesis being tested is that truancy predicts suicide attempts when investigated after one year.

Methods: Data were obtained from the Saving and Empowering Young lives in Europe (SEYLE) study. In each country a catchment area was identified where schools were randomly selected based on specific inclusion and exclusion criteria Data were collected at baseline, 3-months and 12-months follow-up. In total, 12,395 adolescents participated in the study. However, participants that had a previous history of suicidal behaviour at baseline were excluded in the present study in order to evaluate the direction of the relationship between truancy and suicidal ideation or attempts. Thus, 11, 436 participants (mean age: 14.89±0.895, 45% males, 55% females) with no lifetime history of suicide attempts at baseline were used for analysis. Ethical approval was obtained in each participation centre and pupils were recruited in the study after written informed consent was provided by their parents and assent was obtained by the pupils. Truancy was evaluated with the question "During the past 2 weeks, on how many days did you miss class or school without permission?" Pupils where categorised as

truants if they reported skipping school one or more days. Suicidal ideation and plan were evaluated with the Paykel Suicide Scale.
Results: At baseline, 15.3% (N=1763) of the sample reported being truant. Truants (mean age: 15.19) were significantly older than non-truants (mean age: 14.85). There was also a significant gender difference between truants and non-truants, with more males (55.4%) among the truant sample, compared with the non-truant population (42.4%). Truancy was a strong predictor of suicide attempts at 12-months (AOR:1.577 [1.051-2.366]; $p<0.05$). Severe suicidal ideation/plan was the strongest predictor (AOR: 4.254 [2.471-7.321]. SDQ scores were also significant predictors of suicide attempts at 12-months (AOR: 1.123 [1.091-1.156]). Age and gender were not significant in the logistic regression model.
Discussion: This is the first study, to our knowledge, to longitudinally investigate the relationship between truancy and the incidence of suicide attempts among a large multinational sample of European adolescents. The results demonstrate that truancy was a strong predictor of suicide attempts at 12-months even when controlling for age, gender and psychiatric symptoms. Importantly, these results cannot be explained by pre-existing differences in suicide attempts as all individuals with a history of suicide attempts at baseline were excluded from the analysis. The present study suggests that individuals who skip school are a significant at-risk group for suicide. Therefore, targeting this group for suicide prevention efforts might be useful and cost-effective.
One limitation of this study is that data were obtained through self-report. Individuals with suicidal behaviours tend to be motivated to conceal such behaviours in fear of stigma or hospitalisation. Another possible limitation of the present study is that not all risk factors and behaviours associated with suicide attempt could be investigated. It is therefore important that further studies examining the relationship between truancy and suicide attempts include a broad spectrum of various risk factors and behaviours.

Tuesday, October 13, 2015

11:00 AM - 12:15 PM

Concurrent Oral Sessions

EXPLORING PSYCHOLOGICAL MODELS OF SUICIDAL BEHAVIOR
Chair: Rory O'Connor, University of Glasgow

1. THE INTEGRATED MOTIVATIONAL-VOLITIONAL (IMV) MODEL OF SUICIDAL BEHAVIOUR: A STRUCTURAL EQUATION MODELLING APPROACH

Katie Dhingra[1], Daniel Boduszek[2], Rory O'Connor[3]

[1]Leeds Beckett University, [2]University of Huddersfield, [3]University of Gasgow

Background: There is no debate among researchers that suicidal behaviour develops through complex processes in which social, psychological, and neurobiological factors combine to place individuals at risk. Despite this, research has tended to focus on bivariate associations between atheoretical demographic and/or psychiatric factors and suicidal behaviour. The aim of this study, therefore, was to test the Integrated Motivational-Volitional (IMV) model of suicidal behaviour (O'Connor, 2011). This tripartite model maps the relationship between background factors and trigger events, and the development of suicide ideation/intent through to suicidal behaviour.
Methods: University students (N = 1,809) completed anonymous online self-report surveys assessing the components of the IMV model of suicidal behaviour.
Results: The fit of the proposed model was good, and explained 81% of variance in entrapment, 49% of variance in suicide ideation, and 26% of variance in suicide attempts. A strong positive relationship existed between defeat and entrapment (β = .53), while weak-moderate positive relationships were found between entrapment and suicide ideation (β = .22) and suicide ideation and suicide attempts (β = .30). Brooding rumination was weakly related to entrapment (β = .11). In terms of the motivational covariates, suicide resilience was negatively related to suicide ideation (β = -.48) as was goal disengagement (β = -.11), while perceived belongingness and thwarted belongingness were both positively associated with suicide ideation (β = .23 and β = .21, respectively). Goal reengagement was not significantly related to suicide ideation (β = .05). Of the motivational covariates, imitation (β = .30) and fearlessness about death (β = .04) were both significantly related to suicide attempts but impulsivity was not (β = .05).
Discussion: These findings represent a preliminary step towards greater clarification of the mechanism driving suicidal behaviour, and support the utility of basing future research on the IMV model of suicidal behaviour. The implications for intervention and treatment approaches will be discussed.

2. THE ROLES OF PERCEIVED BURDENSOMENESS AND DEPRESSION IN THE DEVELOPMENT OF SUICIDAL IDEATION IN INDIVIDUALS WITH PHYSICAL DISABILITIES

Lauren Khazem[1], Rachel Martin[1], Danielle Jahn[2], Kelly Cukrowicz[3], Michael Anestis[1]

[1]University of Southern Mississippi, [2]University of Maryland School of medicine, [3]Texas Tech University

Background: Physical disability involves difficulty in hearing, mobility, dexterity, or vision (Rokach, Lechcier-Kimel, & Safarov, 2006), and is associated with suicidal ideation (SI; Russell, Turner, & Joiner, 2009). Heightened perceived burdensomeness (PB), a belief that one is a burden to others who would benefit from his or her death (Joiner, 2005), has been observed in this population (Khazem, Jahn, Cukrowicz, & Anestis, in press). Furthermore, functional impairment due to mobility disorders has predicted PB (Dempsey, Karver, Labouliere, Zesiewicz, & De Nadai, 2012). Those with physical disabilities may believe that they create hardship for others by requiring their assistance. Research also indicates a mediating effect of depression on the relationship between physical disability status and SI (Meltzer et al., 2012), but has failed to examine whether this relationship is accounted for by the simultaneous presence of depression and PB. Therefore, we hypothesized that the relationship between physical disability status and SI would be mediated by PB and depressive symptoms. This

association should only exist when PB precedes depressive symptoms, as PB is an expected antecedent to depression

Methods: Participants were 144 university students (35 with a physical disability; 109 female, Mage = 22.68, SD = 7.68, 66.0% White, 24.3% African American) who completed online self-report questionnaires, including the Interpersonal Needs Questionnaire (Van Orden et al., 2012), the Positive and Negative Suicide Ideation Inventory (Osman, Gutierrez, Kopper, Barrios, & Chiros, 1998), and demographic questions. An analysis of serial indirect effects was conducted using SPSS PROCESS (Hayes, 2013) utilizing 10,000 bootstrap samples to test the hypothesis.

Results: Results indicated a non-significant direct effect (b = -.18, 95% CI = -.43,.09) but a significant indirect effect (b = .11, 95% CI = .01, .27) of disability status on suicidal ideation through PB and depressive symptoms. The model examining depressive symptoms preceding PB was not significant.

Discussion: These results indicate that physical disabilities may exert influence on suicidal ideation through their serial effect on PB and depression. Individuals with physical disabilities may believe that they are a liability to others, which prompts depressive symptoms that, in turn, prompt the development of SI. We posit that the development of PB could be a product of the accommodations that are necessary for the success of students with physical disabilities in higher education, as those with physical disabilities may be repeatedly reminded that others do not need the accommodations that they receive and may feel that they burden those who provide these accommodations (e.g. friends, professors, administration). Our results highlight the importance of increasing the presence of potential salient protective factors (e.g., support groups or coping mechanism workshops) for students with physical disabilities and increasing campus awareness of the risk of suicidal ideation in this population.

3. HOW POST-BATTLE EXPERIENCES RELATE TO THE INTERPERSONAL-PSYCHOLOGICAL THEORY OF SUICIDE IN U.S. ARMY NATIONAL GUARD SAMPLE

Rachel Martin[1], Bradley Green[1], Michael Anestis[1]

[1]University of Southern Mississippi

Background: The Interpersonal-Psychological Theory of Suicide provides a model through which to understand suicide (IPTS; Joiner, 2005). The theory consists of three variables - thwarted belongingness, perceived burdensomeness, and acquired capability – which, when jointing present, produce the risk of lethal suicidal behavior. Thwarted belongingness refers to the individual's feelings of loneliness and a lack of reciprocal, caring relationships. Perceived burdensomeness is comprised of the sense that others would benefit more from one's death than continued life. Finally, acquired capability for suicide is the individual's ability to engage in serious or lethal suicidal behavior, and is compromised of enhanced pain tolerance and a diminished fear of death or bodily harm. Given the recent rise in suicide rates in the military (Ramchand, 2011) researchers have applied IPTS model to military samples to better understand that phenomenon (Selby et al., 2010; Bryan et al., 2010; Bryan et al., 2011; Bryan et al., 2012; Anestis & Bryan, 2013; Monteith et al., 2013;).

Methods: The current study seeks to examine the relationships between post-battle experiences (PBE; e.g., handling human remains post-battle) and the IPTS variables. As opposed to combat experiences, which assess exposure to combat in general (e.g., "I went on combat patrols or

missions" and "I took part in an invasion that involved naval and/or land forces"), PBE assesses specific provocative events that can result from combat (e.g., "I saw the bodies of dead Americans or allies," and "I was involved in removing dead bodies after battle,"). Research has examined combat experience extensively, revealing an increase for the capability for suicide, especially for those with violent or aggressive acts in service (Bryan, Cukrowicz, West, & Morrow, 2010; Bryan & Cukrowicz, 2011). Previous research on PBE has focused primarily on its relationship with PTSD (Renshaw, 2011; Nash et al., 2010; Tylee, 2013; Eraly et al., 2014). We hypothesized that PBE would predict all three IPTS variables, thereby indicating that PBE contributes to both the desire and capacity for suicidal behavior.

Results: Participants were previously deployed U.S. military personnel (N= 858; 82.4% male; 62.1% white; mage = 27.1) recruited from a large Joint Forces Training Center in the southern U.S. Results indicated that PBE significantly predicted thwarted belongingness above and beyond the effects of demographics and perceived burdensomeness ($t = 2.40$; $p = .017$; $f2 = .02$). Additionally, PBE significantly predicted the acquired capability for suicide ($t = 2.67$; $p = .008$; $f2 = .03$). The association between PBE and both perceived burdensomeness and suicidal ideation, however, were non-significant.

Discussion: Results suggest an association between PBE and some of the IPTS variables. These results indicate that those military personnel who have PBE feel as though they are not attached to those around them once they return and have the ability to follow through with a lethal attempt. The results could be caused by the lack of similar experiences once returning from deployment. Once home, military personnel with PBE lack individuals around them who can relate to what was seen abroad. Additionally, results of the study show that PBE is not associated with suicidal ideation. Though they might not be at immanent risk, elevated levels of two of the three IPTS variables reveal that this population has the potential to become highly suicidal. Future research should examine different techniques in which to reduce thwarted belongingness and acquired capability within military personnel specifically those with PBE. This study has the potential to enhance suicide prevention techniques in those military personnel with PBE by highlighting the importance of community integration and belongingness upon return home.

4. DIFFERENTIATING SUICIDE ATTEMPTERS FROM SUICIDE IDEATORS USING THE INTEGRATED MOTIVATIONAL-VOLITIONAL (IVM) MODEL OF SUICIDAL BEHAVIOUR

Daniel Boduszek[1], Katie Dhingra[2], Rory O'Connor[3]

[1]University of Huddersfield, [2]Manchester Metropolitan University, [3]University of Glasgow

Background: The majority of individuals who consider death by suicide do not make suicide attempts. Despite this, most prior research has examined the predictors of the presence of suicidal behaviour, but has failed to identify which suicide ideators are at greatest risk of acting on their thoughts (i.e., which factors may predict the transition from suicide ideation). This is problematic as recent research has shown that some of the strongest risk factors for suicide attempts are less useful in predicting which people with suicide ideation go on to make suicide attempts. Drawing on the Integrated Motivational–Volitional (IMV) model of suicidal behaviour (O'Connor, 2011) as a theoretical basis, this study aimed to examine the factors associated with having thoughts of suicide (ideation) versus those associated with suicide enaction (attempts). Based on the central tenets of the IMV, it was predicted the factors

associated with ideation formation would be distinct from those factors concerned with behavioural enaction.
Methods: University students (N = 1, 288) completed anonymous self-report questionnaires. Analyses compared three groups: suicide attempters (n = 230), suicide ideators (n = 583), and those without any suicide history (n = 475).
Results: Suicide attempters differed from suicide ideators on all volitional factors (fearlessness about death, impulsivity, and imitation). Compared to ideators, attempters were more likely to have a family member and close friend who had self-injured or attempted suicide, and were more impulsive and fearless about death. Conversely, the two suicide groups did not differ on any of the variables (motivational factors) associated with the development of thoughts of death by suicide.
Discussion: This study provides support for the tripartite IMV model suicidal behaviour, and indicates that when searching for risk and protective factors for suicide, it is important to keep in mind that such factors may differ according to what part of the suicidal process they predict. Further research is needed to explore who is likely to act on suicidal thoughts, and, for those at risk, when they are likely to translate those thoughts in to action. Such research may inform our determination of an individual's risk for future suicidal behaviour (i.e., low, moderate, high, or imminent risk).

5. NIGHTMARES AND INSOMNIA PREDICT SUICIDALITY IF INTERACTING WITH ACQUIRED CAPABILITY OR ESCAPE

Kevin Hochard[1], Ellen Townsend[2]

[1]University of Chester, [2]University of Nottingham

Background: Heightened arousal has been shown to interact with acquired capability (a history of self-harm) to increase suicidality. This supports the Inter-Personal Theory of Suicide (IPTS), and contradicts predictions from models of suicide as escape. Sleep-specific symptoms of heightened arousal (insomnia and nightmares) have previously been shown to be potent predictors of suicidality. The interaction of sleep symptoms with acquired capability has not previously been assessed in a manner where sleep symptoms are measured independently, nor has the interaction between the sleep symptoms and escape been directly assessed. The aim of this study was to fill this gap in the existing literature.
Methods: Five hundred and forty participants (74% female) completed an e-survey, measuring nightmares, insomnia, acquired capability, escape, depressive symptoms and suicidal ideation (SI). Hierarchical linear regressions were used to assess interaction effects whilst controlling for the effects of depressive symptoms.
Results: Main effects of insomnia ($p > .05$) and nightmares ($p > .05$) for predicting SI were not detected. A significant interaction effect of insomnia and acquired capability was observed in predicting SI ($\Delta R2 = .02$, $p < .001$; $\beta = .32$, $p < .05$). A similar interaction effect was observed with nightmares ($\Delta R2 = .01$, $p < .05$; $\beta = .32$, $p < .05$). Additionally, interactions effects were observed between insomnia and escape ($\Delta R2 = .02$, $p < .001$; $\beta = .37$, $p < .001$), and between nightmares and escape ($\Delta R2 = .01$, $p < .01$; $\beta = .20$, $p < .01$).
Discussion: These findings support the IPTS and highlight that contrary to escape models of suicide, sleep-based arousal symptoms alone do not increase suicidality. Moreover our findings shows that sleep specific measures of heightened arousal explain variance comparable to that found where measures are composed of a mix of waking state and sleep arousal symptoms.

Our findings tentatively suggest that interventions focusing on reducing sleep heightened arousal symptoms may be a valuable prevention strategy for individuals with acquired capability for suicide.

COGNITION, DECISION-MAKING AND STRESS IN SUICIDAL BEHAVIOR

Chair: John Keilp, Columbia University, NYS Psychiatric Institute

1. GO/NO-GO DEFICITS IN SUICIDAL BEHAVIOR AND DEPRESSION: A NEUROIMAGING STUDY

Stéphane Richard-Devantoy[1], Yang Ding[2], Martin Lepage[2], Gustavo Turecki[2], Fabrice Jollant[2]

[1]McGill Group for Suicide Studies, [2]McGill University

Background: Cognitive inhibition deficits have previously been found in suicide attempters. This study examined the neural basis for these deficits in depressed patients with and without a history of suicidal behavior.

We hypothesized that suicide attempters would show i) deficits in Go/No-Go performances in comparison to the control groups; and that ii) these deficits would be related to impaired activation of the dorsomedial prefrontal cortex.

Methods: Functional magnetic resonance imaging was used to measure brain activation during the Go/No-Go response inhibition task in 25 unmedicated and depressed middle-aged suicide attempters, 22 unmedicated depressed patient controls with no personal or family history of suicidal behavior, and 27 healthy controls.

Besides, clinical assessment diagnoses were made using the Structured Clinical Interview for Axis I DSM-IV (SCID I) and Axis II DSM-IV. Level of depression was rated using the 24-item Hamilton Rating Scale for Depression (HAMD-24) (Hamilton, 1960). Level of anxiety was assessed using the Hamilton Rating Scale for Anxiety (HAM-A) (Hamilton, 1959), and the Spielberger State Trait Inventory (Spielberger, 1983).

Suicidal history was assessed using the Colombia Suicide History Form (Posner et al., 2007), while suicide intent and current ideation were assessed, respectively, using the Beck Suicide Intent Scale (SIS) (Beck et al., 1974) and the Scale for Suicidal Ideation (SSI) (Beck et al., 1979).

Results: The three groups were similar in terms of gender. Healthy controls were younger than the two patient groups. The two patient groups did not differ significantly in terms of the age at onset of mood disorder, number of previous depressive episodes, current levels of depressive or anxiety symptoms or suicidal ideation, impulsivity trait, past psychotropic exposure, and burden of medical illness.

Suicide attempters made more commission errors than both control groups. In whole-brain Go vs. No-Go contrast, suicide attempters, but not patient controls, showed reduced activation in precuneus and posterior cingulate cortex in comparison to healthy controls. This difference was ascribed to the absence of decreased activation during the No-Go condition in suicide attempters. In No-Go vs. baseline, decreased activation in healthy controls relative to suicide attempters was found in inferior and medial frontal gyri, anterior and posterior cingulate

cortices, and bilateral parietal cortex. No difference was found in the direct comparison between suicide attempters and patient controls.

Discussion: Our findings therefore suggest that 1) vulnerability to suicidal acts is associated with deficient performances in the Go/No-Go task, and 2) these deficits are related to the absence of decreased activation during the inhibition condition in dorsomedial prefrontal and anterior cingulate cortices, inferior frontal gyrus, posterior cingulate cortex, precuneus, and superior parietal cortex.
Deficient response in a fronto-parietal network during the Go/No-Go task reveals brain regions associated with vulnerability to suicidal behavior. More studies are needed to disentangle the contribution of cognitive inhibition from attention and working memory processing, and the role of cognitive deficits related to the depressive state vs. suicidal vulnerability in the suicidal process.

2. THE ASSOCIATION BETWEEN IMPAIRED DECISION MAKING AND SUICIDE ATTEMPT IN A HIGH-RISK SAMPLE OF ADOLESCENT OFFSPRING OF PARENTS WITH DEPRESSION

Gemma Hammerton[1], Frances Rice[1]

[1]Cardiff University

Background: The association between impaired decision making and suicide attempt is well-established in adults, and studies have shown that this association is not explained by the presence of a comorbid psychiatric disorder. Although studies have focused on different aspects of decision making, results have generally shown that suicide attempters make decisions based on high immediate rewards but disadvantageous long-term outcomes. Few studies have examined the association in adolescents.
Therefore, the aim of this study was to examine whether adolescent suicide attempters show impaired decision making compared to psychiatric and healthy controls within a high-risk sample of offspring of parents with recurrent depression. This is an important high-risk group in which to examine this association given that these offspring are at increased risk for making a suicide attempt and of having poor decision making skills. It was hypothesised that suicide attempters would not only make poorer quality decisions but would also be less likely to adjust decisions based on the probability of reward and specifically, would show higher risk-taking than controls when the probability of reward was low.

Methods: Data were utilised from two waves of a prospective, longitudinal high-risk study of offspring of parents with recurrent depression including 255 families where children were aged 10-18 years. Offspring lifetime suicide attempt and current DSM-IV psychiatric disorder were assessed using a clinically-defined interview measure. Risk-sensitive decision making was assessed using the Cambridge Gambling Task (CGT). Unlike other decision making tasks, the CGT does not require the need to learn a strategy across trials therefore performance is less likely to be confounded by other cognitive deficits such as poor working memory. Analyses examined both quality of decision making, a measure of the overall proportion of rational decisions made, and risk adjustment, a measure of the extent to which participants adjusted decisions about reward according to the probability of obtaining reward. Risk adjustment was standardised to ease interpretation. Using multinomial regression analyses, adolescent suicide

attempters were compared to both adolescents with a current psychiatric disorder that had not made a suicide attempt and healthy controls (those with no current psychiatric disorder and no history of suicide attempt).
Results: Twelve adolescents (4.7%) had made a suicide attempt by the follow-up assessment. These adolescents had the lowest levels of risk adjustment (mean: -0.84; standard deviation: 0.76) compared to psychiatric controls (mean: -0.18; standard deviation: 0.89) and healthy controls (mean: 0.89; standard deviation: 1.00). After adjusting for age, gender and IQ, there was evidence that adolescents with lower levels of risk adjustment were at increased risk of making a suicide attempt compared to both healthy controls [OR 3.40 (95% CI 1.46, 7.89); p=.004] and psychiatric controls [OR 2.57 (95% CI 1.08, 6.11); p=.032]. Therefore, a one-standard-deviation decrease in risk adjustment was associated with approximately a 3-fold greater risk of suicide attempt. Preliminary analyses showed that these differences were primarily due to adolescent suicide attempters betting more than psychiatric and healthy controls at the most uncertain probability. There was also some evidence that the quality of decision making was poorer for suicide attempters compared to psychiatric and healthy controls however, this difference was only seen when adolescents were completing the CGT for the first time.
Discussion: In this high-risk sample, adolescents that had made a suicide attempt showed impaired decision making compared to both psychiatric and healthy controls. As has been shown previously in a population sample of young adults, quality of decision making was poorer in adolescent suicide attempters within this high-risk sample. However, these adolescents were also less likely to adjust decisions based on the probability of obtaining reward, a decision making style that proves disadvantageous over time. In contrast to previous findings with depressed adolescents, adolescent suicide attempters were more likely to show higher risk-taking than both psychiatric and healthy controls at the most uncertain probability. This finding could be explained by suicide attempters ignoring past consequences in favour of short-term gain, or an inability to learn from past events as other studies have shown. Alternatively findings could be due to cognitive rigidity with the probability of reward being ignored.
Further research is needed to replicate these findings in large, longitudinal samples of adolescents to provide further evidence that suicide prevention efforts aimed at improving decision making in young people at high suicide risk may be beneficial.

3. COGNITIVE AND AFFECTIVE MECHANISMS OF RISK AMONG SUICIDAL ADULTS WITH AND WITHOUT SUBSTANCE ABUSE

David Goldston[1], Bridget Weller[1], Joe Franklin[2], Nicole Heilbron[1], Alaattin Erkanli[1]

[1]Duke University School of Medicine, [2]Vanderbilt University

Background: A full understanding of the mechanisms that underlie the maintenance of suicidal behaviors remains elusive. In this presentation, we describe a behavioral model that helps to explain the maintenance of suicidal behavior. We are examining cognitive and affective mechanisms that reflect these underlying behavioral processes. Four specific mechanisms are being examined: (a) decision-making biases (with greater weighting given to short-term than long-term consequences), (b) implicit (automatic) affect in response to cues associated with suicide or death, (c) defensive psychophysiological reactivity to cues related to

suicide or death, and (d) approach psychophysiological reactivity to suicide- or death related cues.
Methods: To assess these mechanisms, three groups are being contrasted: 30 psychiatric inpatients with depression but no current substance abuse and no suicide attempts; 30 psychiatric inpatients with suicide attempts and depression, but no current substance abuse; and 30 psychiatric inpatients with suicide attempts and both depression and substance abuse. We focus on depressed, hospitalized patients because of their high risk for suicidal behavior. We contrast groups with and without substance use histories because of the especially high risk of suicidal behavior among suicidal individuals with comorbid substance abuse, and to disentangle effects associated with suicide attempts from those associated with co-occurring substance use. These groups are being evaluated with the Cambridge Gambling Task (to assess decision-making), the Affect Misattribution Procedure (to assess implicit affect), and with psychophysiological measurements of startle eyeblink reactivity (a measure of defensive psychophysiological responding) and postauricular reflex (a measure of approach or appetitive psychophysiological responding).
Results: Preliminary results regarding decision making from the Cambridge Gambling Task indicate that the patients with suicide attempts and substance abuse evidence less self-control and more risk-taking behavior than patients without suicide attempts and substance abuse. Patients with suicide attempts but no substance use evidence self-control and risk-taking behavior intermediate to the other two groups. Updated results related to decision making, as well as results regarding patterns of implicit affect and psychophysiological reactivity in the three groups will be presented.
Discussion: The results of this study will provide information about understudied mechanisms for risk for suicidal behavior. These mechanisms are thought to reflect behavioral processes that contribute to the maintenance of suicidal thoughts and behavior. Better understanding of these behavioral processes, in turn, may help contribute to development or refinement of interventions for suicidal individuals. In addition, because the mechanisms in this study have all been suggested to be associated with different patterns of brain functioning, the findings from this study will provide insights into brain-behavior relations that may guide further research in understanding and ultimately preventing suicidal behavior.

4. BRAIN/BEHAVIOR INTERACTIONS IN TEEN SUICIDE ATTEMPTERS VS. THOSE ENGAGED IN NON-SUICIDAL SELF-INJURY

Daniel Dickstein[1], Anthony Spirito[2], Kerri Kim[3], Matthew Nock[4], Erin Tone[5]

[1]Bradley Hospital/Brown University, [2]Brown University, [3]Bradley Hospital, [4]Harvard University, [5]Georgia State University

Background: Suicide is the third leading cause of death among 10-24 year olds in the US. Yet, completed suicide is the tip of the iceberg, with data from the Center for Disease Control's 2013 Youth Risk Behavior Surveillance survey indicating up to 8% of high school students made a suicide attempt (SA) during the past 12 months. While non-suicidal self-injury (NSSI) by definition involves an absence of intent to die, NSSI is a risk factor for making an SA and also a growing problem, accounting for 25% of those 7-24 years old seen in emergency departments for self-harm annually. Disentangling the relationship between NSSI and SA is a complicated matter as similar psychopathological factors and cognitive/emotional processes have been theorized to be involved in both. To address this gap, we sought to determine

specific alterations in psychopathological characteristics and computerized behavioral task performance among three mutually-exclusive groups of adolescents: (1) teens who made a SA but who never engaged in NSSI, (2) teens engaged in NSSI but had never made a SA, (3) typically-developing control (TDC) children without lifetime history of psychiatric disorder.
Methods: This IRB approved study was conducted at Bradley Hospital. After informed consent/assent, participants were evaluated for psychopathology with the Child Schedule for Affective Disorders Present and Lifetime Version (KSADS-PL) and Self-injurious Thoughts and Behavior Interview (SITBI).
Computerized behavioral tasks evaluated (1) response to peer acceptance/rejection (Prisoner's Dilemma task [PD]); (2) implicit associations between self and suicide/death/cutting (Self-Injury Implicit Association Task [SI-IAT]); (3) emotional face identification (Diagnostic Assessment of Non-Verbal Accuracy [DANVA]), and (4) cognitive flexibility, risk-taking, and attention drawn from the Cambridge Neuropsychological Testing Automated Battery [CANTAB]. Data were analyzed in Statistical Package for Social Sciences v19 (IBM).

Results: We evaluated data from 130 participants (n=45 SA, n=45 NSSI, and n=40 TDCs).
With respect to psychopathology, we found that NSSI participants engaged in NSSI at a younger age than SA participants made their first SA.

With respect to behavioral task performance, we found that NSSI participants had greater self-reported stress during the PD task than either SA or TDC participants. We also found that NSSI participants had greater implicit associations not only with cutting, but also with suicide/death than either SA or TDC participants.

Discussion: These data begin to shed light on potential psychopathological and cognitive/emotional task differences between teens engaged in NSSI vs. those who have made an SA. Further work is required to ascertain the underlying neural and longitudinal associations with these differences.

5. EVIDENCE FOR THE ROLE OF THE AKT SERINE-THREONINE KINASE IN RESILIENCE TO CHRONIC STRESS

Thomas Franke[1], Christine Willock[1], Nicholas Berdux[1]

[1]NYU School of Medicine

Background: Akt kinase plays a key role in neuronal cell function and survival. Biochemical studies on postmortem brains from suicides indicate the importance of Akt signaling in mood regulation: Akt activity in suicides with a psychiatric history of major depressive disorders (MDD) or schizophrenia is changed from that in age/sex-matched control subjects. Human genetic studies suggest Akt1 mutations as a liability in neurodevelopmental disorders such as schizophrenia with high incidence of suicide. Our project builds on these remarkable findings to examine tractable genetic mouse models of altered Akt signaling that "reverse-translate" changes in human Akt to determine their impact on anxiety- and depression-like behaviors.
Methods: To define the physiological involvement of Akt signaling on the processing of emotional stimuli, we used Akt knockout mouse strains to study Akt-dependent behaviors, neuroplasticity and biochemical phenotypes. To address the contribution of Akt in specific brain areas, we employed Cre-dependent recombination to ablate Akt expression in the frontal cortex or mesolimbic system. Genomic and brain area-specific conditional knockout mice were

exposed to acute and chronic stress, and assessed for anxiety- and depression-like behaviors and treatment responses to antidepressants.
Results: Akt-deficient mice differed significantly in the acquisition of fear memories. Consistent with changed fear memory acquisition, Akt KO mice exhibited decreased synaptic plasticity. Acute stress exposure of Akt KO mice resulted in a transient depression-like phenotype. Chronic exposure to social defeat uncovered a reduced resilience to stress. Ablation of Akt expression specifically in the frontal cortex further decreased resilience of mutant mice when compared to littermate controls. Treatment of chronically-stressed mice with antidepressants reversed a depression-like phenotype in control mice but failed to ameliorate depression-like behaviors in Akt-mutant mice.
Discussion: Our results in Akt-mutant mice converge with biochemical and genetic findings of Akt dysfunction in neuropsychiatric patients and confirm a critical requirement for Akt signaling in the mood regulation. Decreased Akt function in the frontal cortex of mice increased the susceptibility to chronic stress and occluded reversal of depression-like behaviors by antidepressants. Our data validate the utility of Akt-mutant mouse strains as experimental model to study gene-environment interactions in susceptibility to stress and development of depression-like behaviors later on in life. A mechanistic understanding of the role of fronto-cortical Akt signaling in stress resilience will help to develop new diagnostic markers and therapeutic interventions.

PSYCHOSOCIAL AND PHARMACOLOGICAL INTERVENTIONS FOR SUICIDAL INDIVIDUALS

Chair: Greg Brown, Perelman School of Medicine, University of Pennsylvania

1. A MULTI-SITE RANDOMIZED CLINICAL TRIAL TO REDUCE SUICIDAL IDEATION IN SUICIDAL ADULT OUTPATIENTS WITH MAJOR DEPRESSIVE DISORDER: DEVELOPMENT OF A METHODOLOGY TO ENHANCE SAFETY

William McCall[1], Andy Krystal[2], Doug Case[3], Meredith Rumble[4], Ruth Benca[4]

[1]The Medical College of Georgia, [2]Duke, [3]Wake Forest, [4]University of Wisconsin

Background: Suicide is a major public health concern, yet there are very few randomized psychopharmacology clinical trials that have been conducted to target suicidal ideation in patients at risk for suicide. We describe the rationale and refinements of such an ongoing trial that is designed to assess the effect of a hypnotic medication on suicidal ideation in adult outpatients currently experiencing suicidal ideation. This preliminary report describes the safety features incorporated into the trial that allow for the safe and ethical recruitment and retention of suicidal patients who are participating in a psychopharmacology clinical trial in the outpatient setting.
Methods: "Reducing Suicidal Ideation Through Insomnia Treatment (REST-IT)" is a multi-site randomized clinical trial that includes 3 recruiting sites and one data management site. This 4-year study is in its third year of recruitment. The purpose of the study is to compare hypnotic medication versus placebo as an add-on treatment to a selective serotonin reuptake inhibitor as a means of reducing suicidal ideation in depressed adult outpatients with insomnia and suicidal ideation. The safety features of the study follow the 2001 NIH guidelines for studies that include patients at risk of suicide.

Results: Eight hundred and forty-two potential participants have undergone telephone screening; 68% of these failed the phone screen, most often due to an absence of expressed suicidal ideation. One hundred and fifty-eight persons appeared for a face-to-face baseline assessment, and more than 40 of these had completed a taper of their ineffective psychotropic medications before the baseline assessments. Fifty-nine% of those who completed baseline assessments failed to proceed to randomization, most commonly because of no clinically significant suicidal ideation. One participant was offered and accepted voluntary psychiatric hospitalization in lieu of study participation. Thus far, 60 participants have been randomized into the study, 88.7% of scheduled visits have been attended, with 93.8% adherence for the SSRI and 91.6% adherence for the randomized hypnotic versus placebo. None of the randomized participants have required hospitalization or had a suicide attempt.
Discussion: By carefully considering the inclusion and exclusion criteria and other safety features, the safe conduct of randomized clinical trials in suicidal adult patients is possible, including the inclusion of participants who have undergone a prescribed tapering of psychotropic medications prior to baseline assessment.

2. BRIEF CBT IS EFFECTIVE AT REDUCING POST-TREATMENT SUICIDE ATTEMPTS: WHAT IT MEANS FOR CLINICAL PRACTICE

M. David Rudd[1], Craig Bryan[2]

[1]University of Memphis, [2]University of Utah

Background: The current study was a randomized controlled trial that examined the effectiveness of treatment as usual as compared to treatment as usual supplemented with brief cognitive behavioral therapy (CBT)11 for the treatment of active duty military personnel with recent suicidal ideation and/or who had made a recent suicide attempt. Brief CBT differs from treatment as usual because it (1) is purposefully brief to accommodate the time demands of a military setting, (2) incorporates the common elements of effective treatments, (3) focuses on skill development, (4) views suicide risk as distinct from diagnosis and a function of a core skill deficit, and (5) emphasizes internal self-management.11 The primary aim was to determine if brief CBT significantly reduced post-treatment suicide attempt rates during the 24-month follow-up period. To this end, the first hypothesis was that the hazard ratio for a subsequent suicide attempt would be significantly lower in brief CBT relative to treatment as usual, and the second hypothesis was that the proportion of Soldiers making a suicide attempt during follow-up would be significantly lower among those receiving brief CBT as compared to those receiving treatment as usual.
Methods: Randomized controlled trial of active-duty Army Soldiers (N=152) at Fort Carson, Colorado, who either attempted suicide or experienced suicidal ideation with intent. Participants were randomly assigned to treatment as usual or treatment as usual plus brief CBT. Incidence of suicide attempts during follow-up was assessed with the Suicide Attempt Self-Injury Interview. Inclusion criteria were the presence of suicidal ideation with intent to die during the past week, and/or a suicide attempt within the past month. Soldiers were excluded if they had a medical or psychiatric condition that would prevent informed consent or participation in outpatient treatment, such as active psychosis or mania. To determine treatment efficacy on incidence and time to suicide attempt, survival curve analyses were conducted. Differences in psychiatric symptoms were evaluated using longitudinal random effects models.

Results: From baseline to the 24-month follow-up assessment, 8 participants in brief CBT (13.8%) and 18 participants in treatment as usual (40.2%) made at least one suicide attempt (Wald $\chi 2(1)=5.28$, p=.022, hazard ratio=.38 [.16, .87], number needed to treat=3.88), suggesting that Soldiers in brief CBT were approximately 60% less likely to make a suicide attempt during follow-up than Soldiers in treatment as usual. There were no between-groups differences in severity of psychiatric symptoms.
Discussion: Brief CBT was effective at preventing follow-up suicide attempts among active-duty military service members with current suicidal ideation and/or a recent suicide attempt. Implications for clinical care will be explored, including day to day practice, inpatient care, along with medico-legal issues.

3. FAMILY BASED CRISIS INTERVENTION FOR SUICIDAL ADOLESCENTS IN THE EMERGENCY DEPARTMENT: RESULTS OF A RANDOMIZED CLINICAL TRIAL

Elizabeth Wharff[1], Abigail Ross[1], Katherine Ginnis[1], Erina White[1]

[1]Boston Children's Hospital

Background: The emergency department (ED) often serves as a portal to the mental health system for suicidal adolescents. In current emergency practice, usual care (TAU) for suicidal adolescents is evaluation, with little or no treatment, and disposition, usually to an inpatient psychiatry unit. The authors have felt that this lack of treatment is a missed opportunity. They have observed that a breakdown in communication within the family was often a contributing factor to suicidality and that most caregivers wish to help their adolescent, but may lack the skills and tools to do so. In response, the investigators developed the Family Based Crisis Intervention (FBCI) for suicidal adolescents and their families, a single-session intervention that is designed to stabilize adolescents within an ED visit and to provide training to empower the family to manage the adolescent safely at home. Previous open and pilot trials of FBCI (Wharff, Ginnis & Ross, 2011) demonstrate feasibility and safety of the intervention with significant differences in hospitalization rates for a cohort of FBCI patients vs. a matched TAU comparison group (36% versus 55%, p<.001). This presentation will report results of a randomized controlled trial of FBCI.
Methods: A total of N=139 suicidal adolescents (ages 13-18) and their families presenting to a large urban pediatric ED were randomized to receive FBCI or treatment as usual (TAU). Patients and their caregivers completed demographic and validated self-report measures of suicidality, family communication, and family empowerment. These measures were collected at pretest, posttest, and 3 follow up time points over a one month period. Data on disposition, psychiatric diagnoses and ED recidivism rates were collected via a retrospective chart review. All statistical analyses were completed using Stata 12 and SAS 6.1.
Results: Of the 139 patients recruited, 76% were female. The sample was 66% white, 18% mixed, 9% Latino, 6% Black, and 3% Asian, and average age of the adolescent participant was approximately 15.4 years. Results of logistic regression reveal that, at posttest, patients receiving FBCI condition were significantly more likely to be discharged home with outpatient follow-up care compared to their TAU counterparts (p=0.005) when controlling for age, race, gender, and insurance status. The FBCI group showed significantly larger average gains in family empowerment (p=0.004) and client satisfaction (p=0.0005) than the TAU group after receiving the intervention. Longitudinal outcomes related to psychiatric symptoms family

communication, and ED recidivism will also be reported. No completed suicides were reported during the study period by any study participant.
Discussion: FBCI is a model of care for suicidal adolescents that may be a safe and viable alternative to traditional emergency care that presumes inpatient admission as an endpoint. Avoidance of psychiatric hospitalization for suicidal adolescents has benefits for the adolescent, family, and the healthcare system. An inpatient admission may negatively impact an individual or family's beliefs about recovery, the capacity to be safe in the world, and the family's ability to provide a safe and containing environment for their child. The significant gains in family empowerment in the FBCI group indicate that FBCI does provide the adolescent and family with the message that, despite the suicidal ideation/behavior with which they presented, there are skills that families can learn to help the adolescent to alleviate/manage his/her distress and thus to remain at home. Results from this study indicate that parents who participate in FBCI do feel empowered to be the coordinator of and manage their child's care, and our follow-up data show that the adolescents continue to function well at home with outpatient supports.
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4. DIFFERENCES IN CORTISOL RESPONSE IN SUICIDAL INDIVIDUALS FOLLOWING TREATMENT WITH DIALECTICAL BEHAVIOR THERAPY OR PHARMACOTHERAPY

Sadia Chaudhury[1], Hanga Galfalvy[1], Barbara Stanley[1]

[1]New York State Psychiatric Institute/Columbia University

Background: Knowledge of biomarkers for suicidal behavior is necessary to identify individuals who are predisposed for suicide and to measure response to interventions for suicide prevention. While psychotherapeutic and psychopharmacological interventions for suicidal behavior have been identified over the years, very little is known about the biological mechanisms underlying their effectiveness. Dysfunction of the hypothalamic-pituitary-adrenal (HPA) axis has been found in depressed individuals (Rao, 2008; Young et al., 2000) and in individuals at risk for suicidal behavior (Mann, 2003; McGirr et al., 2010). These findings suggest that cortisol, a hormone secreted via the HPA axis in response to stress, may serve as a potential biomarker for suicidal behavior. In this study, we examine differences in baseline cortisol levels and cortisol response to psychosocial stress in individuals with borderline personality disorder randomized to receive either Dialectical Behavior Therapy (DBT) or psychopharmacological treatment of suicidal behavior.
Methods: Subjects with borderline personality disorder and a history of at least one suicide attempt, or suicide-related behaviors, or episode of non-suicidal self-injury in the past 6 months and a second attempt, behavior or self-injury within the past two years were recruited for a randomized controlled trial of DBT or psychopharmacological treatment for the management of suicidal behavior. After completing a comprehensive psychiatric assessment and the TSST, a well-validated laboratory paradigm that measures salivary cortisol response to induced psychosocial stress, subjects were randomized to either DBT (n=26) or medication (n=27). Following six months of treatment in their randomized condition, subjects repeated the TSST. Baseline cortisol values were compared between groups at pre-treatment and post-treatment. Cortisol response to the TSST was defined as the area under the curve of log-transformed cortisol values (AULC), calculated from the subject's baseline cortisol level. Cortisol response

was compared between groups at pre-treatment and post-treatment. In addition, we examined change in cortisol response over time.
Results: The DBT and medication groups did not differ in terms of pre-treatment baseline cortisol levels or cortisol response to TSST. The DBT group had significantly fewer suicide-related behaviors over the course of treatment compared to the medication group (B=1.24, SE=0.51, z=2.42, p= 0.0157). Further, significant differences in cortisol response were found between groups at post-treatment. With regard to baseline cortisol levels, the medication group had significantly lower baseline cortisol values (t=2.605, df=53.288; p=0.012) at post-treatment, compared to the DBT group. Further, post-treatment, the DBT group had lower cortisol response to TSST, as measured by AULC (t=-1.756,df=54, p=0.084). When comparing TSST response pre- and post-treatment group, the DBT group demonstrated a greater reduction in cortisol response over time (t=-2.141, df=50, p=0.037).
Discussion: Our results suggest that cortisol response to stress as measured by the TSST may serve as a biomarker to identify underlying physiological changes that occur with treatment. We found that DBT is more effective than medication in reducing suicidal behaviors over the course of treatment. Subjects randomized to medication had lower baseline cortisol values post-treatment. It is possible that medications may suppress cortisol values, leading to this post-treatment difference. At the same time, subjects in the DBT group had lower cortisol response to stress post-treatment and had a significant reduction in cortisol response over time. DBT emphasizes the use of emotion regulation strategies and mindfulness techniques, which may contribute to the reduction in suicidal behavior in this treatment group and also explain the lower cortisol response to stress at post-treatment. Cortisol secretion, and its reduction in response to stress over time, may serve as a mechanism of action for the reduction of suicidal behavior via DBT. Further research is required to determine its utility in identifying at-risk individuals and understanding response to treatment in suicidal individuals.

5. SELECTIVE ATTRITION IN TREATMENT TRIALS WITH SUICIDAL PATIENTS MAY BIAS STUDY OUTCOMES

Marianne Gorlyn[1], John Keilp[1], Ainsley Burke[1], Maria Oquendo[1], J. John Mann[1], Michael Grunebaum[1]

[1]Columbia University/NYSPI

Background: There are few treatment studies intentionally targeting patients with suicidal ideation and behavior. These patients are typically excluded from standard clinical trials and this limits the data available to guide treatment selection for these at-risk individuals. In addition, differential attrition of the most vulnerable patients may influence findings regarding the effectiveness of specific treatments. We examined patients with elevated suicide risk who entered an 8-week antidepressant trial to examine factors distinguishing study completers and drop-outs.
Methods: Patients met criteria for a current Major Depressive Disorder (MDD) episode and had current suicidal ideation and/or a prior suicide attempt. Patients were randomized to double-blinded treatment with controlled release paroxetine or extended release bupropion, with mood and suicidal ideation ratings administered weekly (Grunebaum et al., 2012). Clinical and neuropsychological measures were completed at baseline and at the end of the 8-week trial (Gorlyn et al., 2015). Of the 67 subjects who completed baseline neuropsychological measures and were randomized to treatment, 10 dropped out before study completion.

Completer and drop-out groups were compared on demographic, clinical and cognitive characteristics.
Results: Drop-outs were equally distributed between medication groups, and comparable to study completers in terms of demographics and baseline depression severity. The drop-out group showed a trend toward a higher percentage of non-native English speakers (40.0% vs. 15.8%, chi-squared[1] = 3.19, P = 0.07). They had lower WAIS-III Vocabulary scores (10.9 +/- 5.3 vs. 13.4 +/- 3.1; t[64] = 2.00, P = 0.05), but did not differ from completers in an overall estimate of intelligence using a combination of WAIS-III Vocabulary and Matrix Reasoning scores. The most significant group differences were a higher percentage of subjects with prior suicide attempts (90.0% vs. 49.1%; chi-squared[1] = 4.96, P = 0.03) and poorer performance on impulse control tasks (Impulse Control domain score –0.54 +/- 0.63 vs. 0.17 +/- 0.89; t[65] = 2.44, P = 0.02) among drop-outs.
Discussion: Clinical trials with patients at elevated risk for suicide are feasible, and drop-out rates are comparable to that of other treatment studies in MDD. However, some of the most vulnerable patients may be at higher risk for discontinuation. Selective attrition of more impulsive patients with past attempt histories raises the possibility that those who may benefit most from treatment might be more likely to withdraw, and that information about their response to treatment might be lost, potentially biasing estimates of efficacy. For this unique class of studies, additional procedures are needed to retain this vulnerable subgroup of patients. This may include scheduled phone contact between clinic appointments, involvement of significant others (with consent), psychoeducation about potential treatment benefits, or instruction in strategies for coping with impulsive or self-defeating behavior.

PSYCHOLOGICAL AUTOPSY AND EPIDEMIOLOGICAL FINDINGS IN SUICIDE

Chair: Yogesh Dwivedi, University of Alabama at Birmingham

1. DATA SOURCES IN PSYCHOLOGICAL AUTOPSY RESEARCH: ASSESSING THE CONSISTENCY OF INFORMATION OBTAINED THROUGH THE SUICIDE SUPPORT AND INFORMATION SYSTEM IN IRELAND

Celine Larkin[1], Carmel McAuliffe[1], Paul Corcoran[2], Eileen Williamson[1], Ivan Perry[3], Ella Arensman[4]

[1]National Suicide Research Foundation, Cork, Ireland, [2]National Suicide Research Foundation, Cork, Ireland & Department of Epidemiology Public Health, University College Cork, Ireland, [3]Dept of Epidemiology Public Health, University College Cork, Ireland, [4]National Suicide Research Foundation, Cork, Ireland & Department of Epidemiology & Public Health, University College Cork, Ireland

Background: Psychological autopsy is a recommended approach in studying those who have died by suicide. The approach involves examining risk factors in the deceased's life and circumstances of their death using multiple sources. These sources can include interviews with family members and health care professionals, witness statements, and post mortem results. Using several sources allows for a more complete picture. However, little is known about the extent to which there is consistency across sources and what factors affect consistency. This paper seeks to address some of the biases identified by Pouliot and De Leo (2006), including the effects of informants' affective state, demographic characteristics and nature of their relationship with the proband.

Methods: The Suicide Support and Information System (SSIS) is a psychological autopsy study that has been operating in Cork, Ireland since 2008. Core items were assessed across family informant interviews, coroners' records, and health care professional questionnaires. Prior to inviting family members to an interview, required bereavement supports were facilitated by the interviewer, an option which was taken up by the majority of family informants. Family informant interviews were semi-structured and took place in a location of the interviewee's choice. Cohen's kappa was used to assess concordance across sources. Since 2014, the SSIS has also been used as the basis for a case-control study to examine the specificity of psychosocial, psychiatric and work-related factors associated with suicidal behavior (SSIS-ACE). In addition to suicide cases, the case-control study includes high-risk self-harm patients and GP controls, allowing for self-report from probands themselves. The SSIS-ACE study includes measures of factors hypothesized to affect recall, including: informants' affective state; informant's demographic characteristics; and kinship, closeness and duration of relationship with the proband.
Results: Data from the pilot SSIS (2008-2012) included 307 suicides, including a majority of males (80.1%) and most commonly involving deaths by hanging (63.8%). There were significant differences between the deceased's GP and family informants' responses on the deceased's history of self-harm (Kappa= 0.34, 95% CI: 0.06- 0.61) and history of psychiatric hospitalization (Kappa= 0.59, 95% CI: 0.29- 0.88). Data from the new case-control study (SSIS-ACE) will include data from an estimated 100 participants and will allow us to examine the effects of informants' characteristics and affective state on the concordance of their responses with the self-report of the probands in two arms (high-risk self-harm patients and GP controls).
Discussion: The outcomes underline the need for more than one data source when using a psychological autopsy approach in order to avoid inaccuracies in outcomes. International standardization of the psychological autopsy approach, including ways of synthesizing and analyzing data, would be helpful in determining best practice for researchers in this area. Further questions include how to manage missing information in case files, how to reconcile discordant responses in analysis, and whether it is advisable in case-control psychological autopsy studies to compare like sources with like across cases and controls.

2. META-ANALYSIS OF CASE-CONTROL PSYCHOLOGICAL AUTOPSY STUDIES: FOCUS ON MOOD AND ALCOHOL USE DISORDERS

Kenneth Conner[1], Jeffrey Bridge[2], Dustin Davidson[2], David Brent[3]

[1]University of Rochester Medical Center, [2]The Research Institute at Nationwide Children's Hospital, [3]University of Pittsburgh

Background: Prior meta-analyses of case-control psychological autopsy studies (PA studies) have established that mood and substance use disorders are the two most common mental disorders in suicide decedents worldwide but were limited for the purpose of examining subcategories of mood (e.g., dysthymia) and substance use disorders (e.g., alcohol dependence) and for of examining the moderating effects of age, sex, and region. The current study addresses these limitations.
Methods: A systematic search of case-control PA studies published in English since 1985 was conducted in PubMED and PscyhINFO and supplemented with hand searches of the reference sections of PA review articles and reports identified in the search. Studies were excluded if

they were uncontrolled, used only clinical controls or a suicide control group, did not use direct interviews (e.g., records only), reported no information on variables targeted in the search including mental disorder, and/or provided redundant information from a prior report of the same sample. The electronic search identified all (100%) of the articles published since 1985 contained in three prior published meta-analyses of the PA literature, a demonstration of sensitivity. The data are analyzed with Comprehensive Meta-Analysis Version 2. Results are based on odds ratios and 95% confidence intervals that were provided directly in the reports or, when necessary, that were calculated based on descriptive information contained in the reports, with use of adjusted odds ratios (as opposed to unadjusted) whenever available. Random effect models are conducted if there is evidence of heterogeneity of results, otherwise fixed effects are used. Analyses of subcategories of

Results: Detailed information on demographics and mental disorders was abstracted from 199 case-control PA studies identified in the search. Twenty-eight reports from 11 countries met eligibility criteria for the current analyses of mood and substance use disorders, and between 4 and 17 reports provided data for the specific categories of mood disorders (e.g., dysthymia) and substance use disorders (e.g., alcohol dependence). Preliminary results indicate that, with one exception, all categories of substance use disorders and mood disorders considered confer increased risk for suicide, with mood disorders showing more variability in risk across subcategories and, as a whole, conferring more pronounced risk compared to substance use disorders. Analyses of moderating effects of age, sex, and region are forthcoming as data allow and will be presented during the symposium.

Discussion: A wide range of specific categories of mood and substance use disorders confer risk for suicide, with mood disorders showing greater variability in risk across categories and, overall, conferring more pronounced risk for suicide than substance use disorders.

3. THE ASSOCIATION OF TRENDS IN CHARCOAL-BURNING SUICIDE WITH GOOGLE SEARCH AND NEWSPAPER REPORTING IN TAIWAN: A TIME SERIES ANALYSIS

Shu-Sen Chang[1], Simon Kwok[2], Qijin Cheng[3], Paul Yip[3], Ying-Yeh Chen[4]

[1]Institute of Health Policy and Management, and Department of Public Health, College of Public Health, National Taiwan University, Taipei, Taiwan, [2]The University of Sydney, [3]The University of Hong Kong, [4]National Yang-Ming University

Background: Some East/Southeast Asian countries experienced a rapid increase in suicide by charcoal burning over the past decade. Media reporting and internet use were thought to contribute to the epidemic. We investigated the association between method-specific suicide incidence and both internet search volume and newspaper reporting in Taiwan.

Methods: Weekly data for suicide, suicide-related Google search volume, and the number of articles reporting suicide in four major newspapers in Taiwan during 2008-2011 were obtained. Poisson autoregressive regression models were used to examine the associations between these variables.

Results: In the fully adjusted models, every 10% increase in Google searches was associated with a 4.3% (95% confidence interval [CI] 1.1-7.6%) increase in charcoal-burning suicide incidence in the same week, and a 3.8% (95% CI 0.4-7.2%) increase in the following week. A one-article increase in the United Daily was associated with a 3.6% (95% CI 1.5-5.8%) increase in charcoal-burning suicide in the same week. By contrast, non-charcoal-burning suicide was

not associated with Google search volume, but was associated with the Apple Daily's reporting in the preceding week.
Discussion: We found that increased internet searches for charcoal-burning suicide appeared to be associated with a subsequent increase in suicide by this method. The prevention of suicide using emerging methods may include monitoring and regulating online information that provides details of these methods as well as encouraging internet service providers to provide help-seeking information.

4. WITHDRAWN

5. HEAVY ALCOHOL USE PRIOR TO DEATH AMONG SUICIDE DECEDENTS AND A POPULATION-BASED COMPARISON SAMPLE: THE EFFECTS OF THE GREAT RECESSION

Mark Kaplan[1], Nathalie Huguet[2], Raul Caetano[3], Bentson McFarland[2], Norman Giesbrecht[4], William Kerr[5]

[1]UCLA Luskin School of Public Affairs, [2]Oregon Health & Science University, [3]Pacific Institute for Research and Evaluation, [4]Centre for Addiction and Mental Health, [5]Public Health Institute

Background: The fraction of suicide decedents who were intoxicated at the time of death increased during the recent economic contraction, according to Kaplan et al. (2014). However, the relationship between the economic downturn, acute alcohol use, and suicide is complex and not well understood. At the population level, economic recessions have been associated with declines in overall alcohol consumption levels, an effect also seen during the recent Great Recession, but also with increases in heavy alcohol use patterns and associated problems, particularly among those directly affected by the recession. The increase in heavy alcohol use in the general population during the economic downturn might explain the increase in alcohol-related suicides. Therefore, the primary aim of the current study—funded by the National Institute on Alcohol Abuse and Alcoholism--was to compare the change in the fraction of suicide decedents who consumed heavy amounts of alcohol prior to their death relative to the change in the rate of heavy alcohol use patterns in the general population during the economic downturn.
Methods: Data from the National Violent Death Reporting System (2005-11) and the Behavioral Risk Factor Surveillance System (2006-11) were analyzed to test whether the change in acute intoxication (defined as BAC $\geq$ 0.08 g/dl or "heavy alcohol use") before (2007 and earlier), during (2008-09), and after (2010-11) the Great Recession was explained by a change in heavy alcohol use in the general population. Interaction terms between economic contraction periods (with 2007 and earlier as the referent category) and vital status (living as referent versus suicide) were included in the multiple logistic regression models to test whether the change in consumption varied among decedents relative to living comparison sample.
Results: Alcohol-related suicides increased for both genders and most age and race/ethnicity groups. Among males in the living sample, heavy alcohol use decreased (-2%) during the downturn, for most age and race/ethnic groups, but then increased by 12% in 2010-11 relative to 2008-09. For women in the living sample, there was a small increase immediately during

the recession and then a larger increase thereafter. The logistic regression models showed that male decedents experienced a significantly greater increase (adjusted odds ratio [AOR]:1.15, 95%CI [confidence interval] 1.10-1.20) in heavy alcohol use at the onset of the recession (relative to the period before the recession) than did men in the living sample. This was the case for males in all age groups as well as all race/ethnic minorities except for Asian/PI (for whom the interaction term was not significant). For women overall, there was no significant difference in the change in alcohol use both at the onset and after the downturn between the living and decedent samples. Black (AOR:1.23, 95%CI 1.04-1.45) and Hispanic (AOR:1.21, 95%CI 1.01-1.44) female suicides were more likely to have increased their alcohol use at the onset of the downturn relative to their living counterparts.

Discussion: During the recent recession, the rise in heavy alcohol use was significantly greater for male suicide decedents than for men in the general population. Among women, there was a significant inverse relationship between economic conditions and heavy alcohol use, which may explain the rise in female alcohol-related suicide.

Wednesday, October 14, 2015

8:00 AM - 9:15 AM

Concurrent Oral Sessions

DIFFERENTIATING TYPES OF SUICIAL BEHAVIOR
Chair: Kelly Posner, Center for Suicide Risk Assessment

1. AN INVESTIGATION INTO THE PSYCHOLOGICAL CHARACTERISTICS OF SELF-HARM PATIENTS WITH AND WITHOUT SUICIDAL INTENT

Sarah Eschle[1], Julie Mansfield[1], Ronan O'Carroll[2], Daryl O'Connor[3], Eamonn Ferguson[4], Karen Wetherall[1], Seonaid Cleare[1], Rory O'Connor[1]

[1]University of Glasgow, [2]University of Stirling, [3]University of Leeds, [4]University of Nottingham

Background: The prevention of suicide is a major public health concern and given that self-harm is such a predictor of future suicide, there is considerable research focus on understanding the factors associated with self-harm. There is also growing recognition that we need to move beyond psychiatric explanations of suicide risk, and focus on understanding the psychological characteristics of self-harm. There have also been calls to investigate different sub-types of self-injurious behaviour, specifically in respect of self-injurious behaviour with and without suicidal intent. As a consequence, in this study we investigated psychological factors in individuals who had recently been admitted to hospital for self-harm, with the aim of examining the characteristics of those participants who expressed intent to die versus those without suicidal intent. Previous research has indicated, for example, that those who score higher on defeat experience more suicidal ideation at 12 month follow up (Taylor et al., 2011) and that those who self-harm with intent to die have higher levels of impulsivity (Dougherty et al., 2009) than those without. Such sub-group analyses should better inform risk assessment and intervention protocols.
Methods: Recruitment was conducted concurrently across two general hospitals in Scotland. 500 participants who had been admitted to hospital following an episode of self-harm took part in the study. Participants were usually interviewed within 24 hours of admission about any past history of suicide attempts and self-harm, as well as any history of suicidal ideation. Participants then completed a battery of reliable and valid psychological measures (defeat, entrapment, burdensomeness, belongingness, acquired capability, impulsivity, goal adjustment, social support, and socially prescribed perfectionism) as well as measures of depression and suicidality. Within the sample recruited, 66.5% of participants reported suicidal intent associated with their self-harm.
Results: A series of binary logistic regression analyses were conducted. Preliminary analyses suggest that self-harm patients who report suicidal intent exhibit significantly higher scores on measures of defeat, entrapment, burdensomeness, belongingness, acquired capability, impulsivity, goal re-engagement and socially prescribed perfectionism, compared to patients without intent to die. Measures of depression and suicidality were also significantly higher in

the patients with intent to die. Multivariate analyses suggest that the measures of defeat and burdensomeness were the most important factors in distinguishing those individuals with and without suicidal intent.
Discussion: The results indicate that those who expressed intent to die have higher scores on a number of key measures of psychological risk factors. This implies that further research into these factors is required, where self-harm patients with intent to die may be particularly at risk of higher levels of defeat and entrapment, for example, and where greater understanding of the psychological mechanisms of suicidality could lead to improved suicide prevention interventions. A limitation of the study is that there are a number of challenges in fully determining whether an individual did truly have intent to die, as the fluidity of intent and issues with memory of the event can hinder people expressing their true intentions. The implications for theoretical models of suicidal behaviour and the development of interventions to reduce repetition of self-harm and suicide are discussed.

2. AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN SELF-COMPASSION, SUICIDAL IDEATION AND SELF-HARM

Seonaid Cleare[1], Rory O'Connor[1], Andrew Gumley[1]

[1]University of Glasgow

Background: Despite major advances in understanding the psychology of suicidal behaviour in recent years (O'Connor & Nock, 2014) there are many gaps in our knowledge. In particular, the evidence for factors that may protect against suicide risk is extremely limited. In the present study, therefore, we focus on one such factor, self-compassion, which has been shown to be protective against anxiety, depression and stress in previous research. Feldman and Kuyken (2011) describe compassion as "an orientation of mind that recognizes pain and the universality of pain in human experience and the capacity to meet that pain with kindness, empathy, equanimity and patience. While self-compassion orients to our own experience, compassion extends this orientation to others' experience." Given that self-compassion is also a component of some of the promising new psychological interventions (e.g., mindfulness-based cognitive therapy) it is a good candidate to investigate in the context of protecting against suicidal ideation and behaviour. As yet, however, little research has examined the relationship between self-compassion and suicidality. This present study represents one strand of a programme of research that sets out to investigate this relationship.
Methods: 514 healthy adults completed the survey. Respondents were recruited by email and via social media. There were no exclusions from the study based on any demographics or other characteristics. Respondents completed the self-compassion scale along with well-established measures of suicide risk (defeat, entrapment, self-criticism and social comparison), protective factors (mindfulness and resilience) and measures of mood, stress, suicidal ideation and self-harm online.
Results: 71 (13.8%) respondents reported suicide ideation, 24 (4.7%) reported a single episode of self-harm (self-injurious behaviour irrespective of motive) and 84 (16.3%) reported repeated self-harm.A series of univariate and multivariate regression analyses were conducted to investigate the relationship between the dimensions of self-compassion (self-kindness, self-judgement, common humanity, isolation, mindfulness, over-identification with thoughts) and self-harm history. Suicide ideators differed significantly from controls (i.e., no suicide ideation) on the isolation subscale and the single episode group differed from controls on self-kindness.

In addition, relationships between established risk factors (i.e. self-criticism, defeat and entrapment) for suicidality were investigated. Significant differences were found between controls and ideators in the predicted directions. Ideator and repeated episode groups differed significantly on entrapment from controls. In the multivariate model entrapment and self-criticism emerged as significant predictors of repeated self-harm. A series of mediation and moderation analyses, consistent with the integrated motivational-volitional model of suicidal behaviour (O'Connor, 2011), were also conducted.
Discussion: There is evidence that self-compassion is associated with self-harm and suicidal ideation. However, as the present study was cross-sectional, it is not possible to comment on the direction of the relationship. Nonetheless, this study provides some preliminary evidence that self-compassion has the potential to be act as a protective factor within the suicidal process. There was also some evidence to support the key tenets of the integrated motivational-volitional model of suicidal behaviour. The research into the relationship between self-compassion and suicide risk is in its early years, and more research needs to be done to better understand the nature of the relationship.

3. ABORTED AND INTERRUPTED SUICIDES: A LITERATURE REVIEW

Andriy Yur'yev[1], Barbara Stanley[2]

[1]Columbia University/Harlem Hospital Center, [2]Columbia University/New York State Psychiatric Institute

Background: The purpose of this review is to systematize existing knowledge on the problem of aborted and interrupted suicides.
Methods: A systematic search for articles was conducted using the following libraries: ISI Web of Knowledge, PubMed, Google Scholar and PsychInfo. The following key words were used for search purpose: suicid* OR self-directed violence OR self-injury OR self-harm AND interrupted OR aborted. Studies were included if they investigate or discuss in any way the problem of aborted or interrupted suicide.
Results: Variety of definitions on aborted and interrupted suicide attempts exists. Interrupted suicide attempt can be possibly defined as a self-destructive act that was stopped by another person or force before actual physical damage occurred. Aborted suicide attempt can be possibly referred to the potentially self-destructive behavior with intent to die which was stopped by a subject a step away before any actual harm occurred. Both aborted and interrupted suicide attempts have no medical consequences.
Discussion: Proper defining of aborted and interrupted suicide attempts prevents misclassification and carries significant value in clinical practice particularly when assessing risk and prognosis. Agreement on definitions would also facilitate comparative analysis of epidemiologic data on suicide attempts.

4. PROSPECTIVE EXAMINATION OF PEER VICTIMIZATION AS A MEDIATOR OF THE RELATION BETWEEN MATERNAL DEPRESSION AND THE ONSET OF SUICIDAL THINKING IN THEIR CHILDREN: A SEX-MODERATED MEDIATIONAL MODEL

Aliona Tsypes[1], Brandon Gibb[2]

[1]Binghamton University (SUNY), [2]Binghamton University (SUNY)

Background: Although maternal history of depression is linked with suicidal ideation in their children even after the offspring psychopathology is accounted for (Hammerton et al., 2015), little is known about the potential mechanisms that might account for this relation. There is strong evidence that peer victimization is associated with suicidal thinking (e.g., van Geel, Vedder, & Tanilon, 2014) and thus might constitute one of the potential mediators of the relation between maternal depression history and the onset of suicidal thinking in their offsprings. However, extant research is limited by predominately cross-sectional studies, which precludes any conclusions about causal relations between peer victimization and the emergence of suicidal thinking. In addition, although maternal depression has been shown to be more strongly related to internalizing problems in girls, compared to boys, the knowledge about the potential sex differences in the emergence of suicidal thinking in children of depressed mothers is limited. Consequently, the present study sought to examine whether peer victimization would mediate the impact of maternal depression on children's risk for suicidal ideation and whether these effects would vary by children's sex.

Methods: Participants were 203 mother-child pairs recruited from the community. To qualify for the study, mothers were required to either meet criteria for MDD during the child's lifetime (n = 96) or have no lifetime diagnosis of any DSM-IV mood disorder and no current Axis I diagnosis (n = 107). The average age of the mothers at baseline in the present study was 40.66 years (SD = 6.80, Range = 24-55). The average age of the children at baseline in the present study was 11 years (SD = 1.89, Range = 8-14; 50.2% girls). The Structured Clinical Interview for DSM-IV Axis I Disorders and the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version were used to assess for current DSM-IV Axis I disorders in mothers and current DSM-IV Axis I disorders and suicidal ideation in children, respectively. Participants also completed follow-up appointments, which occurred 6, 12, 18, and 24 months after the initial assessment, during which a trained interviewer assessed for the presence of suicidal ideation in the children during the previous 6 months. Children's experiences of peer victimization were assessed via the Social Experiences Questionnaire-Self-Report administered at the baseline assessment.

Results: Using a bias-corrected 95% bootstrap confidence interval with 1,000 bootstrap samples (PROCESS macro; Hayes, 2013), we evaluated the indirect effect of mother MDD on the presence of suicidal ideation in children during the follow-up (yes/no) through levels of peer victimization. Child sex was entered as a moderator of the pathways between mother MDD and relational/overt victimization and between mother MDD and child thoughts of suicide. Separate models were run for relational and overt victimization. We found a significant indirect pathway from maternal MDD to children's suicidal ideation through overt victimization among girls, beta = .21, 95% CIs = .02, .58, but not among boys, beta =- .07, 95% CIs = -.36, .12. Similarly, we found a significant indirect pathway from maternal MDD to children's suicidal ideation through relational victimization among girls, beta = .29, 95% CIs = .02, .74, but not among boys, beta = .01, 95% CIs = -.19, .27. To examine the robustness of the obtained findings by determining whether the effects were due solely to children's own

history of depression, we re-conducted the analyses excluding children with lifetime history of MDD at baseline (n = 11). All of the significant findings were maintained.
Discussion: We found that mothers' history of MDD predicted time to emergence of suicidal ideation over the course of 2-year follow-up in girls, but not in boys, suggesting that maternal depression might have a stronger relation to the emergence of suicidal thinking in girls than in boys. We also found that overt and relational peer victimization mediated the relation between maternal history of MDD and children's thoughts of suicide in girls, but not in boys, even when children with lifetime history of MDD were excluded from the analyses. This study is the first to our knowledge to integrate multiple lines of research that have previously been kept disparate in a prospective study design, including the sex-moderated intergenerational transmission of risk for suicidal thinking and the negative effects of peer victimization as one potential mechanism of this transmission. Our findings may also have important clinical implications for suicide prevention in the daughters of mothers with a history of depression. For example, these girls might benefit from interventions focused on promoting positive peer relationships as well as teaching them more adaptive coping strategies, including emotion regulation.

5. ATTEMPTED SUICIDE IN SRI LANKA – DOES CONTEXT MATTER?

Duleeka Knipe[1,2], David Gunnell[2], Melissa Pearson[3], Shaluka Jayamanne[4], Keith Hawton[5], Flemming Konradsen[6], Michael Eddleston[3], Chris Metcalfe[1]

[1]University of Bristol; South Asian Clinical Toxicology Research Collaboration, Peradeniya, Sri Lanka, [3]University of Edinburgh; South Asian Clinical Toxicology Research Collaboration, Peradeniya, Sri Lanka, [4]University of Kelaniya; South Asian Clinical Toxicology Research Collaboration, Peradeniya, Sri Lanka, [5]University of Oxford, [6]University of Copenhagen; South Asian Clinical Toxicology Research Collaboration, Peradeniya, Sri Lanka

Background: Aspects of the context in which an individual lives may influence their suicide risk. Examples of contextual factors which might play an important role in determining suicidal behaviour include: the degree of social fragmentation; area level socio-economic factors; access to facilities/work and community perceptions/normalisation of suicide. There is a growing amount of research investigating the role of contextual effects on suicidal behaviour; relatively few of these studies are carried out in Asia where the majority of the World's suicides occur. The influence of contextual factors may be more pronounced in these settings because Asian communities put a high emphasis on collectivism. Using multi-level modelling, we investigated the importance of contextual factors in determining attempted suicide risk using a large Sri Lankan dataset.
Methods: The data were collected in the North Central Province of Sri Lanka, as part of a large randomised control trial, for 165,233 individuals from 47,919 households living in 142 communities. Data were collected on previous suicide attempts and on individual (age, gender and individual level SEP) and household (household level SEP, pesticide access, alcohol use and number of generations living together) level factors. We used 3-level multi-level logit models to estimate how much of the variability in risk of attempted suicide between individuals was accounted for by the household and communities in which they live. We will also explore individual, household and community level variables simultaneously to model the effects of different aspects of an individual's context.

Results: Preliminary analyses indicate evidence of both household and area level effects on individual attempted suicide risk. Approximately 25% (95% CI 21-29%) of the estimated proportion of variation in attempted suicide risk was at the household and community level combined. However, a substantial proportion of the variability is still accounted for at the individual level (75%). The estimated proportion of variation accounted for at the household level (21%) was much larger than at the community level (3%).
Discussion: Evidence from Sri Lanka suggests that the context within which an individual lives plays an important part in determining attempted suicide risk. This study suggests that the shared environmental and biological factors in a household are more important in determining risk than community level factors; though not more important than individual level factors.

INNOVATIVE INVERVENTIONS WITH SUICIDAL INDIVIDUALS

Chair: Michelle Cornette, American Association of Suicidology

1. TWO ONLINE SUICIDE PREVENTION PROGRAMS: RANDOMISED CONTROLLED TRIAL DATA FROM HEALTHY THINKING AND IBOBBLY

Helen Christensen[1], Fiona Shand[1], Bregje Van Spijker[2], Daniella Solomon[1], Joe Tighe[1]

[1]Black Dog Institute, [2]Australian National University

Background: Over the last decade the development, testing, implementation and dissemination has occurred of e health applications aimed at anxiety and depression. New ICT psychological interventions are now emerging specifically for suicide prevention. In this presentation, early data from the RCTs of two programs are presented. The first trial, the Healthy Thinking Trial, is a RCT of an English adaptation of Ad Kerkhof and Bregje Van Spijker's online program; the second is a trial of a tablet prevention program, ibobbly, which is based on acceptance commitment therapy, and designed in conjunction with an indigenous community.
Methods: Protocols of the RCTs have been published. Essentially, through advertisements, social media or via community contacts, individuals are invited to enroll in the programs, and their progress is monitored by online program or the app. Assessments are done online. The Health Thinking Trial is automated, and participation is anonymous, though participants are required to register with a call line crisis support service. The ibobbly consists of three modules while the Healthy Thinking Program has 6 modules. Follow up is immediate at 6 weeks for the ibobbly app; but 12 month follow-ups are in progress for the Healthy Thinking Program. 60 participants completed the ibobbly app program. Approximately 240 participants are enrolled in the Healthy Thinking Program, with enrollment aimed for completion at the end of 2015. Outcome measures include suicide ideation, anxiety, depression and other measures of wellbeing.
Results: Immediate outcome data from the ibobbly are positive. Data on the Health Thinking Trial is yet to be formally analysed, but data look more promising at longer follow-ups.
Discussion: Key elements in the development of app and online programs are co-production and functionality. Prevention programs need to be evaluated at longer follow ups. Mental health treatment is both notoriously difficult to access for many individuals at risk of suicide, and is perceived by many to be irrelevant, stigmatising and/or is unwanted. These trials provide a genuine basis for the claim that the development of ICT-based suicide specific interventions

will lead to lower rates of suicide behaviour and death by providing direct access to evidence based interventions that are not accessed via traditional health services.

2. THE EFFECTIVENESS OF PSYCHOTHERAPY IN PREVENTING SUICIDAL ATTEMPTS: A META-ANALYSIS

Raffaella Calati[1,2], Philippe Courtet[3]

[1]INSERM U1061, University of Montpellier UM1, Montpellier, France, [2]INSERM U1061, University of Montpellier UM1, Montpellier, France; FondaMental Foundation, France, [3]INSERM U1061, University of Montpellier UM1, Montpellier, France; FondaMental Foundation, France; Department of Psychiatric Emergency & Acute Care, Lapeyronie Hospital, CHU Montpellier, Montpellier, France

Background: There is debate about the effectiveness of psychotherapy in preventing suicidal attempts. A recent meta-analysis has been performed on adolescents to evaluate the efficacy of therapeutic interventions (psychological, social, and pharmacological) in reducing both self-harm (as a global category including any self-harm: suicide attempts, non-suicidal self-injury (NSSI), and/or self-harm with ambiguous intent) and suicide attempts separately considered (Ougrin et al. 2015). Evidence of efficacy was reported for self-harm only and not for suicide attempts. We consequently decided to perform a new meta-analysis to extend previous results on adults and to focus on suicide attempt outcome. Our first aim was to evaluate the efficacy of psychotherapeutic interventions in the prevention of suicide attempt outcome (presence of any suicide attempt during the treatment and/or follow up periods) throughout different diagnoses and populations (adult and adolescents). Secondarily we evaluated the efficacy of psychotherapeutic interventions in the prevention of NSSI/self-harming/self-mutilating behaviors. Thirdly we performed a number of sensitivity analyses and meta-regressions to account for the hypothesized between study heterogeneity.

Methods: We searched MEDLINE, EMBASE, PsycINFO, and the Cochrane Library (March 2015) for randomized controlled trials (RCTs) comparing psychotherapy interventions vs treatment as usual (TAU) in preventing suicidal attempts/NSSI. Studies were included if: they compared a form of psychotherapeutic treatment with TAU (or psychotropic treatment alone, enhanced usual care, cognitive remediation, supportive treatment, no treatment); they reported suicide attempt and/or NSSI as an outcome measure. Data were analyzed with Cochrane Collaboration Review Manager Software (RevMan, version 5.3), Comprehensive Meta-analysis (version 2.2.064) and STATISTICA software. Funnel plots were created and Egger's test has been applied as well. Methodological quality of the trials has been assessed with both Jadad scale and Cochrane risk of bias tool. Potential influence of moderators on both outcomes has been assessed through meta-regressions. We considered the following variables as meta-regressors: quality of the studies (Jadad score), gender and mean age of the included patients, number of weekly sessions, total number of sessions, psychotherapy duration, and follow up duration.

Results: In the 32 included RCTs, 3780 patients were randomly assigned to receive psychotherapy (n=1940) or TAU (n=1840). Trials focused on: adults (n=25, 78.1%), and adolescents (n=7, 21.9%); borderline personality disorder (BPD) (n=8, 25%), depression (n=6, 18.7%), and schizophrenia (n=3, 9.4%); long (n=15, 46.9%), and brief term psychotherapies (n=17, 53.1%); cognitive behavioral therapy (n=13, 40.6%), dialectical behaviour therapy (n=5, 15.6%), cognitive therapy (n=3, 9.4%), mentalization-based treatment (MBT) (n=2,

6.2%), and interpersonal psychotherapy (n=2, 6.2%). Patients who received psychotherapy were less likely to attempt suicide during the follow up (31 studies; $p<0.0001$). Their pooled risk difference was -0.08. The absolute risk reduction was 6.59%, yielding a number needed to treat of 15. In sensitivity analyses the efficacy of psychotherapy on suicide attempts was found in adults, BPD, both long and brief term therapies, and MBT. A higher Jadad score, to be male and a higher number of sessions per week were associated with a risk reduction. No evidence of efficacy of psychotherapy has been found in NSSI behaviours (8 studies). Evidence of heterogeneity among studies and publication bias has been detected.
Discussion: Patients allocated to receive psychotherapy were less likely to attempt suicide during the follow up period in comparison to patients allocated to receive TAU or similar conditions. This result is really encouraging, even if the between studies heterogeneity was high, consistently with the high number of heterogeneity factors: different populations (adults and adolescents), diagnoses, psychotherapeutic interventions, treatment duration. Interestingly, post hoc sensitivity analyses revealed some clinically meaningful outcomes: the efficacy of psychotherapy was present in adults but not in adolescents and in BPD patients but not in depressed and schizophrenia-spectrum patients. These results suggest that the prevention of suicidal attempts in specific samples (adolescent and depressed and schizophrenic patients) requires the improvement of existing treatment strategies. The analysis of NSSI behaviors was underpowered to lead to firm conclusions. Considering that the quality of the included studies seemed to have modulated present findings, future studies could be substantially improved: in particular, trials with lower risk of bias, more homogeneous outcome measures, and longer follow-up are warranted.

3. MINDFULNESS-BASED COGNITIVE THERAPY FOR PREVENTING SUICIDE IN VETERANS (MBCT-S): DESIGN AND IMPLEMENTATION OF AN ONGOING RANDOMIZED CLINICAL TRIAL

Alejandro Interian[1], Barbara Stanley[2], Megan Chesin[2], Miriam Latorre[1], Kurt Bopp[1], Rachael Miller[1], Anton Shcherbakov[3], Lauren St. Hill[1], Anna Kline[4]

[1]VA New Jersey Healthcare System, [2]Columbia University, [3]Rutgers University, [4]Rutgers University - Robert Wood Johnson Medical School

Background: The CDC reports that 41,149 individuals died of suicide nationally in 2013, making suicide the 10th leading cause of death in the United States. With over a decade of military operations in Iraq and Afghanistan, suicide rates among military Veterans have gained national attention. Several estimates show that military Veterans, in particular, young male Veterans, are a population at special risk. VA data show that 80% of non-fatal suicide attempts among Veterans occurred within 4-weeks of having had a Veterans Health Administration (VHA) visit. Forty percent of these were outpatient mental health visits. Thus, there is a strong need in VHA care for evidence-based psychotherapies that specifically address suicidal behavior, but research into new therapies is limited.
Responding to this need, this presentation describes a clinical trial testing a novel therapy for reducing suicide risk in military Veterans. The intervention, Mindfulness-Based Cognitive Therapy for Preventing Suicide (MBCT-S), is a 10-week group, intervention adapted from an existing treatment for depression (Mindfulness-Based Cognitive Therapy – MBCT). MBCT-S also incorporates the Safety Planning Intervention (SPI), which is currently implemented throughout the Vet

Methods: MBCT-S is being tested in a VHA setting using an intent-to-treat, two-group randomized trial design in which 164 high suicide risk Veterans are randomized to either VHA Treatment As Usual (TAU; n=82) or TAU+MBCT-S (n=82). Our primary outcome measure, suicide-related event, defined to include self-directed violence, preparatory behaviors, or suicidal behavior with suicidal intent will be measured through five assessments administered by blinded assessors between baseline and 12 months post-baseline. Secondary outcomes include suicide ideation severity, hopelessness and depression, as well as neuropsychological measures that have been found by previous research to be associated with suicide behaviors.
Results: Although this trial is ongoing and data is still being accrued, the presentation will report preliminary baseline data that characterizes the nature of this cohort, as well as treatment retention rates.
Discussion: This randomized controlled trial will yield needed information about MBCT-S, an intervention that has a novel therapeutic focus and is being implemented adjunctively with VHA care. Also, MBCT-S is deliverable in a group format, which enhances cost-efficiency in mental health settings with strained resources. Altogether, promising findings for MBCT-S would
This research is supported by a grant from the Department of Veterans Affairs Health Services Research and Development (VA HSR&D Grant IIR 12-134). The opinions contained in this presentation are those of the authors and do not necessarily reflect those of the US Department of Veterans Affairs.

4. AN RCT OF MOTIVATIONAL INTERVIEWING TO ADDRESS SUICIDAL IDEATION WITH PSYCHIATRICALLY HOSPITALIZED VETERANS: DESIGN, PROGRESS, AND LESSONS LEARNED

Peter Britton[1], Kenneth Conner[2], Stephen Maisto[3]

[1]VISN 2 Center of Excellence for Suicide Prevention, Canandaigua VA Medical Center,
[2]VISN 2 Center of Excellence for Suicide Prevention, Candandaigua VA Medical Center,
[3]Syracuse University

Background: Veterans who are discharged from acute psychiatric units within the Veterans Health Administration (VHA) have been shown to be at roughly 40-50 times the risk for suicide than the general population. Interventions that reduce risk for suicidal behavior (i.e., suicide attempts and suicides) after discharge and can be administered during short stays on acute inpatient units and are needed. Motivational interviewing is a brief intervention that has been found to reduce engagement in a variety of harmful behaviors, but has not yet been applied to suicidal behaviors. Motivational interviewing to address suicidal ideation
(MI-SI) is an adaption of motivational interviewing that was developed to increase the motivational to live and engage in life sustaining and enhancing behavior in individuals who are thinking about suicide. The purpose of this randomized controlled trial (RCT) is to examine the effect of MI-SI on suicidal ideation in Veterans discharged from an acute psychiatric unit.

Methods: The study will include 140 high-risk Veterans who are hospitalized in a VHA psychiatric inpatient unit. "High risk" is defined as scores over two on the Scale for Suicidal Ideation, which prospectively predicts suicide. All participants will receive a baseline assessment of suicidal ideation, suicidal behavior, and risk factors for suicide. Half will be randomized to receive MI-SI plus treatment as usual (TAU), and half to receive TAU alone.

Participants in the MI-SI plus TAU group will receive up to two sessions during their hospitalization plus one telephone booster session in the month following discharge. All participants will complete telephone follow-up assessments at one, three, and six months after discharge. The primary outcome is change in the severity of suicidal ideation. Exploratory analyses will examine the impact of MI-SI on treatment engagement and suicide attempts, and will also examine treatment engagement as a mediator of the impact of MI-SI on the severity of suicidal ideation.

Results: Unique characteristics of the intervention and the study design will be described. The study began in July of 2012 and two years of data have been collected. Recruitment rates, follow-up rates, and participant demographics will be reported. Serious adverse events (i.e., suicide attempts, unintentional overdoses, suicides, deaths from other causes) and adverse events (i.e., hospitalizations for symptoms and for suicidal ideation) will be described and compared between treatment groups.

Discussion: Lessons learned in administering MI-SI and conducting the trial will be discussed. Preliminary findings from this RCT will be used to discuss the progress of the trial and the potential of MI-SI to reduce risk for suicidal behavior in Veterans after discharge from acute psychiatric inpatient facilities.

5. INCREASING POST-HOSPITALIZATION TREATMENT ENGAGEMENT AMONG VETERANS THROUGH THE HOME-BASED MENTAL HEALTH EVALUATION (HOME) PROGRAM

Bridget Matarazzo[1], Melodi Billera[2], Jeri Forster[2], Lisa Brenner[3]

[1]VA Rocky Mountain Mental Illness Research, Education and Clinical Center, [2]Rocky Mountain MIRECC, [3]Rocky Mountain MIRECC; University of Colorado, School of Medicine, Departments of Psychiatry and Physical Medicine and Rehabilitation

Background: The weeks following psychiatric hospitalization is a particularly high-risk period of time for death by suicide. Many individuals do not engage in care post-hospitalization, which is associated with death by suicide. The Home-Based Mental Health Evaluation (HOME) program aims to increase Veterans' treatment engagement and mitigate suicide risk following psychiatric hospitalization. This is accomplished through a phone call within one day of discharge, a home visit within one week of discharge and ongoing follow-up until the Veteran is engaged in care. Each contact is comprised of a suicide risk assessment, review of safety and discharge plans, and problem-solving around barriers to care.

Methods: 90 day post-hospitalization treatment engagement data (n=68) was collected via electronic medical record review to compare HOME participants to a matched archival control group. HOME participants (n=34) also completed a series of prospective assessments related to suicidal ideation and behavior, general mental health symptoms, and attitudes towards seeking care.

Results: In the first 90 days post-hospitalization, HOME program participants, as compared to archival matched controls, were more likely to engage in care (p=.02), engaged in care in a shorter amount of time (p=.04) and attended more individual outpatient appointments (p=.02). Veterans in the HOME program experienced decreased suicidal ideation (p=.007) and overall symptomology (p=<.0001) one week post-discharge as compared to when in the hospital. Reported attitudes towards seeking mental health care significantly improved three post-discharge (p=.046) as compared to when in the hospital.

Discussion: Evidence suggests that the HOME program is effective at helping Veterans at high risk for suicide engage with mental health care during a high risk transitional time period. Veterans in the HOME program experienced decreased suicidal ideation and other mental health symptoms post-discharge, which is discrepant from what is suggested by the literature. They also reported improved attitudes towards seeking care as compared to when they were in the hospital.

GENETIC, NEUROBIOLOGICAL AND NEUROCOGNITIVE STUDIES OF SUICIDAL BEHAVIOR

Chair: Julio Bobes, University of Oviedo

1. VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) IN CEREBROSPINAL FLUID, CHILDHOOD EXPOSURE TO INTERPERSONAL VIOLENCE AND IMPAIRED SOCIALIZATION IN SUICIDE ATTEMPTERS

Jussi Jokinen[1], Josef Isung[2], Shahin Aeinehband[2], Lotta Strömsten[1], Peter Nordström[2], Fredrik Piehl[2], Bo Runeson[2], Marie Åsberg[2]

[1]Umeå University, [2]Karolinska Institutet

Background: Vascular endothelial growth factor (VEGF) has previously been associated with suicidal behavior [1]. Early life adversity (ELA) and traits such as impaired socialization are risk factors for suicidal behavior [2,3], but the causal chain for these factors is poorly understood. We studied the interrelationships between ELA and VEGF as potential risk factors for impaired socialization, in suicide attempters.
Methods: Forty-one suicide attempters were recruited to this study. Participants were screened and assessed diagnostically. Personality traits, including socialization, were assessed using the Karolinska Scale of Personality (KSP) and ELA was assessed using the Karolinska Interpersonal Violence Scale (KIVS) [2]. Cerebrospinal fluid (CSF) was sampled according to a standardized protocol.
Results: Both CSF VEGF ($r = 0.38$, $p = 0.014$) and KIVS childhood exposure to interpersonal violence ($\rho = -0.47$, $p < 0.0001$) significantly correlated with KSP socialization in suicide attempters. Regression results suggested CSF VEGF (Beta = 0.29, $p < 0.001$) and KIVS (Beta = 0.29, $p < 0.01$) as significant risk factors for impaired socialization ($R^2 = 0.28$). However, a notion of intervening variable effects between them was not supported by neither moderation analysis (the adjusted r-score dropped when the moderator was introduced) nor mediation analysis (indirect effect for CSF VEGF, Beta = -0.07, ns; KIVS, Beta = -0.10, ns).
Discussion: Our results indicate that low scores on socialization are associated to lower levels of CSF VEGF. Previous studies have reported negative socialization skills with features such as being socially reserved, timid and withdrawing from social contact, as significantly low in suicide attempters compared to population means [4]. This trait seems comparatively stable and may reflect a long-standing dysfunction in coping skills and general vulnerability for suicidal behavior. The KSP construct of socialization is also previously reported to be significantly low in suicide attempters as compared to hospital controls [3]. VEGF is a neurotrophin that previously has been linked both to depression and suicidal behavior. It is commonly known to be sensitive and reactive to stress both from animal studies and clinical studies, and therefore integrated in the diathesis stress-vulnerability model of depression [4].

Increased stress from ELA and a down-regulated neurotrophic environment may during vulnerable phases affect the normal development of socializing traits. These problems may downstream implicate a plausible model for the subsequent chronicity and lack of adaptational skills in patients that attempt suicide.

2. A TARGETED SEQUENCING STUDY OF GLUTAMATERGIC CANDIDATE GENES IN ATTEMPTED SUICIDE

Sophia Gaynor[1], Marie Breen[1], Eric Monson[1], Kelly Novak[1], Meredith Parsons[1], Peter Zandi[2], James Potash[1], Virginia Willour[1]

[1]University of Iowa, [2]Johns Hopkins University

Background: We have conducted a targeted next generation sequencing study of the NMDA receptor, neurexin, and neuroligin gene families in suicide attempters and non-attempters. The goal of this study was to gather sequence information from these glutamatergic genes to identify variants associated with suicidal behavior.
Methods: We used a targeted next generation sequencing approach to sequence coding and regulatory regions of the eight NMDA receptor genes (GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIN3A, GRIN3B, GRINA), the three neurexin genes (NRXN1, NRXN2, NRXN3), and the five neuroligin genes (NLGN1, NLGN2, NLGN3, NLGN4X, NLGN4Y) in 476 bipolar suicide attempters and 473 bipolar non-attempters. We performed individual variant tests, gene level tests, and pathway analyses on our sequencing data to look for any variation associated with suicidal behavior. Our analyses focused on putative functional variants with a minor allele frequency less than 0.05.
Results: We identified 185 functional coding variants and 4,298 functional regulatory variants in these genes. No individual variants were overrepresented in cases to a degree that was statistically significant after correction for multiple testing. The top two gene level findings, NLGN4X (nominal p = 0.0026) and GRIN3A (nominal p = 0.0081), were suggestive for association with suicidal behavior. Gender-specific analyses also revealed suggestive gene level findings for NLGN1 in males (nominal p = 0.0044) and GRIN3A in females (nominal p = 0.0049). A pathway analysis of our candidate gene set identified a modestly significant signal (p = 0.025).
Discussion: Three genes, NLGN4X, NLGN1, and GRIN3A, produced suggestive signals for association with suicidal behavior. These findings provide further support for a putative role of glutamatergic signaling in the suicide phenotype. Further sequencing in larger sample sets will be required to confirm the role of glutamatergic genes in the risk for suicidal behavior.

3. ASSOCIATION OF HTR2C GENE VARIANTS WITH SUICIDAL BEHAVIOR: A CASE-CONTROL STUDY

Carlos Alfonso Tovilla Zárate[1], Thelma B González-Castrp[2], Isela Juárez-Rojop[3], Alma Genis[4], Lilia López-Naravez[5], Sherezada Pool-García[6], Martha Velázquez-Sánchez[6], Ana Fresan[7], Jorge L Ble-Castillo[3]

[1]Universidad Juárez Autónoma de Tabasco, [2]División Académica de Jalpa de Mendez. Universidad Júarez Autónoma de Tabasco, [3]División Académica de Ciencias de la Salud,

[4]Instituto Nacional de Medicina Genómica (INMEGEN), Servicios de Atención Psiquiátrica (SAP), Secretaría de Salud. México, [5]Hospital General de Yajalón, Secretaría de Salud. Yajalón, Chiapas, [6]Hospital General de Comalcalco, Comalcalco, Tabasco, [7]Subdirección de Investigaciones Clínicas, Instituto Nacional de Psiquiatría Ramón de la Fuente, Secretaría de Salud, México, D. F

Background: Suicide is a significant public health issue and one of the most common causes of death throughout the world. Our aim was to explore the role of the HTR2C gene in the pathogenesis of suicidal behavior in the Mexican population in a case-control study.
Methods: We conducted a case-control study, a number of 174 suicide attempters and 207 healthy volunteers were included. Five polymorphism of HTR2C were selected for genotyping (rs547536, rs2192372, rs4272555, rs6318, rs2428707).
Results: In the Mexican population we found a significant different in the allelic frequency of rs2428707 polymorphism between subject with suicide behavior and control groups (p=0.04 and X2=4.20). While the analysis by haplotype showed one haplotype AACGC (p = 0.01 and X2= 5.51) that showed association with suicide behavior.
Discussion: This findings suggest in the Mexican population a possible role for the HTR2C gene that may collaborate in the pathology of suicidal behavior.

4. DIURNAL DYNAMICS AND BIOLOGICAL CORRELATES OF SUICIDAL MOMENTS WITHIN MAJOR DEPRESSION

Eimear Crowe[1], Malone Kevin[1], Delaney Liam[2], Daly Michael[2]

[1]University College Dublin, [2]University of Stirling

Background: Morbidity and mortality within suicidal depression pose a significant challenge for modern psychiatry. To date, suicidal thoughts (and acts) are typically assessed at a remove from 'the suicidal moment'. Momentary measures of suicidal feelings may allow for a fine-grained analysis of the dynamics within suicidality during depression, and may mirror more closely the processes that link suicidal ideation with the physiological stress response. This paper explores the diurnal dynamics of suicidality in Major Depressive Disorder (MDD) and the relationship between momentary suicidality and the inflammation marker interleukin 6 (IL-6).
Methods: The Experience Sampling Method (ESM) measured momentary levels of suicidality in 31 MDD patients and 33 healthy controls 10 times per day over 6 days (N = 2,231 observations). Diurnal dynamics were modelled by means of within-person linear/quadratic intraday time trends, variability (variances) in symptom ratings across the sampling period and instability (successive squared differences; SSD) in symptom ratings between moments. Participants also completed retrospective assessments of MDD and suicidality (the Beck Depression
Inventory, BDI, Hamilton Rating Scale for Depression, Ham-D, and the Beck Scale for Suicidal Ideation, BSS). Blood samples were also taken, from which serum concentrations of IL-6 were determined.

Results: Suicidality had a linear diurnal pattern in MDD, with peak levels in the morning. Suicidality in MDD was characterised by a high amount of variability over the sampling period

and instability in fluctuations between moments. Baseline serum levels of IL-6 were significantly higher in MDD participants, independent of age, gender and BMI. Aggregated ESM measures of suicidality were significantly associated with IL-6. This association was independent of retrospective MDD measures (BDI, Ham-D and BSS), other momentary ESM symptom measures (affect, self-esteem and fatigue), BMI, age and gender.
Discussion: Momentary ESM measures of suicidality may capture dynamic and inflammatory-relevant nuances in the lives of individuals with MDD that have not been captured to date by traditional, retrospective symptom measures. Such momentary suicidality measures may have relevance for tailored intervention and treatment.

5. IMPROVEMENTS IN EXECUTIVE ATTENTION, RUMINATION, COGNITIVE REACTIVITY AND MINDFULNESS AMONG HIGH SUICIDE-RISK PATIENTS PARTICIPATING IN ADJUNCT MINDFULNESS-BASED COGNITIVE THERAPY

Megan Chesin[1],[2], Christopher Benjamin-Phillips[2], John Keilp[2], Eric Fertuck[2], Beth Brodsky[2], Barbara Stanley[3]

[1]William Paterson University, [2]New York State Psychiatric Institute, [3]Columbia University

Background: Mindfulness-based cognitive therapy (MBCT) is a well-accepted, evidence-based treatment for preventing depressive relapse among chronically depressed individuals who are in remission when they begin treatment (Piet & Hougaard, 2011, for a review). Studies also show MBCT provided adjunctively to treatment as usual (TAU) is effective for reducing acute depression in psychiatric patients (Hofmann, Sawyer, Witt, & Oh, 2010, for a review). There is preliminary evidence that mindfulness based interventions (MBIs) (i.e., time-limited interventions that target mental health symptoms or well-being and include secular derivatives of traditional meditation practices like MBCT) reduce suicidal thinking in adult and adolescent community members (e.g., Forkmann et al.) and high suicide-risk outpatients (Chesin et al., 2015). Understanding of the neurocognitive mechanisms that explain MBCT treatment gains is limited, with constructs consistent with the theory of how MBCT works (i.e., by increasing mindfulness) most often tested as potential mechanisms of MBCT treatment gains. We set out to examine whether cognitive functioning among high suicide-risk patients improved during a mindfulness-based intervention.
Methods: Ten outpatients who had a six-month history of suicide attempt or active suicidal ideation and suicidal ideation at study entry received nine weeks of adjunct group-based mindfulness-based cognitive therapy adapted to address suicide-related concerns (MBCT-S). Executive attention, sustained attention, visual memory, and semantic memory encoding were measured by neuropsychological assessment. Rumination, mindfulness, cognitive reactivity, defined as the tendency towards depressogenic information processing and thought content in response to mild mood deterioration (Teasdale, 1988), and self-compassion were assessed using self-report measures. Changes in pre- to post-treatment functioning on these constructs were analyzed using dependent t-tests.
Results: Executive attention improved with MBCT-S in high suicide-risk patients (Stroop interference effect =.39 (sd=.27) at baseline and .27 (sd=.15) at post-treatment, $t(9)=2.35$, $p=.04$, $d=.75$). One mindfulness skill, acting with awareness, increased with MBCT-S (average change in Five Facet Mindfulness Questionnaire-acting with awareness subscale scores with treatment= 3.3, sd=3.0, $t(9)=3.46$, $p<.01$, $d=1.1$). Self-reported rumination and cognitive reactivity to suicidality and hopelessness decreased among participants (Ruminative Responses

Brooding subscale score change= - 3.4, sd=1.1, t(9)=10, p<.001, d=3.2; Leiden Index of Depression Sensitivity–Revised-Hopelessness/Suicidality subscale score change= - 3, sd=2.7, t(9)=3.56, p<.01, d=1.1).

Discussion: Findings from the present study suggest adjunct treatment with MBCT-S may improve executive attention and the mindfulness ability to act with awareness as well as decrease rumination and cognitive reactivity to suicidal ideation and hopelessness among high suicide-risk patients. Importantly, executive attention, rumination, and cognitive reactivity to hopelessness or suicidal ideation are associated with suicidal thinking and behavior among depressed patients (Antypa, Van der Does, & Penninx; Keilp, Gorlyn, Oquendo, Burke, & Mann, 2008; Keilp et al., 2013; Morrison & O'Connor, 2008; Williams, Van der Does, Barnhofer, Crane, & Segal, 2008). Thus, findings from our study provide initial evidence that MBCT-S effectively targets certain deficits associated with suicidal behavior among depressed patients. This study, however, was not controlled. Thus, factors other than those associated with or attributable to MBCT-S could explain the improvements in cognitive functioning that were observed and reported. Future controlled studies are needed to determine the specificity of these improvements in cognitive functioning to MBCT-S and to formally test whether the observed improvements to cognitive functioning explain MBCT-S treatment gains.

9:30 AM - 10:45 AM

Concurrent Oral Sessions

SUICIDE ATTEMPTS AND IDEATION: EFFECTS OF SOCIAL AND INDIVIDUAL RISK FACTORS

Chair: Christine Moutier, American Foundation for Suicide Prevention

1. AN ITEM-BASED APPROACH TO ASSESSING SUICIDE RISK IN THE POPULATION

Philip Batterham[1], Alison Calear[1], Matthew Sunderland[2], Natacha Carragher[2]

[1]The Australian National University, [2]University of New South Wales

Background: The assessment of suicidal thoughts and behaviors has typically been designed around expert consensus of the characteristics associated with suicide risk. An alternative approach to assessment based on item response theory has been successfully used to design new instruments to assess depression and anxiety. This study adopted a multi-stage data-driven approach to develop new assessment tools for assessing suicidal thoughts and behaviors in the general population.

Methods: A systematic process of item selection was conducted. This process included: (1) collection of existing items through literature searches, (2) standardization of items to a common frame, (3) removal of duplicate items, and (4) collecting consumer and expert ratings of item relevance. After this item selection process was complete, the remaining pool of items were calibrated in a community-based sample of 3175 Australian adults. From this item bank, short screeners assessing symptom severity were developed.

Results: Starting with 817 existing items from 51 scales, the item selection process reduced this pool to 199 items. After testing the relevance of the items with consumers and experts, the pool was further reduced to 57 items, which were calibrated in the community-based sample.

A final item bank of 23 items was then selected on the basis of modification indices and lack of significant differential item functioning by age, gender and educational attainment. The item bank provides considerable information about the suicide risk profile of individuals. A four-item screener built from the item bank provided greater precision than the SBQ-R in assessing severity of current suicidal thoughts and behaviours with considerably less response burden. In addition, both the SBQ-R and the brief screener had sensitivity of 0.77 and specificity of 0.74 for suicide attempt after 3 months at comparable cut-points. The item bank also enables the administration of adaptive measures of suicide severity that will be demonstrated in the presentation.

Discussion: More rapid and tailored methods for suicide screening in the population may be used to provide direct linkages to appropriate care pathways for individuals at risk of suicide. The new item bank has been developed in conjunction with 11 other item banks for a range of mental health problems, drawing on consumer experiences and considerable normative data. These measures will enable rapid assessment of a broad range of mental health problems with better accounting for comorbidity.

2. SUICIDE LITERACY AND STIGMA: SCALE DEVELOPMENT, CORRELATES AND ASSOCIATION WITH HELP-SEEKING ATTITUDES AND INTENTIONS

Alison Calear[1], Philip Batterham[1], Helen Christensen[2]

[1]The Australian National University, [2]Black Dog Institute

Background: Suicide is a significant public health problem. However, very little is known about the community's knowledge of suicide (e.g., signs and symptoms, treatment options) or attitudes towards suicide (e.g., stigma, glorification). One of the reasons for a lack of research in this area is the paucity of validated measures of suicide literacy and stigma. Very little is also known about the associations between suicide literacy, suicide stigma and help-seeking attitudes and intentions for suicide. Given the low rates of help-seeking for suicide in the community, the exploration of these potentially interrelated constructs may assist in the development of suicide awareness raising activities in the community and help to target these interventions to those who are most in need. The aim of this paper is to present an overview of our recent research in suicide literacy and stigma, including the development of two new scales to measure these constructs, the presentation of correlates of suicide literacy and stigma from a range of community populations (e.g., university, general community, medical students) and a study exploring the association between suicide literacy, stigma and help-seeking attitudes and intentions.

Methods: This paper will present the results of four key studies. The first study was conducted to develop and validate the new Literacy of Suicide Scale (LOSS) and Stigma of Suicide Scale (SOSS), and to identify preliminary correlates of these constructs, among 676 staff and students from an Australian university. The second study was undertaken with 1,286 Australian community-based adults that were recruited via Facebook to further validate the two scales, identify correlates of suicide literacy and stigma, and to explore the association between these variables and help-seeking attitudes and intentions. The third study was conducted with Australian medical students, with the aim of identifying levels of suicide literacy and stigma among those training to be medical professionals. Fourth, a psychoeducational intervention was tested to determine whether brief information could reduce levels of stigma and increase knowledge.

Results: 27 items were selected for the final version of the LOSS (12 item short form). Three factors were identified in the 58 item SOSS: stigma, isolation/depression and glorification/normalisation (16 item short form), each with high internal consistency and strong concurrent validity. In study 1, 63% of the literacy items in the full LOSS were answered correctly, while more than 25% of respondents agreed that people who suicided were "weak," "reckless," or "selfish". Across studies 1 and 2, higher levels of suicide literacy were associated with being younger, female, more educated, more exposed to suicide, primarily speaking English and having studied psychology; while younger age, male gender, and culturally diverse backgrounds were associated with more stigmatizing attitudes toward people who die by suicide. In Study 2, high suicide literacy and low suicide stigma were significantly associated with positive help seeking attitudes and intentions to seek help. In study 3, greater medical education was found to be associated with more knowledge but also greater stigma. Study 4 found that a brief psychoeducation intervention was sufficient to reduce depression stigma but not suicide stigma.
Discussion: This paper presents the development and validation of the LOSS and SOSS, two new scales to assess suicide literacy and stigma respectively. The LOSS is the first comprehensive measure of suicide literacy, specifically assessing the community's knowledge of suicide prevalence, signs and symptoms, causes, risk factors, preventability, and treatments. The SOSS is the first scale designed to directly measure the stigma of suicide in the community. Both scales have been tested in a range of community-based samples, with promising results Based on the identified correlates of suicide literacy and stigma, there may be merit in targeting suicide awareness activities to male adults from non-English speaking backgrounds who have had limited exposure to suicide. The development of programs designed to increase suicide prevention knowledge and reduce stigmatising attitudes may also improve help-seeking outcomes but may require a targeted and comprehensive approach. In particular, messaging should focus on information and attitudes that are most likely to improve help-seeking outcomes and encourage the public to appropriately support individuals who show signs of suicidality.

3. EVALUATION OF RESTING STATE FUNCTIONAL CONNECTIVITY AS A BIOMARKER FOR SUICIDAL BEHAVIOR

Ricardo Caceda[1], Andrew James[1], Zachary Stowe[1], Bettina Knight[1], Clint Kilts[1]

[1]University of Arkansas for Medical Sciences

Background: Annually, over 41,000 people in the US and one million worldwide die by suicide. The high and rising prevalence of suicide is complicated by the clinical challenge of identifying patients at highest risk for suicide and thus most needing intervention. Thus, there is a pressing need to move beyond self-report to identify reliable biomarkers of future suicidal behavior. A functional magnetic resonance imaging (fMRI)-based technology with potential clinical application is the study of the association of suicidal risk with altered resting state brain functional connectivity (rsfcMRI). We sought to test the ability of patterns of resting state connectivity to discriminate acute suicidal behavior from depression.
Methods: Twenty-eight adult participants underwent resting-state fMRI: 9 depressed patients hospitalized following a suicide attempt within the past 72 hours, 9 depressed control patients without suicide attempt, and 10 healthy individuals without depression. We evaluated group-

differences in resting-state connectivity among 20 independent neural processing networks identified via independent component analysis.
Results: We report increased functional connectivity between the default mode network (including posterior cingulate, medial prefrontal, and bilateral inferior parietal cortex) and a superior parietal network for the suicide attempter group compared to depressed controls ($F(2, 24)=5.34$, $p= 0.0121$ uncorrected).
Discussion: These preliminary results suggest that intrinsic functional connectivity between resting-state brain networks may differentiate depressed patients who do and do not attempt suicide. Ongoing extension of the study sample and future replication will further examine a role of rsfcMRI as a potential biomarker of risk for suicidal behavior.

4. PERSONALITY DISORDERS AND SUICIDE ATTEMPTS IN UNIPOLAR AND BIPOLAR MOOD DISORDERS

Erkki Isometsä[1], Pekka Jylhä[2], Tom Rosenström[3], Outi Mantere[4], Kirsi Suominen[5], Tarja Melartin[2], Maria Vuorilehto[2], Mikael Holma[5], Kirsi Riihimäki[6], Maria Oquendo[7], Liisa Keltikangas-Järvinen[3]

[1]University of Helsinki and Helsinki University Hospital, Helsinki, Finland, [2]University of Helsinki and Helsinki University Hospital, Department of Psychiatry, Helsinki, Finland, [3]IBS, Unit of Personality, Work and Health Psychology, University of Helsinki, Helsinki, Finland, [4]Department of Mental Health and Substance Use, National Institute of Health and Welfare, Helsinki, Finland, [5]City of Helsinki, Social services and health care, Department of mental health and substance abuse, Helsinki, Finland, [6]Health Care and Social Services, City of Järvenpää, Järvenpää, Finland, [7]Department of Psychiatry, New York State Psychiatric Institute and Columbia University, New York, NY, USA

Background: Comorbid personality disorders may predispose patients with mood disorders to suicide attempts, but factors mediating these effects are not well known.
Methods: Altogether 597 patients from three prospective cohort studies (Vantaa Depression Study, Jorvi Bipolar study, and Vantaa Primary care Depression Study) were interviewed at baseline, at 18 months, and in VDS and PC-VDS at 5 years. Personality disorders (PDs) at baseline, number of previous suicide attempts (SAs), and the life-charted time spent in major depressive episodes (MDEs) and precise timing of SAs during follow up were determined and investigated.
Results: Overall, 219 patients had a total of 718 lifetime SAs; 88 patients had 242 SAs during the prospective follow-up. Having any PD diagnosis increased the SA rate, both lifetime and prospectively evaluated, by 90% and 102%, respectively. All PD clusters increased the rate of new SAs, although Cluster C PDs more than the others. However, after adjusting for time spent in MDEs, only the Cluster C further increased SA rate by 52%. Formal mediation analyses of PD effects on prospectively ascertained SAs indicated significant mediated effects through time at risk in MDEs, but also some direct effects.
Discussion: Among mood disorder patients, comorbid PDs increase the risk of SAs approximately two-fold. The excess risk is mostly due to the finding that patients with comorbid PDs spend more time in depressive episodes than those without. Consequently, risk was highest for PDs that most strongly predispose to more time depressed. However, direct risk-modifying effects of PDs were also found.

5. CLARIFYING CAPABILITY: IDENTIFYING THE STRONGEST CORRELATES OF SUICIDE ATTEMPTS AMONG SUICIDE IDEATORS

Alexis May[1], E. David Klonsky[1]

[1]University of British Columbia

Background: Key to the ideation-to-action framework is identifying what facilitates the transition from suicide ideation to attempt (Klonsky & May, 2013). The Interpersonal Theory of suicide highlights acquired capability, the ability to approach the pain and fear naturally associated with death, as essential to moving from suicidal thoughts to actions (Joiner, 2005). Others have suggested additional domains, such as pain sensitivity, access to lethal means, or genetic predisposition that may contribute to the ideation to action transition (Smith et al., 2010, O'Connor, 2011). However, the specific nature and most powerful measures of suicide capacity remain unclear. In this presentation I will 1) assess which common measures of suicide risk distinguish among attempters, ideators and nonsuicidal individuals and 2) among measures distinguishing attempters from ideators, assess what constructs make that distinction most powerfully.

Methods: Participants were recruited online via MechanicalTurk and include 150 suicide attempters, 285 non-attempting ideators, and 622 nonsuicidal individuals. Measures include the Acquired Capability for Suicide Scale (ACSS; Van Orden et al., 2010), the Painful and Provocative Events scale (PPE; Bender et al., 2011), the Collett-Lester Fear of Death Scale (Lester, 1994), the Beck Hopelessness Scale (Beck, 1974), and the Scale of Psychache (Holden, 2001).

Results: Common suicide risk variables, such as psychological pain, hopelessness, and emotional stability substantially discriminated between suicide ideators and nonsuicidal participants (d's=.73-1.10), but were not significantly different between attempters and ideators (d's=.00-.20). Conversely, all variables indexing capacity (ACSS, PPE, Fear of Death) distinguished suicide attempters from suicide ideators (d's=.35-.62), but did not distinguish nonsuicidal individuals from suicide ideators (d's=.01-.13). These findings support the tenet of the ideation-to-action framework that different constructs put people at risk of considering suicide than at risk of acting on those thoughts. Second, exploratory item-level analyses were performed. Among life experiences, body modification (e.g., piercings or tattoos) and experiencing physical or sexual abuse were the most related to attempt above and beyond ideation (d's=.57-.68). Among thoughts about dying, less anxiety about "how bravely one would face the dying process" and "never really fearing death" were the best discriminators of attempters from ideators (d=.43-.45). Regarding thoughts about suicide, the belief "I could kill myself if I really wanted to" distinguished attempters (d=.49).

Discussion: These findings support the importance of clarifying the pathway from suicidal thoughts to suicidal action. Experience with and thoughts about fear, pain, and death were useful in identifying which ideators had attempted. Further clarification of the key constructs of suicide capacity and the development of sensitive measures that capture those constructs is important to suicide prevention and risk assessment.

SUICIDAL BEHAVIOR ACROSS THE LIFESPAN

Chair: Jane Pearson, National Institute of Mental Health

1. PREDICTING NON-SUICIDAL SELF-INJURY ACROSS 12 MONTHS: THE UTILITY OF ASSESSING (EXPERIENTIAL) AVOIDANCE

Emma Nielsen[1], Kapil Sayal[1], Ellen Townsend[1]

[1]University of Nottingham

Background: The Experiential Avoidance Model (EAM: Chapman, Gratz & Brown, 2006) considers non-suicidal self-injury (NSSI) as a form of emotional avoidance, employed in response to a stimulus that elicits intense aversive affect. This conceptualisation is consistent with research that views NSSI as a means of coping with distress; self-injury representing a means of escaping or altering the nature or intensity of an otherwise intolerable emotion.

While there is a range of cross-sectional work addressing non-suicidal self-injury, comparatively little research has addressed the dynamics of behaviour change. There is a dearth of understanding regarding the factors which prospectively predict NSSI behaviour(s) and whether these are different to variables which can predict NSSI status at one time point. Given the high risk of repetition in NSSI and negative outcomes associated with escalation, insight into temporal dynamics and prospective research are paramount.

We investigated whether psychometric and behavioural assessments of (experiential) avoidance are able to: 1) distinguish NSSI status cross-sectionally, including considerations of recency of engagement, and 2) predict self-injury outcome at 12 months.

Methods: One hundred and forty adult participants took part in this laboratory-based prospective study. Participants varied in age between 18 and 29 years (Mean: 19.34, ±1.74). The majority of the sample were female (78.6%). At baseline, participants completed standardised assessments of (experiential) avoidance, wellbeing, momentary affect and history of NSSI. Half of the participants were randomised to receive a negative mood induction, before participants in both conditions completed a behavioural approach/ avoidance task. Self-injury status, wellbeing and momentary affect were re-assessed at follow up (12 months).

Results: At baseline, 114 participants (81.4%) provided NSSI recency information. Of these, 43% (N=49) reported no history of self-injury, 39% (N=45) had self-injured in their lifetime, but not within the last month and 18% (N=20) had self-injured recently (within the previous month). Eighty-nine participants (78%) completed follow-up, 47% (N=42) of whom had self-injured in the intervening 12 months. At baseline assessment, between-groups differences were observed in both psychometric and behavioural measures of avoidance. Moreover, both psychometric and behavioural components predicted self-injury at 12 months (above baseline NSSI history, depression and anxiety).

Discussion: Results of this longitudinal study indicate that behavioural paradigms may have promising utility in the prediction of future non-suicidal self-injury. In particular, the assessment of avoidance responses elicited by aversive stimuli may be important. This has important implications for clinical practice.

2. SUICIDE LOSS AND COMPLICATED GRIEF

Sid Zisook[1], Christine Mauro[2], Ilanit Young[3], Natalia Skritskaya[2], Charles Reynolds[4], Naomi Simon[5], Yuanjia Wang[2], Barry Lebowitz[3], Julie Avanzino[3], Julie Wetherell[3], Alana Iglewicz[3], Donald Robinaugh[5], Katherine Shear[2]

[1]University of California - San Diego, [2]Columbia University, [3]University of California, San Diego, [4]University of Pittsbugh, [5]Massachusetts General Hospital

Background: Losing a loved one can be one of life's most painful experiences. Losing a loved one by suicide often seems to compound the injury and its emotional toll. The feelings of loss, sadness and loneliness experienced after the death of a loved one may be amplified in suicide survivors by feelings of guilt, confusion, rejection, shame, anger, and the effects of stigma and trauma. Furthermore, survivors of suicide loss are at higher risk of developing a prolonged and exquisitely disruptive form of grief called complicated grief (CG). Survivors may require different support and treatment to cope with their loss than those bereaved by other modes of death.

Methods: This paper describes the results of an AFSP and NIMH sponsored 4-site study (HEAL) comparing clinical features and treatment outcome of individuals with CG after the death of a loved one to due to suicide (N=58) vs. other causes of death (N=337). While all participants received enhanced clinical management, each was randomized to one of 4 possible interventions: 1) placebo (PBO) medications, 2) citalopram (CIT), 3) complicated grief therapy (CGT) + PBO, and 4) CGT + CIT.

Results: The suicide-bereaved were more likely to be younger and to have lost a child. Before treatment, they had more lifetime Major Depression, more lifetime and current PTSD, more lifetime suicidal ideation, and more non-specific active suicidal thoughts since the death. They also had higher levels of functional impairment as measured by the Work and Social Adjustment scale.

Positive response to treatment was based on scoring a 1 or a 2 on the 7-point CG-Clinical Global Impression-Improvement (CG-CGI-I) scale. Results are currently being analyzed to determine whether the suicide-bereaved participants responded differently to any of the interventions, not only on the main outcome measure (CG-CGI-I), but also on treatment adherence, suicidality, depression severity and social adjustment. These results will be presented at the meeting.

Discussion: Complicated grief after suicide bereavement resembles complicated grief after natural death. Among help-seeking participants in a clinical trial, those with CG related to suicide loss had greater impairment and more lifetime psychopathology. Treatment response compared to the overall HEAL study response rates and compared to a group of accident death survivors (n=58) will be presented.

3. TELEHEALTH MONITORING OF OLDER VETERANS WITH MAJOR DEPRESSION AND RISK FOR SUICIDE

Gretchen Haas[1], James Luther[2], John Kasckow[2]

[1]University of Pittsburgh School of Medicine, [2]VA Pittsburgh Healthcare System

Background: Suicide in Veterans with major depression is a serious public health problem. Risk for suicide is elevated among military Veterans in the U.S. To monitor risk in older patients with major depression and recent suicidal behavior, we developed an in-home telemonitoring system with the Health Buddy© in which Veterans self-monitor and report their symptoms daily to a team of health providers who check the reports on a secure 24-hour monitored website.

Methods: Veterans with major depression admitted for suicidal behavior were recruited from the inpatient unit of a major VA medical facility following hospital admission for escalating suicidal ideation and/or recent attempt. Participants needed to have a Beck Scale for Suicidal Ideation (SSI) score of > 0 on item 4 +/or 5. Exclusions were a mini mental status exam score < 21 or a significant substance use or significant medical disorder. All subjects (N = 36) received 3 months of Treatment as Usual (TAU) which included face-to-face assessments at 2, 4, 8 and 12 weeks; participants were randomized to daily in-home telehealth (HB) monitoring with TAU or TAU alone. Demographic characteristics: average age was 49.6 +/- 11.9 (range 28-68);87% of the participants were Caucasian and 13% were African-American (self-identified). Twenty-one subjects were assigned to HB monitoring; 15 were assigned to TAU. Above-threshold elevation of suicidal ideation or failure to report within a 24-hour reporting window triggers a call to the on-call clinician who conducts a phone assessment of current suicidal intent and triage to more intensive level of service, if indicated.

Results: Seventeen of the 21 HB subjects used the system; their average daily adherence was 86% for the 3-month period-- more specifically, 87% for Month 1 (n = 17); 86% for Month 2(n=15) and 84% for Month 3 (n=14). For the subgroup of participants with a history of suicide attempt, 12/15 (80%) receiving HB and 5/8 (63%) receiving TAU only reached an SSI score of 0 by 3 months of participation. Survival analysis of time to remission of suicidal ideation (i.e. achievement of '0' scores on the SSI, i.e., absence of suicidal ideation) over the 0 to 3 months of participation, showed a small effect, albeit not statistically significant, favoring the HB group, (phi coefficient = -0.190). Phone assessments triggered by elevated suicidal ideation/intent reported on the HB monitor were instrumental in leading to hospital admission for increased suicide risk.

Discussion: Results suggest that telehealth monitoring in patients with major depression is both feasible with good adherence, and promising as a focus for further study. It is noteworthy that our cumulative experience in use of the telemonitoring intervention program has led to detection not only of acute suicide risk but, in addition, medical and substance abuse emergencies that called for emergency hospital admission. The model of home-based self-reporting of symptoms and 24-hour monitoring of self-reports has particular potential for enhancing distal monitoring of high-risk individuals living alone and/or in community-based and rural settings.

4. SELF-DISCLOSED CHARACTERISTICS WHICH DISTINGUISH OLDER ADULTS WITH THOUGHTS OF DEATH FROM THOSE WITH THOUGHTS OF SUICIDE; A CLINICAL/EPIDEMIOLOGICAL INVESTIGATION

Gary Kennedy[1], Spruha Joshi[2], Carol Bader[3], Magda Cerda[2], Ebele Benjamin-Gardner[4], Andrew Rundle[2], Danielle C. Ompad[5], Ruth Finkelstein[2], John Beard[6]

[1]Montefiore Medical Center, [2]Department of Epidemiology, Columbia University, Mailman School of Public Health, [3]Harvard Longwood Psychiatry Residency Training Program, [4]New York Academy of Medicine, [5]The Steinhardt School of Culture, Education, and Human Development, New York University, [6]Director, Department of Ageing and Life Course, World Health Organization

Background: A number of studies have used objective measures to describe characteristics associated with both death ideation and suicidal thought often combining them into one variable. However none queried study participants subjectively about their reasons for expressing thoughts of death compared to thoughts of suicide. The aims of our study were 1) to determine the number of older community residents expressing thoughts of death who also experienced thoughts of suicide and 2) to compare those with death ideation to those with suicidal ideation across a number of hypothetical risk and protective characteristics. We hypothesized that respondents who expressed thoughts of death or self-harm compared to those with explicit suicidal ideation would exhibit a more favorable profile on measures of health, physical activity, social support, life stress and depression. An improved profile of risk, particularly for older adults in whom the base rate of suicide is low but the lethality ratio (deaths per attempts) is high could make screening both more efficient and effective.

Methods: As part of a study of depression, physical activity and neighborhood characteristics among 3497 older community residents, we examined affirmative responses to the 9th item of the depression screening instrument the Patient Health Questionarre-9 which asks "how often in the last 2 weeks have you been bothered by thoughts that you would be better off dead or hurting yourself". Across the three waves of interviews there were 222 instances where participants affirmed thoughts they would be "better off dead" and their contact information was sent to the psychiatrist out of ethical concerns for safety. Eliminating participants who declined the psychiatric telephone interview, multiple interviews, and those who denied they had endorsed the 9th item yielded a sample of 142 unique individuals. Data from either the participant's first interview to be positive for the 9th item of the PHQ-9 or to be positive for suicidal ideation as determined by the subsequent psychiatric interview were compared to examine 1) the total number of reasons for affirmative responses, 2) the total number of reasons to live, and 3) the total number of risk mitigating interventions, as a function of suicidal ideation.

Results: There were 82 persons who acknowledged thoughts that they would be better off dead and 60 who also indicated that they had had suicidal ideas. Among those without suicidal ideation depression was the most common reason given for affirming the "better off dead" item followed by family matters, pain, illness, other, disability, economic, and bereavement. Among those with suicidal ideation depression was also cited by the majority followed by illness, economic, pain, family, disability, other and bereavement. Illness, number of health conditions, chronic pain and economic reasons were cited significantly more frequently by those with suicidal ideation than those without. Of all the explanations given for their responses, those with suicidal ideation offered slightly more reasons than those without, 2.7 vs. 2.4 per person. Otherwise the two groups were similar demographically and in measures of physical function and stress. 57% of those with suicidal ideation vs. 44% of those without met the study criteria

for a probable depressive disorder. Nonetheless one third of respondents with suicidal ideation did not meet the minimum accepted criteria for clinically significant level of depressive symptoms.

Discussion: A minority of persons who screened positive on the 9th PHQ-9 item expressed explicit ideas of suicide. Moreover the reasons individuals reported for having suicidal ideas differed little from those with death ideation. Depression was as expected the most frequent reason but made up a minority of explanations. The number of persons with death ideation and suicidal thoughts who denied depression both when screened by a non-clinician via telephone and by a subsequent psychiatric interview was not trivial. Nonetheless suicidal ideation compared to death ideation was an indicator of greater morbidity as manifested by physical illness, pain, greater use of antidepressants and behavioral health services including those arranged by the study psychiatrist. The 9th item of the PHQ-9 is an inexact proxy query for suicidal ideation among older community residents but may be made more specific when measures of illness, pain, and use of antidepressants or mental health services are included.

5. META-ANALYSIS OF THE ASSOCIATION BETWEEN SUICIDAL IDEATION AND LATER SUICIDE AMONG PATIENTS WITH EITHER A SCHIZOPHRENIA SPECTRUM PSYCHOSIS OR A MOOD DISORDER

Matthew Large[1]

[1]University of New South Wales

Background: Recent studies of patients with a mix of psychiatric diagnoses have suggested a modest or weak association between suicidal ideation and later suicide. The aim of this study was to examine the extent to which the association between expressed suicidal ideation and later suicide varies according to psychiatric diagnosis.

Methods: A systematic meta-analysis of studies that report the association between suicidal ideation and later suicide in patients with 'mood disorders', defined to include major depression, dysthymia and bipolar disorder, or 'schizophrenia spectrum psychosis', defined to include schizophrenia, schizophreniform disorder and delusional disorder.

Results: Suicidal ideation was strongly associated with suicide among patients with schizophrenia spectrum psychosis [14 studies reporting on 567 suicides, OR = 6.49, 95% confidence interval (CI) 3.82–11.02]. The association between suicidal ideation and suicide among patients with mood disorders (11 studies reporting on 860 suicides, OR = 1.49, 95% CI 0.92–2.42) was not significant. Diagnostic group made a significant contribution to between-study heterogeneity (Q-value = 16.2, df = 1, P < 0.001) indicating a significant difference in the strength of the associations between suicidal ideation and suicide between the two diagnostic groups. Meta-regression and multiple meta-regression suggested that methodological issues in the primary research did not explain the findings. Suicidal ideation was weakly but significantly associated with suicide among studies of patients with mood disorders over periods of follow-up of <10 years.

Discussion: Our findings suggest that the association between suicidal ideation and later suicide is stronger in schizophrenia spectrum psychosis than in mood disorders. Although this result should be tested in further primary research the finding opens the possibility of early intervention to prevent suicide in schizophrenia, perhaps with early use of clozapine among those with suicidal ideas.

EMOTIONAL, SOCIAL AND PSYCHOLOGICAL CONTRIBUTIONS TO SUICIDE RISK

Chair: Gil Zalsman, Geha Mental Health Center, Sackler School of Medicine, Tel Aviv University

1. PERFECTIONISM AND EMOTIONAL PAIN SENSITIVITY IN SELF-HARM IDEATION AND ENACTMENT

Olivia Kirtley[1], Ronan O'Carroll[2], Rory O'Connor[1]

[1]University of Glasgow, [2]University of Stirling

Background: High levels of emotional pain sensitivity have been previously associated with self-harm in a variety of populations, however there has been no investigation of this in those who think about self-harm (ideate) relative to those who engage in (enact) self-harm behavior. A number of studies conducted with non-clinical populations have posited that hyper-sensitivity to social evaluation may be a key component of sensitivity to emotional pain. One of the most pernicious elements of sensitivity to social evaluation is perfectionism, specifically socially prescribed perfectionism (the perception that one must always strive to meet the standards of others); a well-established correlate of self-harm enactment. To this end we conducted two studies which explored emotional pain sensitivity and perfectionism in self-harm ideation and enactment. Study 1 assessed three different manifestations of perfectionism along with sensitivity to emotional pain in self-harm ideation and enactment. Study 2 investigated whether the presence of perfectionistic cognitions and socially prescribed perfectionism were moderators of the relationship between emotional pain sensitivity and self-harm enactment.

Methods: Study 1: 351 healthy undergraduates completed a series of online questionnaires. Self-harm thoughts and behaviors were assessed with four questions from the UK Adult Psychiatric Morbidity Survey and the Perfectionistic Self Presentation Scale and Perfectionistic Cognitions Inventory were used to assess perfectionistic self-presentation and perfectionistic cognitions respectively. Self-criticism was measured by the Self-Rating Scale and emotional pain sensitivity was measured by the Emotional Reactivity Scale.

Study 2: 71 healthy adults (university students and individuals from the general population) completed a battery of self-report questionnaires as part of a larger laboratory study of emotional pain sensitivity and self-harm. Participants were asked to complete the Social Perfectionism subscale of the Multidimensional Perfectionism Scale to measure socially prescribed perfectionism, along with the Perfectionistic Cognitions Inventory to assess perfectionistic automatic thoughts. As in Study 1, emotional pain sensitivity was measured by the Emotional Reactivity Scale and self-harm thoughts and behaviors were assessed by an initial telephone screening interview and four items from the UK Adult Psychiatric Morbidity Survey.

Results: The results from Study 1 revealed significant ordered effects for emotional pain sensitivity and all types of perfectionism assessed (including self-criticism), such that emotional pain sensitivity and perfectionism were highest in the self-harm enactment group, followed by the self-harm ideation group and lowest in the control group. The results from Study 2 found that the relationship between self-harm enactment and emotional pain sensitivity was moderated by social perfectionism, with the association between high emotional pain sensitivity and self-harm enactment being greatest in individuals with high levels of socially

prescribed perfectionism. For individuals with low levels of social perfectionism, even when emotional pain sensitivity was high, self-harm enactment was low. We did not find a moderating relationship between the presence of perfectionistic cognitions, emotional pain sensitivity and self-harm.
Discussion: The significant ordered effects observed in Study 1 for emotional pain sensitivity suggest that increasing sensitivity to emotional pain may accompany the transition from self-harm ideation to enactment. Additionally, significant ordered effects for perfectionistic cognitions, perfectionistic self-presentation and self-criticism could indicate that increasing levels of perfectionism may also be associated with increasing levels of psychological distress. However the findings from Study 2 demonstrate that it is specifically social perfectionism and not the presence of perfectionistic cognitions that moderates the relationship between emotional pain sensitivity and self-harm enactment. This moderating role of socially prescribed perfectionism in the relationship between emotional pain sensitivity and self-harm enactment could make it a key target for interventions to prevent self-harm and to increase resilience to emotional pain.

2. SOCIAL COMPARISON PROCESSES AND SUICIDALITY: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN SOCIAL COMPARISONS, SOCIAL RANK VARIABLES AND SUICIDAL IDEATION

Karen Wetherall[1], Kathryn Robb[1], Rory O'Connor[1]

[1]University of Glasgow

Background: This study aims to investigate the relationship between psychological factors, such as social comparison, and suicidality. This focus on psychological factors is important as it is recognises that mental disorders are not sufficient markers of suicidality, and it is argued that the focus on the former should lead to the identification of more specific markers of risk. The extent to which we make social comparisons is a good candidate in this regard as previous research has established that making unfavourable social comparisons is higher among those with depression (e.g. Gilbert & Allan, 1998) and among those who have self-harmed (Gilbert et al., 2009). The present study also builds upon Social Rank Theory (Price, 1972) which suggests that the extent to which one makes unfavourable social comparisons may lead people to feel defeated and trapped. Given the importance of the concepts of defeat and entrapment to contemporary models of suicidal behaviour (e.g., integrated motivational-volitional model of suicidal behaviour, IMV; O'Connor, 2011), we hypothesised that social comparison processes would be important in the context of suicide risk.
Methods: This is a cross-sectional study. The data were collected via an online survey, and participants (n = 445) were healthy adults recruited from the University of Glasgow. The sample was 83% (n=371) female, 85% (n=378) White, 81% (n=360) single, and the age range was 16 years old to 61 years old (M=23 years old). Participants were asked a variety of measures, including demographics (e.g., gender), mental health (depression, anxiety and mental wellbeing), and psychological factors (social comparison, submissive behaviour, defeat, entrapment, resilience and social perfectionism). Suicidal ideation was assessed using the 8 item Suicide Probability Scale (Cull & Gill, 1988). As suggested by Olive & Brewer (2014), the Social Comparison Scale was adapted to ask participants how they felt they compared to others in the past and hope to compare to others in the future.

Results: Preliminary univariate analyses were conducted using linear regression, with suicidal ideation (assessed via the Suicide Probability Scale) as the main outcome variable. As anticipated, all of the psychological variables were found to be significantly associated with suicidal ideation in the predicted directions. In the multivariate regression analyses, depression, mental wellbeing, internal entrapment and a reduction in social rank were the significant predictors of suicidal ideation. Defeat was a marginal predictor. These variables accounted for 51% in the variance in suicidal ideation. Consistent with the IMV model, mediation analyses were conducted; with defeat, internal entrapment, external entrapment and perfectionism all shown to mediate the relationship between social comparison and current ideation. However, only defeat and the entrapment scales (internal and external entrapment) remained significant mediators after controlling for baseline depression in the model. Moderation analyses indicated that resilience acted as a buffer of the relationship between defeat, internal/external entrapment and suicidal ideation; these relationships held after controlling for depression.
Discussion: This study yields evidence in support of the role of psychological factors in understanding the correlates of suicidal ideation. A number of key findings are worthy of comment. Internal entrapment was associated with suicidal ideation, indicating that feeling trapped by your own thoughts and feelings is potentially important in the development of suicidal ideation. Feeling that you have fallen in social rank compared to others featured in the models, and this suggests that how your rank changes is important, rather than just your current rank. Consistent with the IMV model, defeat and entrapment were shown to be mediators of the relationship between social comparisons and suicidal ideation, implying that making unfavourable social comparisons can lead an individual to feel defeated and trapped by their situation, and in turn suicidal ideation may develop. The emergence of suicidal ideation was in turn buffered by resilience, indicating a potential target for intervention. In sum, these findings are consistent with the IMV model of suicidal behaviour, which maps out the final common pathway to suicidal ideation and behaviour. The implications for theory and practice will be discussed.

3. INVESTIGATING THE RELATIONSHIP BETWEEN PSYCHOLOGICAL PROCESSES AND SUICIDAL IDEATION IN PATIENTS WHO HAVE SELF-HARMED

Julie Mansfield[1], Sarah Eschle[1], Ronan O'Carroll[2], Daryl O'Connor[3], Eamonn Ferguson[4], Karen Weatherall[1], Seonaid Cleare[1], Rory O'Connor[5]

[1]University of Glasgow, [2]University of Stirling, [3]University of Leeds, [4]University of Nottingham, [5]Univeristy of Glasgow

Background: The causes of suicide are multifactorial and although a range of risk factors has been identified they have limited predictive power. Studies of one of the most widely researched risk factors (i.e., the presence of a previous psychiatric disorder) have shown that up to 90% of those who die by suicide have a psychiatric diagnosis. However, most people with a psychiatric disorder do not die by suicide (Bostwick et al, 2000). As a result, we need to look beyond psychiatric categories. In this vein, in the present study we aimed to further our understanding of suicidal risk by focusing on specific psychological factors involved in why people attempt to kill themselves. To do so, we selected factors based on two contemporary theoretical models of suicidal ideation and behaviour (Integrated Motivational-Volitional

Model of Suicidal Behaviour, IMV; O'Connor, 2011 and Interpersonal-Psychological Theory of Suicide, IPT; Joiner, 2005) and assessed these factors in a high risk group of patients who have been admitted to a general hospital following self-harm. These two models were chosen as they make predictions about factors involved in the formation of suicide ideation and in the transition from suicidal ideation to suicidal behaviour.

Methods: This was an observational study of 500 participants (18+ years) who were recruited across two hospital sites in Scotland and who were assessed within 24 hours of admission to hospital following an episode of self-harm. Patients were screened for eligibility by members of the clinical team. Participants were recruited over a period of 25 months and the sample was heterogeneous and transdiagnostic. The sample was deliberately inclusive to ensure findings would be generalizable to those admitted in a general hospital following self-harm. Patients were excluded if they were unfit for interview, were unable to give consent, were prisoners, or if they were unable to communicate in English. Patients participated in a semi-structured interview (which assessed past suicidal ideation and behaviour) and completed a battery of reliable and valid psychological measures (defeat, entrapment, interpersonal needs, acquired capability, impulsivity, goal disengagement and re-engagement, social support, and socially prescribed perfectionism) as well as measures of current depression and suicidality.

Results: Correlational analyses revealed that all of the psychological measures with the exception of goal disengagement were significantly associated with suicidal ideation in the sample. A series of moderation and mediation analyses were conducted to investigate key interactions and pathways as specified in the IMV model. Key findings included the following: Multivariate analyses revealed that the relationship between defeat and suicidal ideation was mediated by both internal and external entrapment. Interpersonal needs was found to be a significant moderator of the relationship between entrapment and suicidal ideation. However, when the components of interpersonal needs were examined separately only belongingness was found to be a significant moderator of the entrapment–suicidal ideation relationship.

Discussion: This study highlights the utility of investigating the psychological factors associated with suicidal ideation among patients who have self-harmed. The findings emphasise the utility of psychological models of suicidal ideation and behaviour to map out the cognitive processes implicated in suicidal ideation. The results also suggest that future interventions could usefully target psychological risk factors including entrapment and belongingness and that such interventions could impede the development of suicidal ideation and future suicidal behaviour. A limitation of the present study is that it is cross-sectional (though the prospective component of this study is ongoing). As this research focused on those who had already self-harmed, further research is required to examine the proposed relationships in those who have never engaged in suicidal behaviour. The implications for clinical practice are discussed.

4. HOW WELL DO THE INTERPERSONAL NEEDS QUESTIONNAIRE AND THE ACQUIRED CAPABILITY FOR SUICIDE SCALES WORK FOR MILITARY VETERANS?

Peter Gutierrez[1], James Pease[2], Bridget Matarazzo[2], Lindsey Monteith[2], Theresa Hernandez[3], Augustine Osman[4]

[1]Rocky Mountain Mental Illness Research, Education and Clinical Center, [2]Rocky Mountain Mental Illness, Research Education and Clinica Center, [3]University of Colorado, [4]University of Texas San Antonio

Background: One of the few empirically tested theoretical models for why people die by suicide is Joiner's the interpersonal-psychological theory of suicide (IPTS). To facilitate testing the IPTS, Joiner and colleagues have developed several instruments intended to assess thwarted belongingness, perceived burdensomeness, and acquired capability. The Interpersonal Needs Questionnaire (INQ) was designed to assess both thwarted belongingness and perceived burdensomeness. The Acquired Capability for Suicide Scale (ACSS) was developed to assess fearlessness about suicide and habituation to pain. A major limitation of prior research on the IPTS is the significant variation in versions of measures used to assess the IPTS constructs, making it somewhat difficult to determine what was being assessed. The development and utilization of various versions of the INQ and ACSS has also led to difficulty ascertaining which version has the soundest psychometric properties. Moreover, to date, no studies have examined the psychometric properties of the INQ or ACSS in Veterans. The primary purpose of this study was to rigorously test the psychometric properties of the INQ-12 and ACSS in a sample of United States military Veterans.

Methods: Participants were recruited from all individuals eligible to receive care at a large urban VA Medical Center (VAMC) in the West regardless of clinic. Data from this subset of participants with a history of suicide attempts and individuals reporting no previous suicide attempts were used to examine psychometric properties of scores on the primary measures (i.e., INQ-12 and ACSS). In addition to demographic information, participants responded to the INQ-12, ACSS, Survey of Life Principles, Reasons for Living Inventory, Multidimensional Suicide-related Response Inventory-28, Traumatic Brain Injury – 4-item Questionnaire, Alcohol Use Disorders Identification Test Alcohol Consumption Questions, Drug Abuse Screening Test, and Beck Scale for Suicidal Ideation. We examined estimates of internal consistency reliability for all the measured variables, explored the factor structure of the INQ-12 and the ACSS, and explored potential correlates for scores on the primary measures of the IPTS. We conducted an item response theory (IRT) analysis to further examine the relevancy of each item to a domain-specific solution and examined the differential correlates of the primary measures in the two groups.

Results: Scores on the primary measures showed evidence of good internal consistency in the total sample. Both the scree plot and parallel analysis results indicated the extraction of a 3-factor solution for the sample data. The first factor was composed of all the ACSS items, with loadings ranging from .27 to .75. The second factor was composed of seven items assessing perceived burdensomeness, with loadings ranging from .77 to .88. The third factor was composed of five items assessing thwarted belongingness, with loadings ranging from .76 to .91. The IRT results indicated for the ACSS there were low to very low item associations with fearlessness about death. But for the INQ-12 the items were highly related to perceived burdensomeness and high to very highly associated with belongingness. Different patterns of association were found between the primary measures, risk measures and protective factor measures in the two groups.

Discussion: Overall the results strongly support the psychometric properties of the two measures and indicate that using them for both research and clinical purposes with Veterans is justified. Both measures have good internal consistency estimates. The findings confirm that the theoretical model underlying the measures fit the sample data well. We did not find an ACSS sub-factor of fearlessness about death as was reported in recent article from Joiner's lab. Results of the IRT analyses suggest further research is needed to determine if fearlessness about death is really being assessed with the ACSS. Evidence of good convergent validity for both the burdensomeness and thwarted belongingness subscales of the INQ was provided by correlations with the risk measures. Despite some significant correlations between risk measures and the ACSS, the magnitude of correlations failed to support convergent validity, and suggest that a revision of the ACSS to improve its psychometric properties may be in order.

The results of the final analyses confirmed that attempt status does not appear to significantly affect performance of these two measures.

5. EFFECTS OF MOOD ON APPRAISAL OF SUICIDAL INTENT BY PEOPLE WHO DELIBERATELY SELF-HARM

Bergljot Gjelsvik[1,2], Daniel Lunn[3], Jane Holmes[4], Keith Hawton[5]

[1]University of Oxford, [2]Department of Psychiatry University of Oxford, [3]Department of Statistics, University of Oxford, [4]Centre for Statistics in Medicine,, [5]Department of Psychiatry, University of Oxford

Background: Lifetime worst-point suicidality is associated with risk of subsequent death by suicide. Yet little is known about how people who deliberately self-harm (DSH) change their appraisal of suicidal intent of a single DSH episode over time, factors affecting such changes, or their association with repetition of DSH. Consideration of potential confounders is key to adequately interpreting patients' reports of previous SI. The aim of the present study was to assess how appraised subjective experience of suicidal intent for a single index episode of DSH changes over time, and the relationship between change in appraisal of previous DSH and repeat episodes of DSH.

Methods: We studied 202 patients admitted to a general hospital for self-poisoning (66.3% female, all Caucasian), 18-85 years old (M=37.8, SD=14.8) using a longitudinal design (0, 3 and 12 months). Measures included items from the Suicidal Intent Scale and Beck Depression Inventory. The primary outcome measure was change in subjective experience for a single index act of deliberate self-harm, analysed using multilevel modelling.

Results: Perceived likelihood of dying, but not wish to die, was higher for women than for men and for repeaters, including after controlling for depression. Wish to die and whether the episode was considered a suicide attempt increased significantly with depression. However, the wish to die associated with the index episode also increased over time independently of depression. No effect of time or depression was found for perceived likelihood of dying.

Discussion: Mood significantly influences appraisal of SI associated with a DSH episode. In suicide risk assessment, reports of the nature and severity of past DSH must therefore be interpreted in the light of current mood.

APPROACHES TO SAVING YOUNG LIVES
Chair: Jill Harkavy-Friedman, American Foundation for Suicide Prevention

1. EFFECTIVENESS OF ADOLESCENT LIFE-SKILLS TRAINING IN IMPROVING MENTAL HEALTH AND PREVENTING SUICIDAL BEHAVIOR IN RURAL SRI LANKA

Janaka Pushpakumara[1], Andrew Dawson[2]

[1]Rajarata University of Sri Lanka, [2]Royal Prince Alfred Hospital, Sydney and NSW Poisons Information Centre, Sydney Childrens Hospital Network

Background: Deliberate Self-Harm (DSH) and suicide are major mental health concerns for adolescent in Sri Lanka. Sri Lanka still displays one of the highest rates of suicides and DSH in the world .World Health Organization (WHO) has defined a list of 10 psycho-social life skills (LS) relevant across a wide range of contexts and risk situations. In general, LS are a less explored area in suicidology. However, several studies reported that poor coping skills associated with higher risk of suicidal behavior. And, some identified LS as a promising preventive strategy. As a response to the high rates of suicides among the young, the Ministry of Education in Sri Lanka, introduced life skills to the secondary level of the government school curriculum in 1998. But in a WHO evaluation in June 2000, it was stated that the life skills training program had failed to achieve the expected goals. Reasons mentioned were the instable political situation, low priority given to the program, a lack of funding and expertise. The purpose of the present intervention study is to measure the effects of the new comprehensive school based life skills training program, Adolescent Life Skills Training (ALST), which established according to the process described by WHO.
Methods: Study is a clustered quasi experimental study conducted in Kurunegula district Sri Lanka in partnership with Education and Health departments. The ALST is multifaceted program, included master trainer training, trainer training, school based student training (SBST), LS wall paper, regular assessments, parent and stakeholder intervention. SBST builds on WHO's ten life skills and uses 18 lessons, which each discuss how to handle different life situations. Sessions, 80 minutes per week, used methods such as case stories as a basis for group discussion and interactive role plays. Intervention group consisted of 6, 7, 8, and 9 grades (aged 11-14 years) 51000 students in 330 schools of randomly selected 3 education zones (EZ). Control group consisted of similar group in other 3 matched EZ. Intervention, with 4 lessons, conducted for five months from July 2013. Post intervention assessment consisted with culturally validated (CV) scenario based LS application ability questionnaire and LS knowledge questionnaire, CV version of Strengths and Difficulties questionnaire (SDQ) for mental health and CV version of suicide behavior questionnaire, on randomly selected grade 8 students. Chi-square and t-test were used for analysis.
Results: Post intervention assessment was conducted on 1013 students, 419 from intervention group (IG) and 594 from control group (CG). The subgroup selected from IG consisted of 48% males and 52% females. And, CG consisted of 46% males and 54% females. Average scores for Knowledge on LS in IG and CG were 6.34 (95% CI 6.07-6.62) and 5.64 (95% CI 5.43-5.85), $p < 0.0001$. Average scores for application ability on decision making skills in IG and CG were 11.86 (95% CI 11.47-12.26) and 11.06 (95% CI 10.71-11.41). IG students showed higher application ability on decision making skills ($p < 0.003$). Average scores for skills need to coping with emotions in IG and CG were 10.02 (95% CI 9.63-10.41) and 9.22 (95% CI 8.88-

9.56), p=0.0028. Average scores for conduct, hyperactivity, peer-relationship and emotional problems were higher among IG but differences of two groups were not significant. Scores for pro-social behaviors were higher among IG students, average scores of IG and CG 8.40 (95% CI 8.26-8.55) and 8.17 (95% CI 8.03-8.31), p=0.026. In CG 3.4% reported likely to very likely self-reported future suicidal risk and in IG only 2.1% reported the same (p=0.24).

Discussion: This post intervention assessment was conducted after completion of around one fifth of SBST. At the point of assessment, G8 students in IG had undergone standard LS program for 3 years and ALST for 4 months and in CG standard LS program for 3 years. However that comparatively short intervention significantly increased knowledge on LS, application ability of decision making skills and skills necessary for coping with emotions. Difference between average scores of above might increase with the duration of ALST. Because, there was significant improvement in pro-social behaviors after four month ALST, and, there is a proven association with LS and mental health, complete ALST might significantly improve conduct, hyperactivity, peer-relationship and emotional problems. Further, ALST seems to be an effective preventive strategy for suicide and DSH. This is a preliminary analysis of an intervention planned over five and half years, which would be conducted on 51000 school children at given point of time. And, that includes a follow-up of a cohort of 225000 school children to find out the effectiveness of ALST.

2. PREVENTION OF DEPRESSION AND SUICIDAL BEHAVIOURS IN SCHOOL

José Santos[1], Rosa Simões[2], Jorge Façanha[2], Maria Erse[2], Lúcia Marques[3], Cândida Loureiro[4], Ermelinda Costa[3], Helena Quaresma[4]

[1]Nursing School of Coimbra, [2]CHUC, [3]ARS, [4]Nursing School Of Coimbra

Background: Depressive symptoms in adolescence may be a predictor of increased risk for depression and suicidal behaviors in adulthood (Maughan et al., 2013), as well as for psychosocial and health problems (Thapar et al., 2012). Early detection of depression and prevention of suicidal behaviors in school settings are essential given the adolescents' high vulnerability. The Project +Contigo is a longitudinal research project based on a multilevel network intervention with a view to promoting mental health and well-being and preventing suicidal behaviors.

Objectives: The Project +Contigo aims to prevent suicidal behaviors in adolescents from secondary schools by assessing the presence of depressive symptoms in a non-clinical population of adolescents before and after the intervention.

Methods: Quantitative study, with a quasi-experimental design and a control group. The group was assessed in three moments: before (Phase 1), at the end (Phase 2), and six months after the intervention (Phase 3), using a questionnaire consisting of sociodemographic information and the Beck Depression Inventory (BDI-II), Portuguese version (Beck & Steer, 1987; Martins, 2000).

The intervention takes place in the classroom, and topics such as adolescence, self-esteem, problem-solving skills, among others are addressed. It is based on group dynamics (role-play, socio-therapeutic games, etc.).

The study was conducted during the academic year 2013/2014 in 13 Clusters of Schools in the Central region of Portugal. The sample (non-probabilistic, intentional) was comprised of 1188 students in the 7th to 10th grades, with a mean age of 13.24 years and mostly boys (51.17%).

Data were statistically analyzed (SPSS, version 20) using descriptive and inferential statistics. All ethical procedures were followed.

Results: Overall, 27.2% of adolescents had depressive symptoms, of whom 15.7% had moderate or severe symptoms (Phase 1). The mean depressive symptoms decreased from Phase 1 (10.19) to Phase 2 (8.76) and Phase 3 (9.20) in both boys and girls and in all grades. Ninth-graders had the highest scores. The end of a cycle, with more demand in terms of evaluations, the need to choose areas of study, a new education institution, and greater adequacy of the expectations may help to explain this difference.
Higher prevalence of depressive symptoms was found in the age group of 13-14 years in both boys and girls. Girls showed more depressive symptoms.

The older the students, the higher the levels of depression, particularly in girls and in students older than 14 years of age (Twenge & Nolen-Hoeksema, 2002; Van Beek et al., 2012).

Discussion: This study assessed the impact of the intervention on depressive symptoms in the short- and medium-term (six months), with statistically significant results in the reduction of depressive symptoms. In addition, it has also proven to be effective in the early detection of adolescents at risk for depression. As it is considered a mental health indicator, special attention should be given to the prevalence of depressive symptoms in girls and 9th-graders, taking into account this group's vulnerability. These data demonstrate the need for further projects aimed at the early detection of depression and prevention of suicidal behaviors in school settings.

3. SIAM (SUICIDE INTERVENTION ASSISTED BY MESSAGES): THE DEVELOPMENT OF A POST-ACUTE CRISIS TEXT MESSAGING OUTREACH FOR SUICIDE PREVENTION

Sofian Berrouiguet[1], Guillaume Vaiva[2], Philippe Courtet[3], Enrique Baca-García[4], Michel Walter[5]

[1]University Hospital Brest, [2]Clinical Investigation Center 9301, INSERM et CHU Lille, Lille INSERM U888France, [3]Montpellier University Hospital, Montpellier, INSERM U1061, France, [4]Department of Psychiatry at Fundación Jimenez Diaz Hospital, Autónoma University, CIBERSAM, Madrid 28040, Spain, [5]Brest Medical University Hospital at Bohars, Adult Psychiatry, Bohars, 29820, France

Background: Suicidal behaviour and deliberate self-harm are common among adults. Research indicates that maintaining contact either via letter or postcard with at-risk adults following discharge from care services can reduce reattempt risk. The aim of the current study is to investigate the effect of text message intervention versus traditional treatment on reducing the risk of suicide attempt repetition among adults after self-harm.
Methods: The SIAM study will be a 2-year multicentric randomized controlled trial conducted by the Brest University Hospital, France. Participants will be adults discharged after self-harm, from emergency services or after a short hospitalization. Participants will be recruited over a 12-month period. The intervention is comprised of an SMS that will be sent at h48, D7, D15 and monthly. The text message enquires about the patient's well-being and includes information regarding individual sources of help and evidence-based self-help strategies. Participants will be assessed at the baseline, month 6 and 13. As primary endpoint, we will assess the number of patients who reattempt suicide in each group at 6 months. As secondary endpoints, we will assess the number of patients who reattempt suicide at 13 month, the number

of suicide attempts in the intervention and control groups at 6 and 13 month, the number of death by suicide in the intervention and control groups at month 6 and 13. In both groups, suicidal ideations, will be assessed at the baseline, month 6 and 13. Medical costs and satisfaction will be assessed at month 13. Since recruitment started on August 2014, 101 patients have been recruited.
Results: Preliminary results show that receiving text messages sent from an intranet program after a suicide attempt is technically possible and secure. The SIAM post-crisis outreach program is accepted by the patients included and monitored. We will present preliminary results based on the assessment at 6 month of patients that have been included since the study started.
Discussion: We will describe the design and deployment of a trial SIAM; an original and easily reproducible intervention that aims to reduce suicide risk in adults after self-harm. It utilizes several characteristics of interventions that have shown a significant reduction in the number of suicide reattempts. We propose to assess its efficacy in reducing suicide reattempt in the suicide attempter (SA) population.

4. LATENT CLASSES OF CHILDHOOD AND ADOLESCENT TRAUMA EXPOSURE PREDICT SUICIDE IDEATION AND ATTEMPT IN YOUNG ADULTHOOD

Kathryn Van Eck[1], Elizabeth Ballard[2], Naomi Breslau[3], Holly Wilcox[4]

[1]Johns Hopkins School of Medicine, [2]National Institute of Mental Health, Experimental and Pathophysiology Branch, [3]Michigan State University, Department of Epidemiology and Biostatistics, [4]Johns Hopkins University School of Medicine, Child and Adolescent Psychiatry

Background: Traumatic events have been associated with increased risk of suicide attempt (Brezo, 2008; Miller 2013). "Sensitive periods" may exist in which exposure to trauma during these developmental periods may have a particular impact on negative outcomes. Trauma experienced during these sensitive periods appears to negatively affect development in different brain regions including the hippocampus and amygdala (Teicher et al., 2006). Trauma during specific developmental periods may then lead to different suicide risk factors as a result of these differential patterns of brain development. Thus, we identified typical transitions between childhood to adolescent latent classes of trauma exposure and the differential impact of childhood and adolescent trauma classes on suicide ideation and attempt in young adulthood.
Methods: Participants were 1815 youth who were part of an epidemiologically-based, randomized field trial as children and completed comprehensive psychiatric assessments at ages 19, 21, 22, and 29 years of age. Over half of the sample was female (n = 957; 52.7%), whereas 72% had a minority ethnicity (70.8% African American, 1.2% non-African American minority) and 55.2% received free or reduced meals in first grade. Youth provided report of having ever experienced nine types of trauma. Experiences occurring at age 12 years and younger were used to create latent classes of childhood traumatic experiences. Experiences occurring at age 13 to 18 years were incorporated into latent classes of adolescent trauma. Covariates in this model included gender, race/ethnicity, and subsidized lunch status. These classes were used to predict outcomes of suicidal ideation and attempt as well as psychiatric diagnoses, but only when occurring at age 19 years and older. Finally, childhood latent classes were regressed on adolescent latent classes to identify typical transitions between childhood and adolescent trauma exposure.

Results: Three latent classes emerged in both childhood and adolescent analyses. One group was characterized by high probabilities of sexual assault; another group had predominantly violence exposure; and the final group reported low levels of all traumatic experiences. These classes were relatively consistent across childhood and adolescence, with the childhood trauma classes most likely to transition to the same adolescent trauma class. In both developmental periods, the sexual assault group was primarily female and reported significantly higher levels of suicidal ideation and attempt, as well as depression, and post-traumatic stress in young adulthood. The violence exposure group in both developmental periods was primarily male and reported higher levels of antisocial personality disorder, post-traumatic stress, and alcohol and drug use disorders as young adults, but no difference by suicide ideation or attempt when compared to the low trauma group. The child violence exposure class had a 63% likelihood of belonging to the adolescent violence exposure class, whereas the child sexual assault class had a 57% likelihood of belonging to the adolescent sexual assault class.
Discussion: Results suggest that types of traumatic experiences display consistency across the developmental periods of childhood and adolescence. Further, type of childhood trauma appears to increase risk for a similar type of trauma exposure rather than global trauma exposure during adolescence. Individuals in the sexual assault class, who were primarily female, were most likely to report suicidal ideation and behavior in young adulthood, which is consistent with previous findings in the literature (Miller, 2013). Individuals in the violence exposure class, who were primarily male, were not significantly more likely to report suicidal thoughts or behaviors in young adulthood. These findings have meaningful implications for understanding differences in type and timing of traumatic experiences in addition to the essential role of gender. Identifying the epigenetic and neurobiological mechanisms that link trauma type and suicide risk could inform the development of effective prevention and intervention development to improve outcomes for at risk youth.

5. SELF-REGULATION TECHNIQUES IN THE PREVENTION OF SUICIDE-DIRECTED BEHAVIOR AMONG CHILDREN AND ADOLESCENTS

Anastasia Polunina[1], Olesya Zakharova[2]

[1]Togliatti State University, Lyceum 57, [2]Ministry of Health of the Russian Federation

Background: Nowadays a person finds himself in the environment of excess verbal and digital information which leads to an imbalance in the brain thus causing internal stress state.
Prolonged exposure to negative information coming through the Media and the Internet has an impact on the emergence and further generalization of systemic reactions of stress.

Negative effects of stress on children's and adolescents' mental health are expressed in a state of tension, increase in the level of cynicism, rudeness, aggression, development of stereotypical thinking, emotional restraint, limited motivational sphere and, as a consequence, depression and, in extreme cases, suicide. According to the statistics, standard methods for solving this problem don't always work: 30 percent of suicide attempts are repeated after visits to a psychologist. Thus, a person, esp. a child or a teenager, should possess resistance to stress factors, the ability to manage emotional processes in the conditions of emotional pressure being its component.

The purpose of the study is to evaluate the effectiveness of meditation technique as a means of stress prevention and balancing of children's and adolescents' emotional state.

Methods: The study involved children aged 7-14 who were in a 21-day summer camp: the experimental group - 26 children (10 boys and 16 girls) meditating every morning and evening and the control group - 20 children (8 boys and 12 girls) who were in the same camp but did not meditate.

Experimental part of the study - meditation according to Sahaja Yoga method which enables to reduce mental and emotional stress, to achieve consistency in various neural structures and centers and at the same time assists in getting large amounts of energy through the immersion into the state associated with a temporary "stop" of cognitive activity and the subsequent appearance of intense positive emotional experiences defined as happiness or bliss

Diagnostic part of the study - psychometric testing: evaluation of the level of trait anxiety (STAI-t, child-reactive anxiety scale by Ch.Spielberger-Y.Hanin), intensity (by Cattell), alexithymia (TAS-20), depression (BDI), extraversion/introversion, neuroticism and psychoticism (EPQ), as well as the degree of the ability to control emotions ("Managing Your Emotions" by N. Holl), ratio of life (Luscher's color test), typology of personality (video-computer diagnostics by A.Aunashvili).

Results: The diagnostic testing revealed that regular practice of meditation allows children/teenagers to raise the level of their resistance to stress which is characterized by the development of the following components: an ability to recover and manage their emotions, an ability to quickly navigate the changing situation. Already after 7 days of regular practice of this kind of meditation technique children's and adolescents' attitude is changed to a more positive one and they become more harmonious in their emotional sphere; there is also an increase in their degree of manifestation of humane feelings (compassion, empathy, tolerance) and in the rates of openness, friendliness, sociability; the level of anxiety is significantly reduced. By the end of the camp-term the children in the experimental group demonstrated a better level of attention, the ability to be more balanced, to be "here and now" comparing to the control group. The results of the study have shown that regular practice of meditation leads to a stable functional changes in the psychophysiological state of the person.

Discussion: The basis of all Eastern spiritual and health systems, including Sahaja Yoga meditation method, is the teaching about the energy channels and centers which is proved by the modern concepts of theoretical biophysics and medicine. Meditation is a comprehensive neuro-cognitive process causing changes in mental, cortical and autonomic functions. The key elements of this meditation technique are a dive in the state associated with a temporary "stop" in cognitive activity and the subsequent appearance of intense positive emotional experiences. Regular practice of this meditation technique leads to an increase in mental-emotional stability resulting in a more stable form of behavior both at rest and when under the influence of stress factors.

Monday, October 12, 2015

1:00 PM - 2:30 PM

Poster Session I

M1. YOUNG ADULTS AND SUICIDE /OR YOUTH AND SUICIDE. THE FRENCH ORGANIZATION, PHARE ENFANTS-PARENTS, CONDUCTED A STUDY INVOLVING PARENTS WHO LOST A CHILD OR YOUNG ADULT TO SUICIDE

Thérèse Hannier[1]

[1]PHARE Enfants-Parents

Background: Few research studies have centered on young adult suicide, particularly on the actual circumstances surrounding the suicidal act, and even less so on the profiles of those committing suicide. PHARE ENFANTS-PARENTS made this study with three main goals : 1) to gain a better understanding of suicide among young people 2) to provide support and guidance to parents/family and friends who have lost a child /loved one 3) to broaden prevention efforts and awareness. Since 1991 PHARE ENFANTS-PARENTS has endeavored in the prevention of youth malaise and suicide, working closely with concerned parents. This year the organization hopes to increase awareness by creating posting on their websuicide risk factors and warning signs.
Methods: Since 1997, the same questionnaire has been given to parents who contacted the association after losing a child to suicide. The study presented here concerns 243 questionnaires. This sample, if not representative on a national or institutional level, at least allows us to identify various scenarios. The first part of the questionnaire concentrates on the characteristics of the young people: age, address, behavior, activities and their studies situation. The second concerns the family environment, if they have any brothers or sisters, if the parents are married or divorced. The third section focuses on the actual suicide itself; its premeditation and if the act was understood or not by the parents. The last part concerns the mental state of the youth before the suicide and if any prevention efforts (psychological or medical treatment) had been undertaken.
Results: Within these findings, approximately 75 % of those who committed suicide were less than 25 years old, 60 % were in high school or in college. They (all?) had easy-going characters with an artistic passion of one sort. The majority of them lived in a family environment without conflicts. Having divorced parents does not seem to be a relevant criterion. The majority of the parents believed that is was a premeditated act, but more than 3/4 of the parents did not identify the warning signs until after their child's suicide. Half of the parents indicated that their child had psychological or medical treatment and more than half had knowledge of one or several suicide attempts.
Discussion: This study allows us to observe that certain recurring warning signs such as disturbing talk, fatigue, insomnia as well as changes of attitude and behavior, are generally identified only after the suicidal act. It would thus be important to make these signs better known for the general public. PHARE ENFANTS-PARENTS is now working on producing thematic descriptive warning sign-sheets on the Internet in their efforts on suicide prevention. Despite medicinal and/or psychiatric treatments, many suicides were not avoided. It is an obvious necessity to implement more effective measures. In France, if the number of deaths by

suicide has stagnated and has even decreased since 2000, the fact remains that suicide among young people is the lowest decrease among avoidable deaths (for example fatal car accidents). Not one suicide-awareness campaign has been carried out and there is a lack of organizations and programs help those with suicidal tendencies or for those who have tried committing suicide.

M2. EXAMINING THE FEASIBILITY OF ADMINISTERING THE DEATH/SUICIDE IMPLICIT ASSOCIATION TEST IN A MEDICAL INPATIENT SETTING

Daniel Powell[1], Lisa Horowitz[2], Elizabeth Ballard[2], Maryland Pao[2], Deborah Snyder[2], Matthew Nock[3], Catherine Glenn[3], Jeff Bridge[4]

[1]National Institute of Mental Health, [2]NIMH, [3]Harvard University, [4]Nationwide Children's Hospital

Background: Medically ill patients are at elevated risk for suicide (Qin et al., 2012), yet screening for suicide risk in medical settings is not yet routine. Assessing suicide risk in this population may be an ideal way to identify at-risk individuals and prevent suicidal behavior by connecting patients with mental health resources while already in the hospital. While many patients will disclose suicidal thinking when asked directly, some individuals may be reluctant to report suicidal thoughts or plans. Recent research has developed the Death/Suicide Implicit Association Test (S-IAT), a method for assessing implicit cognition about suicide that does not require self-report or introspection (Nock et al., 2010). To date, implicit suicide cognition has not yet been examined in non-psychiatric medical settings. The current study sought to extend research by examining the feasibility of using the S-IAT in medical settings. Feasibility of the S-IAT was assessed in terms of 1) Acceptability: will patients agree to complete the task? 2) Comprehension: will patients understand the task? 3) Comfort: will patients report discomfort when completing the task?

Methods: Participants were recruited as part of a larger suicide screening instrument development study. For the larger study, adult medical inpatients ages 18 or older admitted to a research hospital completed a battery of self-report questionnaires, including the Adult Suicidal Ideation Questionnaire (ASIQ), the Patient Health Questionnaire (PHQ-9) and a demographics questionnaire. Once enrolled in the instrument development study, participants were given the option to complete the S-IAT computer task on a laptop after completion of the questionnaires. The S-IAT is a brief computer-based reaction time task that measures the strength of associations between death/suicide and the self. Positive S-IAT scores indicate stronger associations between death/suicide and self, whereas negative scores indicate stronger associations between life and self. Participants who completed the S-IAT also answered a brief follow-up survey to gather opinions about the task.

Results: Thirty one adult medical inpatient participants enrolled in the larger instrument development study were given the option to complete the S-IAT following the questionnaire administration, and 84% (n = 26) agreed to complete the task. S-IAT scores on average were negative (standardized D-score: M = -.90, SD = .35), suggesting stronger associations between life and self. Although the sample was small, S-IAT scores were positively associated with recent suicide ideation at a trend level, $r(24) = .317$, $p = .114$ (i.e., more reported suicide ideation in the past month was related to stronger associations between death/suicide and self). All participants reported that they understood the S-IAT instructions. Almost all participants (92%) reported that the task did not make them feel uncomfortable in any way, and the majority (89%) thought the S-IAT would be acceptable to administer to medical patients. One patient

reported concerns that a task involving words related to death may increase anxiety with medical patients, though that patient did not report any additional anxiety herself from the task.

Discussion: This is the first study, to our knowledge, assessing feasibility of the S-IAT in a non-psychiatric medical setting. Results indicate that administering the S-IAT is feasible in a general medical setting with medically ill adult inpatients, in terms of being acceptable and understandable. Though a larger sample size is needed for statistical purposes, the trend between Adult Suicidal Ideation Questionnaire responses and Death/Suicide Implicit Association Test scores is consistent with previous S-IAT findings in psychiatric populations and may suggest that frequent suicidal ideation in the past month could be related to a stronger personal association with death. Future studies are needed to assess if and how the S-IAT should be utilized alongside traditional self-reports to guide clinicians in assessing suicide risk in the medical setting.

M3. DECISION-MAKING IN SUICIDAL IDEATORS: A CASE-CONTROL STUDY

Arielle Sheftall[1], Dustin Davidson[1], Sandy McBee-Strayer[2], John Ackerman[3], Kristen Mendoza[4], Brady Reynolds[5], Jeffrey Bridge[6]

[1]The Research Institute at Nationwide Children's Hospital, [2]Rural Health Programs, Ohio University Heritage College of Osteopathic Medicine / Family Medicine, [3]The Research Institute at Nationwide Children's Hospital; Department of Psychiatry, The Ohio State University College of Medicine, [4]Department of Pediatrics, The Ohio State University College of Medicine, [5]University of Kentucky College of Medicine, [6]The Research Institute at Nationwide Children's Hospital; Department of Pediatrics, The Ohio State University College of Medicine

Background: Decision-making deficits have been shown to increase vulnerability to suicidal behavior in adolescents and adults (Richard-Devantoy et al., 2014). Adolescent suicide attempters make more disadvantageous decisions on laboratory tasks compared to non-suicidal adolescents (Ackerman et al., 2014; Bridge et al., 2012). These associations have not been examined in individuals who experience suicidal thoughts only. The present study investigated decision-making skills in adolescents with suicidal ideation to determine if decision-making deficits are associated with other aspects of suicidal behavior. We hypothesized that suicidal ideators would perform worse on the Iowa Gambling Task (IGT) compared to non-suicidal youth with psychiatric symptoms.

Methods: The sample consisted of 19 youths, 13-18 years old, who had suicidal ideation (suicidal ideators) during the past six months but no history of suicide attempts and 19 youths who had never engaged in suicidal behavior or had suicidal ideation (comparison subjects). All comparison subjects were matched on age (±1 year), sex, and race. Decision-making was assessed using the computerized version of the Iowa Gambling Task (IGT; Bechara, 2007). Total net score on the IGT is the difference between total advantageous decks (decks C'+D') and disadvantageous decks (decks A'+B'). Positive net and block scores indicate advantageous decision-making. Other variables assessed included: adolescent psychiatric problems via the Child Behavior Checklist DSM-oriented scales (Achenbach & Rescorla, 2001; Achenbach et al., 2003), substance use measured by the Drug Use Screening Inventory (Tarter et al., 1996), psychotropic medication history assessed by the Services Assessment for Children and Adolescents (Stiffman et al., 2000), family history of suicidal behavior assessed by a semi-structured interview, and self-reports measuring aggression, impulsivity, and emotional lability.

Results: Suicidal ideators were more likely to have current affective problems ($\chi2=4.5$,p=0.03) and psychotropic medication use ($\chi2=5.4$,p=0.02). All other variables did not differ between groups. Unadjusted analyses revealed no significant group difference on IGT total net score although there was a trend for suicidal ideators to perform worse overall (Z=-1.89,p-value=0.06). A significant group difference for the 5th block score (Z=-2.59,p-value=0.01) was present with ideators faring worse than comparison subjects. Two conditional logistic regression analyses were conducted; one with IGT total net score and other with the 5th block score as predictors. Current affective problems and psychotropic medication use were entered in the first step as covariates. IGT total net score was not a significant predictor of ideator status (ORadj=0.96, 95%CI=0.90-1.01; p=0.12) nor 5th block score (ORadj=0.90, 95%CI=0.78-1.04; p=0.15) after controlling for current psychotropic medication and affective problems.
Discussion: This study expands the existing literature examining decision-making performance and suicidal behavior in adolescents. It is the first to our knowledge to focus primarily on suicidal ideation versus suicide attempts in youth. In unadjusted analyses, suicidal ideators and comparison subjects did not differ on IGT total net score however during the 5th block, ideators performed worse relative to comparison subjects. Once current affective problems and psychotropic medication use were adjusted for, no statistically significant differences were found. Thus, it appears that other factors may be better predictors of suicidal ideation in adolescents than decision-making dysfunction. Future studies are needed that compare decision-making in a larger, more diverse sample of adolescents with suicidal ideation only to adolescents with a history of suicide attempt (violent and nonviolent) and never-suicidal controls to investigate whether decision-making deficits play a role in the escalation from suicidal ideation to suicide attempts.

M4. STRESS REACTIVITY, LIFE STRESS, AND BIASED COGNITIVE RESPONSES AMONG SUICIDE ATTEMPTERS AND NON-ATTEMPTERS

Jorge Valderrama[1], Regina Miranda[2]

[1]Hunter College & Behavioral Neuroscience Grad. Prog., CUNY, [2]CUNY Graduate Center

Background: Suicide is one of the top three leading causes of death among emerging adults (ages 18-29) in the United States. Previous research indicates that stressful life events increase risk for suicidality. However, the mechanisms that mediate the relation between life stress and suicide risk have received little attention. The present study sought to examine: 1) Whether such risk may result from an overly active physiological (HPA axis) stress response; We hypothesize that previous suicide attempters (SA) will have significantly greater cortisol reactivity in response to a social stressor (vs. no stressor), compared to non-suicide-attempters (NA); and 2) Whether such risk may result from biased cognitive responses -- including impulsivity and poor problem solving. We hypothesize that previous SA will have experienced significantly greater life stress than NA and that this relationship will be significantly and positively associated with increased impulsivity and deficits in problem solving.
Methods: Seventy-six young adults (58 females), aged 18-20 (M = 20.8, SD = 2.05) recruited from a public university campus in New York City took part in this study for monetary compensation. The racial/ethnic composition of the sample was 34% Asian, 16% Black, 16% White, 12% Hispanic and 22% other ethnicities. The study consisted of a 2 x 2 Factorial Design (Previous SA History/No SA History x Inclusion/Exclusion in a social stressor task). Participants with and without a SA history were randomly assigned to a social stressor condition or to a control condition (Cyberball Task) in which they were either included (control condition) or excluded (social stressor condition) from a virtual ball tossing game that they

believed they were playing with other participants. Self-report measures of life stress history (Life Events Checklist) and impulsivity (UPPS Impulsivity Scale) were measured before the social stressor task. In addition, saliva samples were taken before and after the stressor task, and self-reported affect was measured before and after the stressor. Behavioral measures of impulsivity (Go/Stop Impulsivity Task) and problem solving (Tower Test) were assessed after post-stressor assessment of affect.

Results: Participants in the social stress condition reported significantly higher levels of rejection (M = 3.32), sadness (M = 3.65), and anger (M = 1.89) than did those in the control condition (M = 1.69, 1.57, and 1.28, respectively, $p < .01$). Our stress condition did not elicit a physiological stress response, as measured by cortisol levels, and accordingly, we found no significant interaction between SA history and the stress/no stress condition on stress response ($p = .47$). Further, there was a trend for previous SA to have lower baseline and mean cortisol levels than NA ($p = .09$).

Previous SA had higher scores on measures of life stress (M = 4.20) than NA (M = 3.31), although this difference was not statistically significant ($p = .08$). There were also no significant differences in behavioral measures of problem-solving and behavioral impulsivity (Go-Stop Task). Previous SA did, however, score significantly higher on two subscales of the UPPS; lack of premeditation (M = 2.20) and lack of perseverance (M = 1.90), relative to NA (M = 1.72 and 1.65 respectively, $p < .05$).

Discussion: The present study sought to examine the relationship between life stress, HPA axis reactivity, and suicidal behavior. Experiencing social exclusion provoked subjective feelings of rejection, sadness, and anger in both previous SA and NA. However, regardless of attempt history, the social exclusion did not elicit a physiological stress response. Further, previous SA did not demonstrate deficits in behavioral measures of problem solving and impulsivity, and previous SA in our sample did not report experiencing significantly more life stress than NA. Our findings might be reflective of the non-clinical nature of the sample studied. A clinical sample of individuals with more recent suicide attempts may have yielded differences in cortisol activity, life stress history, and biased cognitive responses. Contrary to predictions, previous SA had lower baseline and mean cortisol levels than NA. Previous research has indicated that individuals who have experienced severe life stress (e.g., suffer from PTSD), may demonstrate low cortisol activity and a blunted cortisol response. Future studies should examine potential variables that affect the relation between low cortisol activity and suicidal behavior.

M5. TIMELINE ANALYSIS APPROACH TO MILITARY SUICIDE CASE REVIEWS

Laura Armstrong[1], Christine Glasheen[2], Dr. Christopher Rennix[2]

[1]EpiData Center, Navy and Marine Corps Public Health Center, [2]EpiData Center, NMCPHC

Background: Suicide is a complex and multifaceted issue with numerous influencing factors. The Department of Defense Suicide Event Report (DoDSER), the traditional Department of Defense (DoD) data collection tool for suicides and attempts, collects information related to health and psychosocial stressors; its validity and reliability as a data collection tool has been identified as a concern. By linking DoDSERs to a wide-range of available DoD medical and personnel data sources, the EpiData Center (EDC) at the Navy and Marine Corps Public Health Center (NMCPHC) produces additional suicide analysis reports that provide an integrated

assessment of each suicide case (1). A timeline approach was created to analyze suicide attempt and death cases at various points of interest prior to a suicide event; by using such an approach, the relative weights of risk factors on suicidal behavior can be better assessed. The purpose is to construct a more complete picture of the physical and mental well-being of the member before an event; and in the case of the suicide attempts, the time after the event.
Methods: The NMCPHC employs the use of a wide-range of available medical and other data sources in suicide case reviews. Due to the design of military care, the almost complete capture of military treatment facility health data occurs, most of which can be accessed in suicide analysis. Data sources used include the Defense Manpower Data Center (provides personnel demographics and career moves), Contingency Tracking System (Central Command deployment information), Electronic Deployment Health Assessment (pre and post deployment health assessments), inpatient, outpatient, and purchased care encounter records, Armed Forces Health Longitudinal Tracking Application electronic medical records, outpatient and purchased care pharmacy transactions, and Alcohol and Drug Management Information Tracking System (ADMITS).
Results: The time points of interest used in the timeline analysis approach to suicide case reviews, along with the variety of traditional and novel DoD data sources utilized will be described. Service members who attempted suicide were evaluated at seven analysis points, both prior to and after a suicide attempt for medical and personnel information of interest. Service members who died by suicide were evaluated for such information at six analysis points of interest. Each analysis point contained one or more data points of interest and may involve multiple data sources. An in-depth discussion of the time points will be presented.
Discussion: Using the timeline analysis approach for suicide case reviews, key health indicators on the pathway to a suicide event were evaluated using traditional DoD available databases, such as personnel files, medical encounters, pharmacy transactions, and deployment surveys. Novel approaches were also taken, including the assessment of provider notes in electronic medical records to identify risk factors. NMCPHC is actively pursuing improvements in suicide epidemiology and analysis, and the suicide timeline analysis project was one such approach. By adding to current data collection methods and pursing novel data collection techniques, suicide prevention and force health preservation efforts are being strengthened.
Reference: 1. Final Report of the Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces (2010). The Challenge and the Promise: Strengthening the Force, Preventing Suicide and Saving Lives.

M6. SUICIDE IN ILLICIT DRUG USERS RECRUITED IN DRUG TREATMENT FACILITIES

Elisabet Arribas- Ibar[1]

[1]John Hopkins University School of Medicine

Background: Suicidal ideation and plans are considered important predictors of suicide. Drug use has been associated with suicidal behaviors. Research on suicidal ideas and plans in vulnerable populations, such as illegal drug users, may contribute to achieve better

management of their health problems. The purpose of this study was to assess the prevalence of suicidal ideation and plans and their correlates among illicit drug users, separately by gender
Methods: In a sample of 511 illicit drug users recruited in drug treatment and prevention facilities in Catalonia (Spain) the presence of suicidal Ideation/Plan (IP) was assessed using two questions based on the Composite International Diagnostic Interview (CIDI). Time frame referred to the previous 12 months: 1) Did you think about committing suicide? and 2) Did you make a suicide plan?. A unique variable, Suicide IP, was created where an affirmative answer to any of them was considered as positive. Generalized estimating equation, with Poisson regression analyses were used to examine the association between suicidal IP and various factors (socio-demographic, psychological aspects, substance use patterns, crime and illegal drug market activities, including marginal income generation) by gender. Marginal income generation activities (MIGA) included any reported prostitution, stealing, peddling, begging or borrowing on credit from the dealer
Results: Participants' average age was 37.9 years (SD 8.62); 76.3% were men. Suicidal IP was reported by 30.8% of men (95% CI: 26%-35%) and 38.8% of women (95% CI: 30%-47%), with no significant differences in its distribution by age or gender. Plans were less frequent than ideation, 52% of people with an ideation reported plans; only two persons reported just plans. The multivariate analysis for men showed that individuals who had received psychological treatment (PR=1.2; 95% CI: 1.03-1.51), suffered psychological abuse (PR=1.6; 95% CI: 1.30-1.95), had been involved in drug trafficking (PR=1.4; 95% CI: 1.27-1.51), and those who reported drug use MIGA (PR=1.3; 95% CI: 1.22-1.45) were more likely to have suicidal IP. For women, the variables associated to higher probability of suicidal IP were psychological treatment (PR=1.5; 95% CI: 1.20-1.91), psychological abuse (PR=1.9; 95% CI: 1.79-1.96) and sentenced to prison (PR=1.6; 95% CI: 1.04-2.43).
Discussion: Prevalence of suicidal IP was especially high among illicit drug users approaching health care facilities. Besides psychological variables, participation in illegal market activities and crime ought to be considered in drug users' suicidal prevention. Protocols should include assessing suicide risk in drug users and taken into account for drug users' prevention policies.

M7. EXPOSURE TO CHILDHOOD HOUSEHOLD DYSFUNCTION, AND RISK OF VIOLENT AND NON-VIOLENT SELF-HARM IN YOUNG ADULTS: A COHORT STUDY OF 107,518 INDIVIDUALS IN STOCKHOLM COUNTY

Emma Bjorkenstam[1,2], Kyriaki Kosidou[1], Charlotte Bjorkenstam[2]

[1]Karolinska Institutet, [2]Karolinska Institutet, UCLA

Background: Childhood household dysfunction is believed to increase the risk of self- harm in adulthood but details in this association are not well understood. The current study examined the association between multiple indicators of childhood household dysfunction, and violent and non-violent self-harm in young adulthood. We also examined the role of school performance and childhood psychopathology on the studied association.
Methods: We used a Swedish cohort of 107,518 individuals born in 1987-1991. Indicators of childhood household dysfunction were familial death, parental substance abuse and psychiatric morbidity, parental somatic disease, severe criminality among parents, parental separation/single parent household, public assistance recipiency, multiple changes in place of residency. Estimates of risk of violent and non-violent self-harm from age 15 (measured as in- and outpatient care with a diagnosis for self-harm) were calculated as hazard ratios (HR) with 95% confidence intervals (CI). Analyses were adjusted for family background as well as school

performance, measured as grade point average (GPA) in the final (ninth) year of compulsory school, and childhood psychopathology.
Results: Around 50 percent of the individuals had experienced childhood household dysfunction, of which parental separation and single parent household were the most common. Children exposed to at least one indicator of household dysfunction had higher rates of childhood psychopathology and lower GPA, as compared to those not exposed. Except for parental somatic disease, all studied indicators were associated with an increased risk of self-harm. Children exposed to severe criminality in parents and children whose parents were substance abusers had highest rates of violent self-harm (114.0 and 119.0 per 100,000 person-years compared to 29.9), whereas parental psychiatric morbidity was associated with highest rates of non-violent self-harm (444.4 per 100,000 person-years compared to 94.5). All risk estimates decreased substantially when adjustments were made for GPA and own psychopathology. Exposure to multiple indicators of household dysfunction increased the risk of self-harm in a graded manner and individuals exposed to more than 3 indicators had highest risks for both violent and non-violent self-harm (HR for violent self-harm: 2.9 (95% CI: 2.1-3.9), and for non-violent self-harm, HR=3.0 (95% CI: 2.5-3.5) after adjusting for confounders
Discussion: Childhood household dysfunction contributes to risk of self-harm in young adults, particularly when accumulated, but details in this association differ by indicator of household dysfunction and method of self-harm. Parental criminality and substance abuse are associated with violent self-harm whereas parental psychiatric morbidity is associated with non-violent self-harm. A large part of the increased risk of self-harm appears to be explained by GPA and childhood psychopathology, suggesting that efforts to improve school performance and provide substantial psychiatric care among vulnerable youth, may be of importance for preventing self-harm among young adults.

M8. CLINICAL RELEVANCE OF THE DSM-5 "WITH ANXIOUS DISTRESS" SPECIFIER: A RISK INDICATOR FOR SUICIDALITY?

Carla Canuso[1,2], Marsha Wilcox[2], Gayle Wittenberg[2], Justine Kent[2]

[1]Janssen Research & Development, [2]Janssen

Background: Major depressive disorder (MDD) is one of the most prevalent mental health conditions with nearly 20% of the population experiencing a major depressive episode (MDE) in their lifetime. MDD is also the psychiatric diagnosis most commonly associated with suicide. The estimated prevalence of suicidal ideation is as high as 60% in patients with MDD, and the incidence of attempted suicide is reported to range between 10%-20% in this population. Further, reports suggest that MDD patients with high levels of anxiety may be at even greater risk for suicide.
The DSM-5 acknowledges the clinical significance of anxiety in patients with MDD, and includes criteria for an anxious distress specifier. While the goal of including this new specifier is to enhance treatment planning, it is not known how the symptoms comprising the anxious distress specifier relate to suicidal ideation and behavior (SIB), including which symptoms of the specifier may be associated with the greatest risk of SIB and whether the presence of multiple symptoms confers cumulative risk.

Methods: The National Comorbidity Survey-Replication (NCS-R), a nationally representative sample of the U.S. population was used. Survey participants with a lifetime diagnosis of a MDE (N=1,091) were included. The DSM-V Anxious Distress Specifier was constructed using retrospective reports of symptoms during the worst MDE. This allowed for the examination of

the co-occurrence of depression and anxiety symptoms in an episode. Four items from the specifier (feeling keyed up or tense; feeling unusually restless; difficulty concentrating because of worry; fear that something awful might happen) were mapped to items in the NCS-R. The 5th item (feeling one might lose control of self) did not adequately correspond to any item in the Depression section of the NCS-R. Therefore, we report the results of a modified specifier comprised of 4 items. Both an ordinal (0-4 symptoms) and a binary (no anxious distress: ≤1 items endorsed vs. anxious distress: >1 item endorsed) measure are included. The specifier is described with respect to demographics and prevalence of comorbid diagnoses. Descriptive statistics and general linear models were used to describe the discriminative ability of the specifier with respect to suicidal ideation, plans, and attempts.

Results: Across groups there were no significant differences in demographic characteristics. Subjects with anxious distress had a significantly higher prevalence of comorbid anxiety disorders (GAD: 32% vs 16%; 16% vs 5% for panic disorder).

Among the 4 component items included, "fear that something awful might happen" had the highest association with suicide attempts, both lifetime and during the worst MDE (OR 2.2, 2.7).

The lifetime prevalence of suicide plans (21% v. 14%) and suicide attempts (19% v 11%) was significantly higher for those meeting criteria for anxious distress. During the worst MDE, suicidal ideation (41% v 28%), plans (15% v 8%), and attempts (12% v 6%) were significantly higher for those who met criteria for anxious distress. Further, among those endorsing ≥3 items of the specifier, 26% (v. 14%) made a plan, and 24% (v. 12%) made a suicide attempt in their lifetime (0.51 mean lifetime attempts (v. 0.25)). During their worst MDE, almost half of those with ≥3 endorsements thought about suicide (46% v. 31% of those with fewer items), 20% (v. 8%) had a plan, and 17% (v. 6%) made an attempt. Among those with ≥3 items and a suicide plan, 62% made an attempt, versus 43% of respondents with a plan who endorsed fewer items.

Discussion: in patients with MDD. This may be particularly true given that our analyses are conservative and reflect only 4 of 5 items of the DSM-5 "with anxious distress" specifier. Among the component items evaluated, "fear that something awful might happen", a symptom commonly associated with panic, appears to be most highly associated with SIB. Further, risk for SIB appears to be related to anxious symptom load, with greater risk among those endorsing 3 or more items. Finally, use of the specifier may be especially valuable for identifying patients at increased risk for suicide attempts among those with a plan. Further work evaluating the relationship of the 5th item (feeling one might lose control of self) is warranted to understand the full value of the DSM-5 anxious specifier in predicting risk for SIB.

M9. THE ASSOCIATION OF TRENDS IN CHARCOAL-BURNING SUICIDE WITH GOOGLE SEARCH AND NEWSPAPER REPORTING IN TAIWAN: A TIME SERIES ANALYSIS

Shu-Sen Chang[1], Simon Kwok[2], Qijin Cheng[3], Paul Yip[3], Ying-Yeh Chen[4]

[1]Institute of Health Policy and Management, and Department of Public Health, College of Public Health, National Taiwan University, Taipei, Taiwan, [2]The University of Sydney, [3]The University of Hong Kong, [4]National Yang-Ming University

Background: Some East/Southeast Asian countries experienced a rapid increase in suicide by charcoal burning over the past decade. Media reporting and internet use were thought to

contribute to the epidemic. We investigated the association between method-specific suicide incidence and both internet search volume and newspaper reporting in Taiwan.
Methods: Weekly data for suicide, suicide-related Google search volume, and the number of articles reporting suicide in four major newspapers in Taiwan during 2008-2011 were obtained. Poisson autoregressive regression models were used to examine the associations between these variables.
Results: In the fully adjusted models, every 10% increase in Google searches was associated with a 4.3% (95% confidence interval [CI] 1.1-7.6%) increase in charcoal-burning suicide incidence in the same week, and a 3.8% (95% CI 0.4-7.2%) increase in the following week. A one-article increase in the United Daily was associated with a 3.6% (95% CI 1.5-5.8%) increase in charcoal-burning suicide in the same week. By contrast, non-charcoal-burning suicide was not associated with Google search volume, but was associated with the Apple Daily's reporting in the preceding week.
Discussion: We found that increased internet searches for charcoal-burning suicide appeared to be associated with a subsequent increase in suicide by this method. The prevention of suicide using emerging methods may include monitoring and regulating online information that provides details of these methods as well as encouraging internet service providers to provide help-seeking information.

M10. SUICIDAL BEHAVIOR AND NON-SUICIDAL SELF INJURY IN EMERGENCY DEPARTMENTS UNDERESTIMATED BY ADMINISTRATIVE CLAIMS DATA

Megan Chesin[1,2], Barbara Stanley[3], Glenn Currier[4], Sadia Chaudhury[2], Shari Jager-Hyman[5], Hanga Galfavy[3], Gregory Brown[5]

[1]William Paterson University, [2]New York State Psychiatric Institute, [3]Columbia University, [4]University of Rochester School of Medicine, [5]Perelman School of Medicine, University of Pennsylvania

Background: The International Classification of Diseases-Clinical Modification (ICD) external causes of injury codes (E-codes), the system used in administrative and claims databases, is often the basis for estimates of the number of self-injury visits to emergency departments (EDs).
Some small data set analyses checking E-codes for self-injury with clinical chart notes suggest that they are fairly complete (e.g., Bridge et al., 2012). Others (e.g, Patrick et al., 2010) question the reliability and completeness of E-coding of self-injury. Despite limitations, epidemiological and large-scale clinical studies have utilized the range of self-inflicted injury E-codes when investigating suicidal behavior and non-suicidal self-injury (NSSI) presenting to the ED (Schwartz et al., 1995). Thus, there is a presumption that the data are accurate and representative enough to provide valid results. In this study, we assess the accuracy of ICD E-codes using standardized and independently-administered research assessments at the time of the ED visit. We also set out to determine if there are systematic differences in self-harming patients who receive or do not receive an E-code for their self-inflicted injury.

Methods: Two hundred fifty-four patients who presented at three EDs in major metropolitan areas completed a standardized research assessment that included the Columbia University Suicide History Form and the Scale for Suicidal Ideation. Patients were classified as suicide attempters (50.4%, n=128), non-suicidal self-injurers (11.8%, n=30), psychiatric controls who had not engaged in self-injurious behavior or had an interrupted attempt in the 7 days prior to

the ED visit (29.9%, n=76), or interrupted (by self or others) suicide attempters (7.8%, n=20). These classifications were then compared to patients' E-code classifications by computing sensitivity, specificity, positive predictive (PPV), negative predictive (NPV), and Kappa values from the 2 (suicide attempters or non-suicidal self-injurers, yes or no, per research classification) x 2 (self-inflicted injury E-code assigned, yes or no) classification table. To determine whether demographic or clinical characteristics were associated with E-code assignment, mean scores on demographic and clinical variables were compared between patients who received and did not receive a self-inflicted injury E-Code using the Mann-Whitney U test or a student t-test, as appropriate.

Results: Only 36.7% of research-classified suicide attempters received self-inflicted injury E-codes; 26.7% of research-classified non-suicidal self-injurers received self-inflicted injury E-codes, and no research-classified interrupted attempters or controls were given self-inflicted injury E-codes. Sensitivity was 35% (Confidence Interval (CI) = .27-42); specificity was 100%; PPV was 100%; NPV was 48% (CI =.41, .55). The agreement between the research classification and E-code classifications, controlling for site, was fair (κappa=0.24, 95%CI: 0.18-0.31). Those who did not receive a self-inflicted injury E-code who should have, as determined by standardized research assessments, were more likely to have a substance or alcohol use disorder (30.9% vs 48.5%, X2(1)= 4.57, p=0.03) or a psychotic disorder (1.8% vs 9.7%, p=0.05). They also had more Axis I diagnoses (H(1)=7.39, p=.01) and scored higher on the drug use disorder screen (DAST) (H(1)=8.94, p=.003). Those in the self-harm group (per research assessment) who did not receive a self-inflicted injury E-code also reported more lifetime suicide attempts (H(1)=4.65, p=.03) and had higher suicidal ideation in the week prior to the ED visit (t(137)=2.99, p=0.003).

Discussion: Our results suggest that current estimates of ED visits for self-inflicted injury based on E-codes should be increased by nearly a multiple of three and that there is a systematic bias in the under-reporting such that some of the more severe cases are not detected. Those who did not receive a self-inflicted injury E-code who should have, as determined by standardized research assessments, had more severe psychopathology, more Axis I diagnoses, more lifetime suicide attempts, and more severe current suicidal ideation. Our findings suggest that the ED burden of self-inflicted injury visits is much greater than currently available figures indicate.

M11. EARLY LIFE ADVERSITIES, PERSONALITY FUNCTIONING, AND SUICIDE RISK IN ADOLESCENTS: UNDERSTANDING THEIR INDEPENDENT AND JOINT RELATIONSHIPS

Diana Clarke[1]

[1]American Psychiatric Association

Background: Early life adversities have been found to be significantly related to poor mental health including depression, suicidal ideation, suicide attempt, and suicide. Understanding the mechanisms by which these early life adversities impacts on the individual's mental health over the life course is important for suicide prevention. The current study utilized data from the DSM-5 Field Trials in Children and Adolescents to examine the independent and joint relationships between early life adversities such as sexual abuse, damaging nurturance, early life social relationship problems, and caregiver mental health problems, personality functioning and suicide risk in children age 11-17 years old.

Methods: Data on children age 11-17 who were able to read on understand in English were used in the current study. All participating children were asked to complete the 36-item

Personality Inventory for DSM-5 (PID-5). The 36 items mapped onto 6 personality functioning domains: negative emotionality, detachment, disinhibition, antagonism, compulsivity, and schizotypy. The child's caregiver and clinician were asked to complete the caregiver and clinician versions of the Early Development and Home Background measures respectively. The measures capture information on child's birth and early life including physical and sexual abuse, neglect, damaging nurturance, caregiver depression, and early life social relationship problems. Descriptive analyses and multivariate regression analyses were conducted using SAS software. Weighted analyses using SUDAAN were conducted to account for the stratified sampling nature of the study.
Results: Childhood sexual abuse, social relationship problems in early life, and caregiver depression were significantly related to detachment (beta coefficient: 2.52, 95%CI: 0.92,4.12) and schizotypy scores (Beta coefficient: 3.36; 95%CI: 0.96, 5.76) on the PID-5. Similarly, these factors were related to self-reported suicidal ideation and plans and suicide attempts and the clinician rating of suicide risk in the children. Multivariate models of the association between early life adversities and suicidal ideation and plans, suicide attempts, and clinician-rating of suicide risk with adjustment for age and sex, with personality functioning as mediators showed that detachment and schizotypy explained the relationship between early life adversities and suicide risk and behaviors (beta coefficient for sexual abuse reduced from 2.52 to 0.14).
Discussion: The data indicate that early life adversities may lead to detachment and schizotypy, which are associated to suicide risk and behaviors. Efforts that target detachment and other disruption in personality functioning may help to prevent the development of suicide risk in children.

M12. CHARACTERISTICS OF INTENTIONAL SELF-POISONINGS IN ADOLESCENTS VERSUS ADULTS IN TOXIC CASE REGISTRY ENTRIES

Kenneth Conner[1], Beau Abar[1], Vincent Derienzo[1], Lisham Ashrafioun[1], Timothy Wiegand[1]

[1]University of Rochester Medical Center

Background: Intentional self-poisoning (ISP) is the leading method of nonlethal suicidal behavior, with rates increased dramatically during adolescence, particularly among females. ISP during adolescence may be expected to have unique characteristics and require tailored treatment compared to adults yet there are few data. We compared the drugs ingested and the medical consequences and treatments for ISP in hospitalized adolescents and adults. We hypothesized that adolescents are more likely to be female; other comparisons were exploratory.
Methods: Cross-sectional analyses of hospitalized ISP cases contained in the American College of Medical Toxicology Investigators Consortium Case Registry (ToxIC) from Jan 1, to Oct 22, 2014. Adolescent (ages 13-18, n=758) and adult (ages 19-65, n=1422) ISP patients were compared on demographic characteristics, the drugs ingested and the associated medical consequences, and the treatments provided. Unadjusted analyses were performed using chi-square. Due to multiple testing, $p<0.005$ was used to determine statistical significance.
Results: Compared to adults, adolescents were more likely to be female (79% vs. 59%, $p<0.001$), to ingest a single drug than multiple drugs (60% vs. 48%, $p<0.001$), and to use non-opioid analgesic (35% vs. 18%, $p<0.001$). Non-opioid analgesics were also the drug most commonly taken by adolescents in ISP. Adolescents were less likely to ingest an opioid (3% vs. 9%, $p<0.001$) or a cardiovascular medication (4% vs. 8%, $p=0.001$). They were also less likely to experience a sedative hypnotic toxidrome (6% vs. 15%, $p<0.001$) but did not differ on other specific medical consequences or the overall number of organ systems affected.

Adolescents and adults did not differ in the overall number of treatments received or in the likelihood of receiving specific treatments with the exception that adolescents were less likely to receive non-pharmacological treatment (29% vs 35%, p=0.002).
Discussion: Adolescents' greater tendency to ingest single drugs in ISP suggests that prevention efforts based on restriction of access to medications may be more straightforward in this group compared to adults, and analgesics are an important target of such efforts. The fact that adolescents and adults treated for ISP did not differ on the number of organ systems affected or the number of treatments received, markers for ISP severity and treatment complexity, underscores that ISP during adolescence must be taken seriously, with hospital stays providing a critical opportunity to initiate preventive interventions.

M13. AEROALLERGENS, AIR POLLUTION EXPOSURES AND SUICIDE RATES IN HUNGARY, 2005-2011

Thomas Cook[1], Teodor Postolache[2], Zoltán Rihmer[3], Xénia Gonda[3], Péter Döme[3]

[1]Mercyhurst University, [2]University of Maryland School of Medicine, [3]Department of Clinical and Theoretical Mental Health, Semmelweiss University, Budapest, Hungary

Background: Asthma, allergy and exposure to aeroallergens and air pollution have been identified as risk factors for suicidal self-directed-violence. Hungary has among the highest suicide rates in the world, with locally higher rates in the Great Hungarian Plain. Due to distinct ecological features of the Carpathian basin, Hungary is a global hotspot for highly allergenic ragweed pollen along with high air pollution concentrations, with particulate matter responsible for 16,000 premature deaths annually. No previous study has addressed links among Hungary's relatively high burden of aeroallergens, air pollution, allergic disease and suicide. We sought to account for geographic and temporal variability of suicide rates across Hungary in relation to peak periods of multiple aeroallergen and air pollution exposures.
Methods: All suicides during 2005-2011 (N=11,454) among 9 counties of Hungary spanning diverse geographic regions with both daily air quality monitoring stations and standardized pollen traps were included in the sample. Variability in local rates of suicide were assessed using multi-level Poisson regression models (Stata 11.0) including random effects for geographic location. Weekly total counts of suicide per location (9 counties, and Budapest) were modeled as a function of the weekly average of daily pollen counts, air pollution (NO2, CO, Ozone) and particulate matter (PM10) concentration measured daily at monitoring stations within each county. Models were adjusted for climatological factors (temperature, humidity, wind, changes in day length) and county-level socio-demographic factors (unemployment, age distribution, urban/rural). Parallel models predicting weekly counts of acute myocardial infarction (MI) deaths were used to determine if associations were specific to suicide risk.
Results: Suicide counts were significantly elevated during weekly periods of relatively high pollen exposure >30 u/g3, the level at which symptoms typically appear among allergy-sensitized individuals (RR = 1.09, 95%CI 1.02-1.16), adjusting for other air pollutants, weather and socio-demographic factors. Moreover, this relationship exhibited a dose-response at higher exposure thresholds and was more pronounced in counties with higher annual pollen counts. Among the air pollutants, only particulate matter (PM10 > 50 μg/m3) was associated with weekly suicide rates (RR = 1.05, 95% CI 1.01-1.10). By comparison, variability in weekly rates of acute MI rates were not related to pollen counts but were significantly related to all air pollution exposures.
Discussion: This study identified several potential novel therapeutic targets and environmental interventions to reduce the burden of suicide in Hungary and globally. Research on underlying

neuro-immunological pathways, individual vulnerability factors and inflammatory mechanisms related to common environmental exposures are needed along with further epidemiological studies in other settings.

M14. PATIENTS WHO SCREEN POSITIVE FOR SUICIDE RISK: AN EXPLORATORY STUDY

Laurel Dezieck[1], Edwin Boudreaux[2]

[1]University of Massachusetts Medical School, [2]University of Massachusetts Medical School

Background: Many people who attempt suicide utilize healthcare resources prior their attempt, including visiting the emergency department (ED). Some of these patients present with chief complaints unrelated to psychiatric symptoms or suicidality and, in many cases, are not screened for suicide risk. Because of this, not much is known about patients who have suicide risk incidental to their chief complaint. This study capitalized on the implementation of universal suicide risk screening as part of a larger trial. We identified and described those who presented with a non-psychiatric chief complaint and screened positive for active suicidal ideation or a suicide attempt within the past 6 months.

Methods: Patients presenting to the emergency department (ED) of a suburban medical center with approximately 27,000 visits a year were screened for suicidality using a three-item Patient Safety Screener (PSS) as part of the Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) trial. Of the people who screened positive, those with non-psychiatric chief complaints were identified and the medical records associated with their index ED visits were reviewed. In addition, the 6 months prior to and 6 month after the index visit were reviewed. For each subject, demographic information, relevant medical history, and ED utilization data were collected. Comparison data was derived from the National Ambulatory Healthcare Database, a normative database of nationally representative ED visits.

Results: A total of 167 subjects were included (mean age = 47, 53% female). The study sample was consistent with the regional ED population in terms of age, gender, race, and socioeconomic status. Alcohol abuse and illicit/prescription drug abuse were documented in 20% and 7% of subjects respectively versus 7.0% and 9.2% of the general population. At least one chronic medical illness was present in 67% of subjects. A history of psychiatric disease was documented in 68% of patients on index visit. Pain was reported in 74% of index ED visits whereas patients in the general ED population data reported moderate to severe pain in 46% of ED visits. In the six months prior to the index visit, 64% of subjects visited the ED at least once. In the 6 months after the index visit, 59% of subjects had at least one additional ED visit. In the twelve-month study period, 77% of subjects had at least two ED visits, and there was an average of 5.2 ED visits per person as compared to 0.394 visits per person in the general population. The inpatient admissions rate for subjects was 33.6% versus 12.5% of the general population. Only 54% of all subjects were documented as having received any mental health evaluation during the ED visit beyond initial screening.

Discussion: Patients who present to the ED with non-psychiatric complaints and positive suicide screening are characterized by frequent prior ED utilization, past psychiatric histories, medical comorbidities, and pain symptoms. However, behavioral health evaluations and interventions are inconsistently implemented during these visits. Further research is needed to determine if algorithms using medical records and other patient characteristics can be used to create targeting rules that will help clinicians identify these individuals in settings where universal suicide risk screening is not performed.

M15. HOW DO TREATMENTS OF DEPRESSION EFFECT SUICIDAL BEHAVIOUR IN MAJOR DEPRESSION?

Andrea Fernandes[1], Robert Stewart[2], Rina Dutta[3]

[1]King's College London/Mental Health Research UK, [2]1st Supervisor, King's College London, [3]2nd Supervisor, King's College London

Background: It is important to understand how treatments for depression effect one its most lethal symptoms – suicide and suicidal behaviours. There is a scarcity of research examining how depression treatments prescribed in clinical practice effect suicidality. The reasons for this are: clinical data not available for research, extracting relevant outcomes data and exposure data retrospectively, non-random allocation for treatment and measuring severity of depression. Observational studies conducted using electronic health records elsewhere have reported the mixed effects of antidepressants on suicidal outcomes among those with major depression. Among adults, studies report beneficial effects or no effect at all. Among youth, the consensus seems to be around an increased risk among youth. Studies of good quality are limited by data constraints – sample size, lack of severity of depression measures, and no records of the effects of treatment on other symptoms depression that may have a role in how suicidal behaviours are triggered. My PhD is focusing on overcoming these issues-using an electronic psychiatric health database-systematically to answer the question: how do treatments of depression effect suicidal behaviour?

Methods: We are using a retrospective cohort study design to investigate the effect of the treatment of depression on suicidal behaviour controlling for confounding by indication and adjusting for the effects of treatments on other symptoms of depression.

To answer our questions the PhD is divided into the following parts:

First Year

1)Identify variables– primary and secondary outcomes, exposures and confounding variables.

2)Plan data extraction;define variables

3)Identify text mining tool:machine learning or rule-based approach.

4)Validation of data extracted with original data source

Second year

Plan analysis–decide on propensity analysis, repeated measure logistic regressions, cox proportionate hazards to adjust for other symptoms of depression. Growth mixture models to assess common progress paths of symptoms of depression after treatment start.

I am presenting the work conducted so far in this PhD where we are investigating ways to overcome barriers to measure suicidal ideation from free-text anonymised clinical data.

Results: Currently we are working on extracting data variables (See First Year:Point 3). We have tested a bespoke Machine Learning support vector based algorithm to extract suicidal ideation variable from our dataset.

Results:

1st Training: 500 training documents - Precision=62.6%; Recall=73.8%

2nd Training: 300 training documents - Precision=49.13%; Recall=58.8%

3rd Training: 300 training documents - Precision=50%; Recall=61%

Discussion: We conclude that to extract the suicidal ideation variable, using machine learning using support vector algorithm was a poor approach. This could be due to stringent definition

of our variable. Our machine-learning has proved to be useful for binary variable extraction. We have now started testing a rule-based algorithm to capture ideation. I will be able to present these results in October alongside some preliminary data.

M16. EXPOSURE TO, AND SEARCHING FOR, INFORMATION ABOUT SUICIDE AND SELF-HARM ON THE INTERNET: PREVALENCE AND PREDICTORS IN A POPULATION BASED COHORT OF YOUNG ADULTS

Becky Mars[1], Jon Heron[1], Lucy Biddle[1], Jenny L Donovan[1], Rachel Holley[2], Martyn Piper[3], John Potokar[1], Clare Wyllie[2], David Gunnell[1]

[1]University of Bristol, [2]Samaritans, [3]Prevention of Young Suicide UK (PAPYRUS)

Background: There is concern over the potential impact of the Internet on self-harm and suicidal behaviour, particularly in young people. However, little is known about the prevalence and patterns of suicide/self-harm related Internet use in the general population
Methods: Cross sectional study of 3,946 participants in the Avon Longitudinal Study of Parents and Children (ALSPAC), a UK population-based birth cohort. Suicide/self-harm related Internet use was self-reported at age 21 years.
Results: Suicide/self-harm related Internet use was reported by 22.5% of participants; 11.9% had come across sites/chatrooms discussing self-harm or suicide, 8.2% had searched for information about self-harm, 7.5% had searched for information about suicide and 9.1% had used the Internet to discuss self-harm or suicidal feelings. Suicide/self-harm related Internet use was particularly prevalent amongst those who had harmed with suicidal intent (70%), and was strongly associated with the presence of suicidal thoughts, suicidal plans, and history of self-harm. Sites offering help, advice, or support were accessed by a larger proportion than sites offering information on how to hurt or kill yourself (8.2% vs 3.1%). Most individuals (81%) who had accessed these potentially harmful sites had also accessed help sites.
Discussion: Suicide/self-harm related Internet use is common amongst young adults, particularly amongst those with suicidal thoughts and behaviour. Both harmful and helpful sites were accessed, highlighting that the Internet presents potential risks but also offers opportunities for suicide prevention.

M17. COMPUTATIONAL MODELING OF SEXUAL ORIENTATION WITHIN UNLABELED SOCIAL NETWORK DATA TO INFORM SUICIDE RISK PREDICTION AND TARGETED INTERVENTIONS

Roghayeh Feizi[2], Yijun Huang[2], Ji Liu[2], Christopher Homan[3], Vincent Silenzio[1,4], Henry Kautz[2]

[1]University of Rochester, [2]University of Rochester, Department of Computer Science, [3]Rochester Institute of Technology, Department of Computer Science, [4]University of Rochester, Department of Psychiatry

Background: While it is known that adolescent lesbian, gay, bisexual, transgendered, and questioning (LGBTQ) individuals are between two and seven times as likely as their non-LGBTQ counterparts to express suicide-related thoughts or behaviors, data regarding these phenomena among LGBTQ adults has not been available. Given the increasing risk for suicide post-adolescence among the general population, the trend may be similar among LGBTQ

adults, suggesting that a significant, and unrecognized, burden of suicide-related morbidity and mortality may exist in this population.

While social and political changes in the U.S. have reduced the stigma and prejudice associated with sexual orientation, a significant challenge confronting researchers in this area, however, is that LGBTQ adults remain a largely hidden population. The precise boundaries of this population are consequently difficult to define, and population-based sampling using traditional methods remains both difficult and costly. We present a set of computational methods to model and predict the sexual orientation of users within an online social network, as a step antecedent to attempts to determine the rates of suicide-related morbidity and mortality among LGBTQ adults.

Methods: We gathered the publicly-accessible user posts to Twitter.com by users in the Rochester, NY, metropolitan area for a period of 18 months. This area includes over 1.14 million residents, and is home to a large gay community based on estimates from the 2010 U.S. Census. In addition, we constructed a weekly snapshot of the directed social graph of all Twitter users in the area. We only consider the largest connected component of this graph after first eliminating all edges from the social graph that are not reciprocated (since non-reciprocated edges indicate a non-peer-like relationship).

In order to predict user features, we regard all labeled and unlabeled users using edge weights representing the degree of similarity between user pairs using 1) linguistic content of their posted text, and similarity matrices based on national and local celebrities users follow. We then apply (Relaxed) label propagation (RLP) and Beta-reweighted label propagation (BRLP) to optimize the quadratic cost function used to calculate the label for the full data set using semi-supervised learning on the graph G. (These mathematical algorithms will be presented and discussed in detail.)

Results: We collected approximately 15 million posts within the metro region. The reciprocated social graph resulted in a network of 251,316 individual users.

We filtered the initial set to create a training data set using defined keywords. This filtering step yielded 4658 users in total, 377 of whom were labeled "Gay" and the remainder were labeled "Straight." We held out 1166 of these users (of whom 95 were labeled "Gay") for final evaluation, and trained our algorithms on the remaining data. The subgraph induced by the entire set of labeled set of users on this network has 3100 distinct connected components, the largest of which has 1231 nodes. This subgraph exhibits strong homophily. Of the edges in the subgraph, the likelihood of an alter being gay is 62% if the ego is gay and 2% if the ego is straight.

After applying the label propagation algorithm on the remaining, full set of data, the best testing accuracy achieved was 93.48%. The details of our remaining precision-recall and receiver-operator characteristic data will be presented in detail. Our algorithms were able to perform much better than baseline approaches, even when the vast majority of the data points are unlabeled.

Discussion: We investigate a variety of machine learning approaches for determining the sexual orientation of individuals in an online social network. We show that with a very small amount of training data and nothing more than the publicly-expressed social ties within this dense network, we can predict sexual orientation at success rates much higher than reasonable baselines.

To our knowledge, this is the first research into the use of machine learning to predict sexual orientation. We are acutely aware of the ethics of doing research to detect or discover hidden or otherwise vulnerable communities. For instance, despite the obvious pace of social progress

in recent years, sexual orientation remains an intensely private concern for many LGBTQ individuals. Revealing an individual's sexual orientation can still potentially lead to very negative social or economic consequences, to say nothing of the potential for homophobic violence or victimization for at least some of these individuals

M18. AN ANALYSIS OF HOMICIDE-SUICIDE IN TORONTO USING CORONER RECORDS

Mark Sinyor[1], Michelle Messner[2], Alexander Simpson[3], Andrew Morgan[4], Ayal Schaffer[2]

[1]Sunnybrook, University of Toronto, [2]Sunnybrook Hospital, [3]CAMH, [4]Ontario Shores Centre for Mental Health Sciences

Background: Homicide-suicide (H-S) is an important and under-researched public health issue. Rates of H-S vary internationally from 0.1 to 0.4 per 100,000 persons per year. Recent literature has proposed typologies of H-S. Intimate partner H-S has been classified as the most common type. Men who commit intimate partner H-S have been reported to be over-controlling and motivated by jealousy. These acts are often preceded by an interpersonal stressor such as separation and carried out by firearm. Familial H-S has been identified as a second typology. Familial H-S events can include filicide-suicide, the killing of children and then oneself; declining health of a spouse, typically when an older individual kills their spouse and then dies from suicide; and familicide-suicide, which involves homicide of entire family and suicide of the perpetrator. The few studies examining this phenomenon have identified high rates of depression and mental illness in H-S perpetrators. Additional research is required to further understand this rare but devastating cause of death.
Methods: As part of a larger study of suicide in Toronto [population 2.5 million] identified through records of the Office of the Chief Coroner (OCC) of Ontario, we identified all instances of H-S and coded demographic, clinical, relationship and suicide specific factors. H-S was defined as occurring when a person murdered one or more people and then died by suicide shortly thereafter (within 24 hours of the murder(s)). As such H-S was a single event rather than a study of people dying from suicide who had a past history of murdering others or of perpetrating serial murders.
Results: There were 27 instances of H-S in Toronto from 1998-2009 with 35 total homicide victims. 56% occurred between September and December and 78% occurred between June and December. Perpetrators were mainly males (85%) with a mean age of 41.7 (S.D. 15.7) while victims were mainly female (77%). Victims were partners/ex-partners only, family/acquaintances only and both in 37%, 37% and 26% of cases respectively. The most common methods of homicide were cutting/stabbing (51%) followed by shooting (20%) while the most common methods of suicide were shooting (30%) and jumping from height (30%). Post-mortem toxicology determined that the perpetrator was intoxicated with alcohol and/or illicit drugs in 42% of cases. Only 37% of perpetrators had a known mental illness prior to death other than substance use disorders and none had come into contact with psychiatric services or an emergency room within the week prior to the H-S.
Discussion: This is the first population study in Canada of H-S and one of the few to focus specifically on an urban area. The findings are largely consistent with previous studies in other jurisdictions. As a rare base-rate phenomenon, H-S may be difficult to prevent at a population level. Nevertheless, this study suggests that middle-aged men with substance use disorders and/or mental illness are the target group of interest. This group has already been identified as an important and under-treated population in Toronto and elsewhere. The fact that H-S deaths

predominantly occur towards the end of the calendar year is also notable and deserves further study. This suggests that interventions might not only target specific demographic groups but also higher risk times. Despite the fact that Toronto has much lower per capita gun ownership than American cities of comparable size, shooting was the method in a substantial minority of H-S deaths. Further restriction on access to guns may also be an important avenue for prevention.

M19. SUICIDES AND MEDICALLY SERIOUS ATTEMPTERS ARE OF THE SAME POPULATION IN CHINESE RURAL YOUNG ADULTS

Jie Zhang[1], Long Sun[2]

[1]State University of New York Buffalo State, [2]Shandong University

Background: Suicide rates in China are among the highest in the world, although there has been a decreasing trend in the past few years. One practical approach to study the characteristics and risk factors of suicide is to interview the suicide attempters. It was to compare completed suicides with serious attempters that may shed lights on suicide prevention strategies.
Methods: This is a combination of two case control studies for suicide completers and suicide attempters respectively. After a sample of suicides (n=392) and community living controls (n=416) were obtained and studied in rural China, we collected in the same rural areas data of suicide attempt and studied 507 medically serious attempters and 503 community counterparts.
Results: Characteristics and previously observed risk factors were compared between the suicides and the attempters, and we found that the demographic characteristics and risk factors for the suicides were also for the medically serious attempters but at some lesser degrees for the attempters than for the suicides. It was especially true of suicide intent, deficient coping, negative life events, and impulsivity. While most of the demographic characteristics were not significantly different between the suicides and the attempters, most of the clinical variables could distinguish the two groups.
Discussion: The suicide victims and the serious attempters could be of the same group of people who were at the edge of fatal self-injury, and the same clinical risk factors but of different degrees have divided them into the life and death groups.

M20. WHEN ASPIRATION FAILS: A STUDY OF ITS EFFECT ON MENTAL DISORDER AND SUICIDE RISK

Jie Zhang[1]

[1]State University of New York Buffalo State

Background: The Strain Theory of Suicide postulates that psychological strains usually precede suicide mental disorders including suicidal behavior. The four sources of strain are basically (1) differential value conflicts, (2) discrepancies between aspiration and reality, (3) relative deprivation, and (4) lack of coping skills. This paper focuses on the effect of perceived failed life aspiration on the individual's mental disorder and suicide risk.
Methods: Data for this study were from a large psychological autopsy study conducted in rural China, where 392 suicides and 416 community living controls were consecutively recruited. Two informants (a family member and a close friend) were interviewed for each suicide and each control. Major depression was assessed with HAM-D and the diagnosis of mental disorder was made with SCID.

Results: It was found that individuals having experienced failed aspiration were significantly more likely than those having not experienced a failed aspiration to be diagnosed with at least one disorder measured by the SCID and major depression measured by HAM-D, and to be a suicide victim, which is true of both suicides and controls.
Discussion: This study supports the hypothesis that the discrepancies between an individual's aspiration and the reality is likely to lead to mental disorder including major depression and suicidal behavior. Lowering a patient's unrealistic aspiration can be part of the of psychological strains reduction strategies in cognitive therapies by clinicians' and mental health professionals.

M21. THE UNIFIED PROTOCOL FOR SUICIDALITY: ACCEPTABILITY, FEASIBILITY, AND PRELIMINARY EFFICACY DATA FROM AN ACUTE CRISIS STABILIZATION UNIT

Kate Bentley[1], Shannon Sauer-Zavala[1], Clair Cassiello-Robbins[1], Laren Conklin[1], Stephanie Vento[1]

[1]Center for Anxiety and Related Disorders, Boston University

Background: Recent findings indicate that indicate that brief, targeted psychosocial interventions can reduce the rate of repeated suicide attempts (e.g., Brown et al., 2005; Rudd et al., 2015). Short-term therapies may be particularly applicable for individuals at imminent risk for suicide in acute inpatient settings, which can typically provide only time-limited care. The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011) is a cognitive-behavioral intervention recently designed to be applicable across mental disorders that are characterized by frequent, intense negative emotions and aversive reactions to those emotions. Studies have shown significant decreases in anxiety and comorbid depression as a result of treatment with the UP (e.g., Farchione et al., 2012), and preliminary results suggest that the UP may also be efficacious for individuals with BPD (Sauer-Zavala et al., 2014) and PTSD (Gallagher et al., in preparation). Given that suicide can function as an avoidant response to strong emotions (Briere et al., 2010; Bryan et al., 2013), core UP strategies aimed at cultivating more accepting attitudes toward emotional experiences may be similarly useful in addressing suicidal behavior.
Methods: The aim of this ongoing study is to explore the feasibility, acceptability, and preliminary efficacy of a version of the UP modified to target suicidality and to be brief enough for delivery in a short-term acute-care setting. Participants (N = 10) are adults hospitalized on an acute crisis stabilization unit who have recently made a suicide attempt and/or experienced intense suicidal ideation. Participants are randomized to receive the UP + treatment as usual (TAU) or TAU only, which involves all standard services provided on the unit (e.g., medication management, peer support groups). The modified UP is delivered over five 60-minute sessions and includes a direct focus on suicidal thoughts and behaviors. Therapists are one masters- and two doctoral-level clinicians with certification in the UP. Suicide ideation, hopelessness, depression, and anxiety are assessed at pre- and post-treatment; acceptability, satisfaction, and skill acquisition are assessed following the intervention. Follow-up data on suicide-related events and other related outcome variables are being collected by an independent evaluator via telephone and/or in-person interview at one-month and six-months after discharge from the unit.
Results: Data collection is ongoing at the present time. As of May 1, 2015, 8 participants (5 UP + TAU and 3 TAU) have completed the post-treatment assessment. Overall, based on both quantitative and qualitative feedback, individuals who received the experimental intervention

have, on average, rated the UP treatment as extremely acceptable and reported extremely high levels of satisfaction. Participants in the experimental condition have also evidenced a good understanding of the UP treatment concepts, with 4 of 5 patients scoring 100% on the skill acquisition quiz, and 1 responding incorrectly to only a single item. Individuals who received the UP showed large changes in severity of suicide ideation, hopelessness, depression, and anxiety from baseline to post-treatment (Cohen's d effect size estimates ranging from 1.3 to 2.9). Preliminary analyses have also shown trends toward superiority for the UP + TAU condition at post-treatment, with individuals in the experimental condition experiencing greater magnitudes of change across all outcome variables. Follow-up data at one- and six-month time points is currently being collected and will be presented.
Discussion: Recent years have witnessed promising developments in intervention research for the prevention of suicidal behavior; however, there remains an urgent need to identify the most effective and efficient strategies for managing and treating high risk patients. The UP is a cognitive-behavioral intervention that focuses on key aspects of emotional processing implicated in the experience of suicidal thoughts and behaviors (e.g., replacing maladaptive patterns of responding with more adaptive behavioral action tendencies, identifying and changing narrowed cognitive appraisals and biases), and thus may represent an effective approach for addressing suicidality. The transdiagnostic nature of the UP may also make it applicable to the broad range of acutely suicidal individuals; further, its time-limited format suggests that the UP may be an easily disseminable, highly efficient treatment option for use across a variety of mental health settings. Implications for future research on the UP adapted for suicidality, including proposed modifications to the protocol content and format of delivery based on findings from the present investigation, will be discussed.

M22. WHO CARES? SOCIAL SUPPORT AND SOCIAL NETWORK IN MAJOR DEPRESSION

Danielle Broxon[1], James Overholser[2], Jennifer Lehmann[1], Alison Athey[1], Josephine Ridley[3]

[1]Case Western Reserve University, [2]Case Western Reserve University, [3]Louis Stokes VAMC

Background: Individuals with diminished social support experience higher levels of depressive symptomology (Joiner, 1999), longer symptom duration, and increased risk of recurrent depressive episodes (Flynn, Kecmanovic, & Alloy, 2010). Current measures of social support often focus on the person's subjective feelings of support from friends and family. While the subjective experience of the client is an important part of the therapeutic process, subjective reports may lead to an underreporting of actual confidants (Sigmon et al., 2005). Social networking theories have focused on creating more objective ways of measuring a person's number of confidants and the effect those confidants have on a person's functioning.
Methods: The present study examined differences in reporting between social network and social support measures in a total of 66 depressed patients at a large VA medical center. Depression was diagnosed with the SCID-IV (First et al., 1995). All patients met DSM-IV criteria for either Major Depression-Single Episode or Major Depression-Recurrent. Comorbid diagnoses were expected in this population and observed in 64.6%, and therefore participants were not excluded based on the presence of multiple diagnoses at the time of assessment. PTSD (18.4%), panic disorder (20.0%) and substance abuse (26.2%) were the secondary diagnoses given to the participant population. Participants were excluded from the study if they met criteria for bipolar or psychotic disorders. Patients reported on their social support using the Social Network Questionnaire-Short Form (Sarason et al., 1987). Social networking was

assessed using a researcher-designed self-report measure adapted from commonly used interview questions examining social network (Lin, Dean, & Alfred, 1986).
Results: Regression analyses indicated that patients were less consistent in their reporting of individuals between social support and social network as depression severity (BDI scores) when controlling for living situation and relationship status. Depression severity accounted for 11.8% of the variance in the model (F change (3,59) = 7.64, p<.01). Post hoc analyses revealed a subset of depressed patients with non-reciprocal supports including children (<10 years old) and animals. T-test analyses did not reveal any significant differences between patients listing non-reciprocal supports and those without a confidant in depression severity, depression duration, or suicide attempts. Patients listing non-reciprocal supports and those without a confidant were collapsed into a single group for later analyses. Patients without a confidant or reporting a non-reciprocal support (M=281.86, SD=350.51) had significantly longer symptom duration than patients with at least one confidant (M=95.07, SD=167.13) (t(57)=2.63, p<.01). Depressed patients without a confidant or reporting a non-reciprocal support (M=31.39, SD=11.26) also had significantly higher depression severity than patients with at least one confidant (M=24.70, SD=9.98) (t(64)=2.57, p<.01).
Discussion: The tendency for individuals to be inconsistent in their reporting supported the hypothesis that patients with severe depression are likely to feel isolated and unsupported despite identifying social supports. The present study's results showing the endorsement of larger social networks on the SNQ in the presence of lower social support on the SSQ, may support the use of social network measures to assist in therapeutic interventions. Encouraging depressed clients to focus more attention on the people that they actually spend time with rather than those they self- report as social supports may be a useful cognitive strategy for improving sense of belonging. The present study also offered the opportunity to explore a subset of individuals reporting non-reciprocal supports. Specifically, preliminary evidence showed that patients with non-reciprocal supports had higher average BDI scores as well as longer symptom duration compared to those with traditional supports. When working with patients with depression, it is crucial to develop an understanding of their conceptualization of social networking and confidants.

M23. CLINICAL CORRELATES OF INSOMNIA IN SUICIDE ATTEMPTERS

Sadia Chaudhury[1], Meghan Michalski[2], Barbara Stanley[1]

[1]New York State Psychiatric Institute/Columbia University, [2]Harvard University

Background: Suicide is a major public health issue, affecting all ages and occurring in all regions of the world. Every 40 seconds, someone in the world dies by suicide and numerous more make attempts. In 2013, more than 40,000 people died by suicide, making it the 10th leading cause of death in the United States, and more than 1 million people reported making a suicide attempt in the past year. Furthermore, among those aged 15-29 years, suicide is the second leading cause of death, globally. These numbers indicate a need to enhance prevention screening and identification of risk factors to find those who may be at current or future risk for suicidal behavior. In high-income countries, those with mental health illnesses, especially major depressive disorder, encompass 90% of the people who die by suicide. Sleep disturbance, and in particular, insomnia, has been to increase risk for suicidal ideation or behavior across various age groups and cultures. The present study explores clinical characteristics that distinguish depressed suicide attempters with insomnia from those without insomnia.

Methods: Subjects (n=125) in this study sought treatment for a current Major Depressive Episode and had made at least one SA in their lifetime. The study was approved by the local IRB and all subjects provided written informed consent after being provided detailed information about the study. Subjects completed a comprehensive psychiatric assessment with trained Masters or doctoral-level psychologists. The assessment collected information on diagnosis, suicide attempt history, and clinical characteristics. Inter-rater reliability was high among raters.

Participants were divided into two groups based on whether or not they reported any insomnia symptoms on a near daily basis on the Hamilton Depression Rating Scale. The groups were compared on demographic and clinical variables using chi-square and t-tests, as appropriate. Subjects with insomnia were then classified again based on whether or not they reported early insomnia (difficulty falling asleep), middle insomnia (difficulty remaining asleep), or late insomnia (early morning awakening) symptoms on a near daily basis on the HDRS. Again, groups were compared on demographic and clinical variables using chi-square and t-tests, as appropriate.

Results: Overall Insomnia: Subjects with insomnia reported greater depression symptom severity at baseline ($t=-4.436$, $df=123$, $p<.001$) and were more likely to have a comorbid anxiety disorder ($X2= 3.825$, $df=1$, $p=.050$). Aggression and impulsivity scores did not differ between groups. Subjects with insomnia scored lower on the Verbal ($t=-2.022$, $df=77$, $p=.047$), Suspicion ($t=2.074$, $df=77$, $p=.041$) and Negativism ($t=-1.975$, $df=39$, $p=.052$) subscales of the Buss-Durkee Hostility Scale (BDHS). There were no significant differences in terms of suicidal behavior characteristics between groups.

Early Insomnia (EI): There were statistical trends for those with EI to score higher on the Cognitive ($t=-1.773$, $df=74$, $p=.080$) of the Barratt Impulsivity Scale (BIS).

Middle Insomnia (MI): Subjects with MI scored higher on the Motor subscale of the BIS ($t=-.112$, $df=74$, $p=.05$) and the Irritability subscale of the BDHS. They also reported significantly higher suicidal ideation ($t=-3.041$, $df=105.29$, $p=.003$).

Late Insomnia (LI): There were no differences with regard to aggression or impulsivity. Those with LI had lower scores on the Verbal ($t=2.343$, $df=77$, $p=.022$) and Assault subscales ($t=3.125$, $df=70$, $p=.003$) of the BDHS.

Discussion: In this study, we explored demographic and clinical differences between suicide attempters with and without insomnia and found that attempters with insomnia are more likely to have a comorbid anxiety disorder and be more depressed during their current episode. Interestingly, those with insomnia reported fewer hostility traits, specifically being less verbally hostile, suspicious, or negative.

We also explored differences between subjects with three types of insomnia: EI, MI, LI. Subjects with EI were more cognitively impulsive than their counterparts, while those with MI exhibited greater motor impulsivity. Those with MI reported higher levels of irritable hostility, while those with LI reported lower levels of verbal hostility and assault. Of concern, subjects with MI reported significantly greater suicidal ideation than others.

Our findings suggest that there are clinical characteristics that distinguish suicide attempters with and without insomnia, as well as characteristics that are unique for subjects with specific insomnia symptoms. In particular, suicide attempters with MI report higher levels of suicidal ideation, which may confer greater suicide risk, and warrant close monitoring by their treatment providers.

M24. CLINICAL CORRELATES OF PLANNED AND UNPLANNED SUICIDE ATTEMPTS

Sadia Chaudhury[1], Tanya Singh[1], M. Elizabeth Sublette[1], Michael Grunebaum[1], Barbara Stanley[1], J. John Mann[1], Maria Oquendo[1]

[1]New York State Psychiatric Institute/Columbia University

Background: Suicide is a leading cause of death worldwide, causing as many as 800,000 deaths per year. Several risk factors that increase risk for suicidal behavior have been identified. However, suicide attempts (SA) are heterogeneous in terms of intent, degree of planning and resultant medical injury; risk factors will likely vary across these dimensions. A key manner in which suicide attempters differ is the degree of planning for their SA, ranging from unplanned SA, with little to no forethought, to planned SA with a high degree of preparation. Contrary to popular belief, globally impulsive traits do not explain the difference between those who make planned and unplanned SA (Dumais et al., 2009; Baca Garcia et al., 2005, Wyder and Leo, 2007). Much remains to be understood between what distinguishes individuals who make planned SA and those who make unplanned SA. The ability to identify individuals who are more prone to making unplanned or planned SA would allow for the development of more targeted risk assessment and intervention strategies. The purpose of this study is to identify demographic and clinical characteristics that differentiate suicide attempters who make planned SA from those who make unplanned SA.

Methods: Subjects (n=109) in this study sought treatment for a current Major Depressive Episode and had made at least one SA in their lifetime. The study was approved by the local IRB and all subjects provided written informed consent after being provided detailed information about the study. Subjects completed a comprehensive psychiatric assessment with trained Masters or doctoral-level psychologists. The assessment collected information on diagnosis, suicide attempt history, and clinical characteristics. Inter-rater reliability was high among raters.

Participants were divided into two groups based on their responses to the Degree of Premeditation Item (Question 15) on the Suicide Intent Scale. Participants were classified according to the reported length of time planning their most recent suicide attempt: unplanned if less than three hours, or planned if more than three hours. The most recent suicide attempt was used to minimize recall bias. The groups were compared on demographic and clinical variables using chi-square and t-tests, as appropriate.

Results: Subjects whose most recent SA was unplanned did not differ significantly from those whose most recent SA was planned, in terms of demographic characteristics, the severity of their current MDE, or the presence of comorbid borderline personality disorder and anxiety disorders. Planned attempters were more likely to have a family history of completed suicide ($t=4.029$, $df=1$, $p=0.045$) but not of SA. There was a trend for those who made planned SA to have higher levels of suicidal ideation (SI) at study entry ($t=-1.880$, $df=101$, $p=0.063$). Subjects who made planned SA were more impulsive based on the total BIS score ($t=-2.150$, $df=71$, $p=.035$) and the Motor factor of the BIS ($t=-2.086$, $df=72$, $p=0.040$). The two groups did not differ with regard to the number of lifetime SA; however, the medical consequences of both their most recent ($t=-2.677$, $df=105$, $p=0.009$) and most serious ($t=-2.523$, $df=108$, $p=0.013$) SA were higher in the planned SA group. Furthermore, subjects who made planned SA reported greater suicidal intent during their most recent ($t=-5.937$, $df=107$, $p<0.001$) and most serious ($t=-4.235$, $df=103$, $p<0.001$) SA. There was also a trend for participants making planned SA to report more persistent SI ($t=3.432$, $df=1$,$p=0.064$).

Discussion: We found clear differences in our sample based on the degree of planning of their most recent SA. Those who made planned SA had a stronger family history of completed suicide. They also endorsed greater SI at study entry and trended toward more persistent SI, suggesting that they may not only have stronger thoughts of suicide, but also fewer periods of relief from these thoughts. Those who made planned SA were more likely to be impulsive, driven by significantly higher scores on the Motor subscale of the BIS but not the Cognitive or Non-Planning subscales. This suggests that those subjects have a higher threshold for tolerating SI before acting; however, once the decision to act is made, they may act more quickly. Subjects with planned SA had greater suicidal intent and the medical consequences of their SA were also more severe. Severe SI, high intent, family history of suicide completion, and high levels of motor impulsivity are important factors contributing to a phenotype that is at greater risk for planned, high-lethality SA and suicide completion. These characteristics warrant careful evaluation, early intervention and long-term follow-up in order to further suicide prevention efforts.

M25. CAN A RAPID RESPONSE SOCIAL CARE INTERVENTION REDUCE FUTURE SELF HARM AND SUICIDE ATTEMPTS? FINDINGS FROM A SOCIAL WORK INTERVENTION FOLLOWING SELF HARM (SWISH) IN WALES, UK.

Nilufar Ahmed[2], Charlotte Davies[1,2], Richard Jones[3], Peter Huxley[4], Ann John[2]

[1]Swansea University/Hywel Dda Health Board, [2]Swansea University, [3]Hywel Dda Health Board, [4]Bangor University

Background: This paper will discuss early findings from a randomised controlled trial delivering a brief intervention to patients who present with self-harm and/or suicidal ideation and who are not eligible for secondary mental health services. Evidence shows that self-harm is a strong indicator of future suicide (Sakinofsky 2000). The period of, and immediately following, a self-harm episode is one of vulnerability and increased risk of suicide (Hawton et al 2006). Supporting individuals at this critical time may have an effect on reducing the repetition of such behaviour.

Most interventions to reduce self-harm have focused on cognitive and psychological factors. This intervention - Social Work Intervention following Self Harm (SWISH) - primarily centres on social measures. It replicates an Australian intervention, Suicide Prevention in the Emergency Department (SPED), delivered through the Emergency Department in a hospital in Melbourne which reports successful outcomes in reducing self-harm behaviours and re-presentations to hospital, as well as increase in Quality of Life domains (Joubert et al 2012).

Methods: 120 patients who presented either directly to hospital emergency departments with deliberate self-harm or suicidal ideation, or who were referred by their General Practitioner (GP) to Local Primary Mental Health Support Services between January – September 2015 were invited to take part in the study. All patients completed questionnaires measuring depression (BDI); social wellbeing (MANSA) and service use costs (CSRI); at baseline, 4 weeks and 12 weeks. Those randomised to the intervention also additionally received a signposting and a linkage programme, with referrals made to other agencies where appropriate. Intervention patients had weekly face to face or telephone contact with the Intervention Practitioner for 4-6 weeks. The Researcher collecting questionnaire assessments was blinded to the arm the patient was in. Patients were seen as soon as possible after their referral to SWISH. Where possible patients who presented to hospital were seen at the hospital before

discharge, otherwise they were followed up and seen at home or at their GP surgery. Patients referred by their GP were invited to meet at their GP surgery. All patients continued to get their treatment as usual regardless of whichever arm of the study they were in.
Results: At the point of abstract submission we do not have any findings to relate. By the time of the conference we will have completed our recruitment and be able to report on early findings.
Discussion: The findings reported by Joubert and colleagues from Australia show that a targeted early intervention for individuals with no diagnosis of a mental illness can reduce further admissions to Emergency Departments. SWISH has adapted this brief intervention to a UK context. It is targeted at individuals with low level needs in order to try and prevent the escalation of mental health needs and self-harm behaviours, thereby providing support to individuals at a vulnerable time. Currently patients who are not taken on by secondary mental health services and who are referred to primary mental health services typically wait for 4 weeks before assessment. SWISH offers a rapid response to fit the gap and provide support whilst individuals are waiting for assessments by other agencies. The period of, and immediately following, a self-harm episode is one of vulnerability and increased risk of suicide (Hawton et al 2006). Supporting individuals at this critical time may have an effect on reducing the repetition of such behaviour, and reduce costs to the National Health Service through reducing the costs of Emergency Department presentations.

M26. OPEN BOARD

M27. DIFFERENTIATING GROUPS OF PEDIATRIC EMERGENCY DEPARTMENT PATIENTS BASED ON REPORTED SUICIDAL IDEATION AND BEHAVIOR ENDORSED ON THE BEHAVIORAL HEALTH SCREEN

Joanna Herres[1], Tamar Kodish[1], Tita Atte[1], Joel Fein[2], Guy Diamond[1]

[1]Drexel University, [2]Children's Hospital of Philadelphia

Background: Identifying youth at risk for suicide and distinguishing between different suicide-related thoughts and behaviors is critical for determining appropriate level of care. Screening for suicide in medical settings, including the emergency department (ED), can contribute to increased recognition and treatment of suicidality in youth. Although rates of suicidality and self-injury during adolescence are high, suicide risk is often not assessed, and therefore undetected in medical settings. The current study examines the use of a behavioral health screen (BHS) administered in a pediatric emergency department to differentiate levels of suicide risk and associated symptoms. The first research aim was to examine whether Latent Class Analysis (LCA) could differentiate groups of pediatric ED patients based on patterns of suicidal ideation and behavior endorsed on the BHS. The second aim was to examine whether the composition of the groups varied in terms of patient demographic characteristics. Finally, we examined whether group membership was associated with other behavioral health problems (e.g., depression, traumatic distress, substance abuse).
Methods: The data were collected as part of a behavioral health screening (BHS), implemented in an urban pediatric ED in eastern Pennsylvania. 3,523 youth (ages 14 to 24) completed the BHS, which is comprised of 7 modules: demographics, school, safety, substance use, depression, suicidality, and trauma/abuse. The BHS includes 10 items assessing past (has occurred in lifetime, but not in the past week) and current (has occurred in the past week)

suicidal ideation (thought, intent, and plan) and attempt behavior, as well as non-suicidal self-injury (NSSI).
Results: LCA distinguished 6 groups: Group 1 (n = 2470) had low probability of endorsing any suicidality; Group 2 (n = 161) had high probability of only endorsing NSSI; Group 3 (n = 434) had high probability of endorsing past ideation; Group 4 (n = 95) had high probability of endorsing current ideation; Group 5 (n = 260) had high probability of endorsing past ideation and behavior; Group 6 (n = 97) had high probability of endorsing current ideation and behavior. More females fell into the groups endorsing more severe suicidality, $X2\ (5) = 68.67$, $p < .05$. There were no differences for Whites vs. non-Whites, $X2\ (5) = 4.27$, $p <$ n.s. In general, Hispanics were more likely to fall into higher suicidality groups, $X2\ (5) = 14.41$, $p < .05$. The groups differed on depressive symptoms, $F\ (5, 3511) = 462.22$, $p < .001$; traumatic distress, $F\ (5, 3511) = 205.17$, $p < .001$; and substance abuse scores, $F\ (5, 3511) = 17.43$, $p < .001$. Mean scores across the symptom scales were higher in groups with more severe suicidality. However, Groups 4 and 6 did not differ on depression, Groups 4 and 5 did not differ on traumatic distress, and Group 2 did not differ from the other groups on substance abuse.
Discussion: The study identified distinct groups of pediatric ED patients who reported varying degrees of suicidality on a brief behavioral health screen. Depression scores differed across all groups; however, depression did not differentiate suicidal youth who reported a recent suicide attempt from those who did not. In addition, traumatic distress did not differentiate patients who reported a past suicide attempt from those who reported only current ideation. Lastly, amount of substance abuse symptoms did not differentiate youth who engage in NSSI from non-suicidal youth. Findings demonstrate the use of a brief behavioral health screener in an ED setting to identify youth at risk for suicide and self-harm behavior. The study also suggests that symptoms of depression, traumatic distress, and substance abuse are associated with higher risk of suicide and NSSI.

M28. SUICIDALITY AND DEPRESSION IN ADOLESCENTS TREATED WITH AFFECTIVE PSYCHOTHERAPY IN A RANDOMIZED CONTROLLED STUDY

Göran Högberg[1]
[1]BUP Child Guidance Stockholm

Background: Suicide is among the three most frequent causes of death in the 15-19 age group in Sweden and the figures do not decrease in spite of expanded treatment possibilities. There is thus a pressing need to develop new effective treatments. Over the last 15 years there has been a development of treatment of depressed and suicidal young people at child guidance BUP Stockholm with a combination of active treatment techniques [1]. Lately this has been developed further by applying findings from affective neuroscience into the construction of a manualized novel treatment [2].
Methods: The new treatment is called affective psychotherapy and is focused on the regulation of feelings. It has been shown that the problem with emotion regulation in depressed young people is that they have difficulties in keeping positive feeling and that is hard to let go of negative affect. With affective psychotherapy the regulation of emotional states is visualized in a mood map and regulation of feelings is practiced actively. Suicidality in young people is usually not a trait but rather a state. The suicidal state is characterized by intense feelings such as pain, despair, anger and grief. Such feelings are often part of a post-trauma reaction. The concept from affective neuroscience of memory re-consolidation is developed into a manualized treatment approach to change the emotional reactions to traumatic episodic memory. Affective psychotherapy is being tested in a randomized controlled study (RCT) with depressed and suicidal youth in Stockholm.

Results: The results from the RCT show a significant decrease in depression scores (mood and feelings questionnaire, short version) in the affective psychotherapy treatment group in comparison with the treatment-as-usual group. Suicidal events defined according to the Columbia suicide severity rating scale ceased in the participants treated with affective psychotherapy but not in the treatment-as-usual group.
Discussion: Psychotherapy based on mood regulation and memory re-consolidation with depressed suicidal young people is promising. Such direction in psychotherapy merits further research as there is a need for new effective treatments to decrease suicidality in adolescents.
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M29. LIFE IS PRECIOUS: A MIXED METHODS EVALUATION OF A COMMUNITY-BASED PROGRAM TO REDUCE SUICIDAL BEHAVIOR IN LATINA ADOLESCENTS

Jennifer Humenskey[1]
[1]Columbia University Medical Center/ New York State Psychiatric Institute

Background: Latina adolescents have higher rates of suicidal behavior than their non-Latina black and white peers. Risk factors identified include poverty, disadvantaged neighborhoods, poor school quality, high rates of substance abuse and teenage pregnancy, and self-esteem and body image issues. In addition, studies have identified unique risk factors facing Latina adolescents, including conflicts between the westernized American culture and the more traditional family expectations of their culture of origin. Life is Precious (LIP), a community-based program operating in the Bronx and Brooklyn, was developed to address the unique risk factors affecting Latinas. The program operates after school and on Saturdays, and offers a variety of services, including family counseling, wellness, creative expression, school support, and self-esteem promotion. All participants are Latina adolescents who have been identified as at-risk for suicidal behavior. About one in three have repeated a grade in school and one in four report a history of sexual abuse. In 2011, LIP partnered with the New York State Center of Excellence for Cultural Competence to evaluate the program.
Methods: A mixed method, quantitative and qualitative, evaluation is being conducted. Longitudinal data collection procedures have been established. Demographic data is collected at program intake, and assessments of suicidal ideation, depression, posttraumatic symptomatology, and family functioning are conducted every four months. Data are analyzed for 106 participants, with an average of 2 longitudinal assessments per person, and cover the time period from program inception in 2008 to June 2014. Changes in psychosocial functioning over duration of program participation are analyzed by repeated measure random effects models which account for clustering by program site. In addition, focus groups have been conducted with participants and with their mothers, to learn about their motivations for choosing LIP, whether they find the activities beneficial, and whether they feel that the program has helped them to address suicidal behavior. A total of four focus groups were conducted with 39 respondents (31 participants and 8 mothers) from December 2013-August 2014.

Results: Despite the high-risk population served by LIP, there have been no completed suicides among program participants to date. Furthermore, we find that suicidal ideation, as measured by the Suicidal Ideation Questionnaire (SIQ), decreases by an average of one point per five months of enrollment (-.19 points (SE 0.10), p=0.05). Additionally, we find larger decreases in SIQ score for girls who reported a history of sexual abuse or current tobacco or alcohol use at the time of program entry. For girls who reported a history of sexual abuse, SIQ decreases by nearly half a point per month of enrollment (0.4 points (SE 0.08), p<0.01). For those with tobacco use, SIQ decreases an average of nearly 1 ½ points per month (1.43 points (SE 0.51), p<0.01). For those with alcohol use, SIQ decreases by over two points per month (2.16 points (SE 0.51), p<0.01). Depressive symptoms are also shown to decrease, as measured on the RADS2 scale (0.23 points (SE 0.02) p<0.01) and TSCC scale (0.1 points, (SE 0.03) p<0.01). No significant changes in family cohesion were found. Focus group participants indicated the value of the Latina community at LIP, the staff as role models, family therapy and liaisons with school officials as particularly beneficial.
Discussion: The preliminary results of this evaluation show that suicidal ideation and depressive symptoms decrease over the duration of program participation. Participants with a history of sexual abuse or tobacco or alcohol use experience greater decreases in suicidal ideation. Although effect sizes are small, they are statistically significant. Published literature reviews of suicide prevention programs have found small effects on suicidal ideation, so finding a significant effect is a striking finding. Although we do not find significant results in the family cohesion scales, it may be difficult for adolescent-focused community-based programs to significantly alter family dynamics.
Some notable limitations to this study are the lack of a control group and the lack of data prior to or after program participation. We are currently fielding a survey of past participants; to date, we know of no completed suicides among past participants. The program operates in urban areas and has not been tested in more rural settings.

This evaluation demonstrates the promise of a community-based program to address the unique risk factors contributing to suicidal behavior among Latina adolescents.

M30. SUICIDE AMONG MEN GAMBLERS: IS BURDEN OF ADVERSITY THE SAME DURING LIFE COURSE BETWEEN LIVING CONTROLS AND SUICIDE VICTIMS?

Mélina Andronicos[1,2], Guy Beauchamp[3], Mélanie DiMambro[4], Marie Robert[3], Jacques Besson[5], Monique Séguin[6]

[1]CHUV, [2]Center of Excessive Gambling - Community Psychiatry Service, University Hospital Centre, Lausanne, Switzerland, [3]Department of Psychology, Université du Québec en Outaouais, Gatineau, Canada, [4]McGill Group for Suicide Studies, Douglas Mental Health University Institute, Montréal, Canada, [5]Community Psychiatry Service, University Hospital Centre, Lausanne, Switzerland, [6]McGill Group for Suicide Studies, Douglas Mental Health University Institute, Montréal, Canada. Department of Psychology, Université du Québec en Outaouais, Gatineau, Canada

Background: Over the last decades research has confirmed the impact of pathological gambling on financial, legal, professional, family and mental health difficulties such as anxiety, depression, dependence disorders and suicidal behaviours. For example, the risk of suicide attempt in pathological gamblers is 3.4 times higher than in the general population. But, until now, only few researchers have explored the link between pathological gambling and suicidal

behaviour and even less have investigated the link between gambling and suicide completion. The objective of this research among men gamblers is to investigate life course dissimilarities between living participants and suicide victims.

Methods: Our sample includes 90 cases of adult men, which 49 died by suicide and 41 living controls, who met the threshold criteria for at-risk or problem gambling over the last five years. Data were obtained from informants during semi-structured face-to-face interviews, using SCID I and II, SOGS, Module K and a recount of life trajectories methodology.

Results: The results showed a high level of adversity throughout the life trajectories in both groups.

Living gamblers have faced more difficulties during their lifespan than the suicide victims. However, in the last six months before the death, suicide victims, compared to living controls had a significant higher load of mental health disorders especially co-morbid mental health disorders and anxiety.

Discussion: Our results suggest an important load of adversity in both groups, and a rapid escalation of difficulties and psychological distress in the last months of their lives among the suicide decedents.

Suicidal behaviour needs to be carefully investigated by caregivers especially when gamblers present mental health disorders or financial difficulties.

M31. SELF-RATED EXPECTATIONS OF SUICIDAL BEHAVIOR PREDICT FUTURE SUICIDE ATTEMPTS AMONG ADOLESCENT AND YOUNG ADULT PSYCHIATRIC EMERGENCY PATIENTS

Ewa Czyz[1], Adam Horwitz[1], Cheryl King[1]

[1]University of Michigan

Background: Despite progress in this area, continued focus on effective and practical suicide risk screening approaches is greatly needed; this need is particularly salient in Emergency Departments (EDs) where the potential to serve at-risk individuals is high while resources are scarce. The goals of this study included to: (1) examine the predictive validity and utility (i.e. sensitivity and specificity) of a screening strategy that involves directly asking youths who present for psychiatric emergency (PE) services to self-rate their future risk of suicidal behavior. The outcomes include suicide attempts and return PE visits up to 18 months later. We also (2) examined if these youths' own perspectives of risk can improve upon a clinician-administered suicide risk assessment instrument—Columbia Suicide Severity Rating Scale (C-SSRS)—in predicting attempts and return visits. This study will provide information about the extent to which youths who are in a psychiatric crisis are able to provide meaningful predictions of their own risk and if patients' own risk perception can be used by clinicians conducting risk assessments.

Methods: Participants were 340 adolescents and young adults (ages 13-24; M= 17.58, SD = 3.27; 63% were 18 and younger) seeking services from a university hospital's psychiatric emergency (PE) department in the Midwestern region of the United States. Following Institutional Review Board approval, medical chart records were retrieved via an electronic record database. All unique visits between November 15th 2012 and June 30th 2013 were considered as baseline visits. Subsequent visits to PE and suicide attempts were tracked for up to 18 months later. The sample included 142 (41.8%) males and 198 (58.2%) females. The racial composition of the sample was primarily White (66.0%) and Black (19.7%). Primary measures included: (1) the Self-Assessed Expectations of Suicide Risk Scale, which was used

routinely at the study site and has three questions assessing patients' own perception of their future risk of suicidal behavior and (2) the Columbia Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011), a 20-item clinician-administered instrument, also used routinely at the study site, assessing different constructs of suicidality including the severity of ideation, which was used in this study.

Results: Thirty-six percent of youths attempted suicide at least once prior to baseline PE visit and 63% endorsed at least some suicidal ideation at the time of the visit. Common psychiatric diagnoses included depressive (38.8%) and mood (39.1%) disorders. At follow-up, 39 (11.5%) participants attempted suicide at least once and 114 (33.5%) returned to the PE, with 74 (65%) of these visits being suicide-risk related. The results of a Cox regression showed that self-assessed expectations were independently associated with increased risk of future suicide attempts and return PE visits for suicide-related concerns, over and above previous attempt history, sex, and severity of ideation. The area under the curve (AUC) of the receiver-operating characteristic (ROC) analyses indicated that self-assessed expectations yielded moderate to good predictive accuracy (AUCs ranged 0.73-0.80). The significant difference between AUCs for clinician-administered ideation severity (CSSRS) alone (AUC=0.74) and in combination with self-assessed expectations (AUC=0.80) indicates that self-assessed expectations improved the predictive accuracy of CSSRS (p= p=0.02).

Discussion: Participants' ratings of their own future risk of suicidal behavior were uniquely associated with a faster rate of suicide attempts and return visits for suicide-risk related concerns (i.e. suicidal ideation, suicide attempts) during the follow-up, even after taking into account participants' sex, history of previous suicide attempts, and severity of suicidal ideation at the baseline visit. Specifically, total ratings indicative of lower confidence in maintaining safety from suicidal behavior were the only significant predictor of suicide attempts and return visits, pointing to benefit of considering youths' perspective in risk formulation. Moreover, youths' self-rated expectations provided incremental validity in predicting suicide attempts and return visits over and above clinician-administered assessment of suicidal ideation severity (CSSRS) and significantly improved its accuracy, suggesting their potential for augmenting suicide risk formulation. This naturalistic study provides initial evidence that youth presenting for PE services are able to provide meaningful predictions of their own risk of future suicidal behavior, which, in turn, augmented suicide risk formulation.

M32. CHILD SEXUAL ABUSE AND IMPULSIVITY ARE INDEPENDENTLY ASSOCIATED TO AN INCREASE NUMBER OF SUICIDE ATTEMPTS AMONG FEMALE PATIENTS

Federico Daray[1], Germán Teti,[2], Sasha Rojas[3], Ana Bridges[3], Christal Badour[4], Leandro Grendas[5], Demián Rodante[5], Agustina Fógola[5], Federico Rebok[6]

[1]University of Buenos Aires, [2]Dr. Braulio A. Moyano" Neuropsychiatric Hospital, Ciudad de Buenos Aires. Argentina, [3]University of Arkansas, [4]National Crime Victims Research and Treatment Center Department of Psychiatry and Behavioral Sciences Medical University of South Carolina, [5]Departamento de Farmacología. Facultad de Medicina. Universidad de Buenos Aires, Argentina, [6]Dr. Braulio A. Moyano" Neuropsychiatric Hospital, Ciudad de Buenos Aires. Argentina.

Background: Evidence suggests a link between child sexual abuse (CSA) and elevated risk for suicidal behavior. CSA may lead to disruptions in cognitive and emotional functioning, which may increase suicide risk. Executive functions are specifically implicated, as they relate to impulse control. Impulse control is an executive function that typically develops well into

adolescence and adverse events occurring at any point in childhood could have a negative impact. The current study examined the degree to which impulsivity mediated the relation between childhood sexual abuse and history of multiple suicide attempts in adult female patients.
Methods: As part of a larger study, after hospital admission for recent suicidal behavior, patients provided written consent and completed a structured interview administered by psychiatric research personnel and a series of self-report questionnaires. CSA and number of previous suicide attempts were assessed by structured-interview, while impulsivity was assessed with the Barratt Impulsiveness Scale (BIS-11). A model of structural equations was employed to evaluate if impulsivity mediates the effect between CSA and suicide attempts, controlling for age
Results: A total of 177 patients were included. CSA (β =0.18, $p < 0.05$) and impulsivity (β = 0.24, $p < 0.05$) were associated with the number of previous suicide attempts. However, impulsivity was not significantly associated with CSA ($\beta = 0.09$, $p > 0.05$).
Discussion: CSA and impulsivity are independently associated with suicide attempts.

M33. A GLOBAL BURDEN OF SUICIDE: SUICIDE PHENOTYPES AMONG GUYANESE ORPHANS

Ellen-ge Denton[1,2], Jazmin Mogavero[3], Nicolina Bolognese[1]

[1]City University of New York, College of Staten Island, [2]College of Staten Island, City University of New York, [3]St. John's University

Background: Suicide is the leading cause of death among adolescents in Guyana, a low- and middle-income country (LMIC), which ranks fourth in suicides per capita worldwide and first in South America and the Caribbean. The goal of the proposed project is to identify suicide phenotypes among Guyanese orphans, an at risk and limited resource sample population, to disentangle the effects of the risk factors to suicide and identify suicide phenotypes. In Guyana, 11% of adolescents live in orphanages and such irreversible trauma increases their risk of suicide. Grounded in a stress-diathesis model, orphan trauma vulnerability may interact with behavioral and clinical factors that create conditions for suicidal gestures.
Methods: In a pilot sample of 26 Guyanese youth, ages 8-21, recruited from four different orphanages, we administered behavioral and clinical assessment tools. To assess levels of suicide, age appropriate youth were given the self-report DSM-5 cross cutting symptom measure. Suicide phenotypes were measured using item analyses of the Behavior Assessment System for Children, Second Edition (BASC-2).
Results: Our data show that 30.7% of Guyanese orphans report suicidal ideation/non-fatal suicide attempts. Employing exploratory factor analysis and item response analysis, we derived a latent 3 factor phenotype structure using a subset of the items from the BASC-2.
Discussion: These data add to our identification of specific suicide phenotypes and subsequent suicide intervention approaches among limited resource populations.

M34. BELONGINGNESS AND SUICIDAL IDEATION AMONG HISPANIC/LATINO INDIVIDUALS

Christopher Hagan[1], Thomas E. Joiner[1]

[1]Florida State University

Background: The interpersonal theory of suicide states that thwarted belongingness, a perception of social isolation and lack of social connectedness, is an important factor related to the experience of suicidal ideation. A strong familial connection, characteristic of Hispanic/Latino culture, is associated with lower levels of thwarted belongingness. In this study, thwarted belongingness and ethnicity were used to predict lifetime levels of suicidal ideation among Hispanic/Latino and non-Hispanic white undergraduate college students. Based on previous research and their typically high value placed on family, Hispanics were predicted to experience lower levels of suicidal ideation and thwarted belongingness. Thwarted belongingness as well as Hispanic ethnicity were hypothesized to significantly predict suicidal ideation. Additionally, Hispanic status was hypothesized to moderate the role of thwarted belongingness such that Hispanics who reported high levels of thwarted belongingness would experience the highest levels of suicidal ideation.
Methods: Undergraduate college students, of whom 22% were Hispanic/Latino and 78% were non-Hispanic white (N = 170), completed self-reported measures.
Results: Thwarted belongingness, but not ethnicity, significantly predicted intensity of lifetime suicidal ideation. Hispanic/Latino status did not have an effect on suicidal ideation and was not a moderator of the effect of thwarted belongingness.
Discussion: These findings highlight thwarted belongingness as a key factor for assessing suicidal ideation in college students.

M35. BORDERLINE PERSONALITY DISORDER FEATURES, EMOTION REGULATION, AND NONSUICIDAL SELF-INJURY IN ADOLESCENT INPATIENTS

Claire Hatkevich[1], Andrea Fossati[2], Carla Sharp[3]

[1]University of Houston, UT Health Harris County Psychiatric Center (HCPC), [2]Università di Roma Lumsa, [3]University of Houston

Background: Nonsuicidal self-injury (NSSI), defined as purposeful self-harm without intent to die (Nock, 2009), is a prevalent, impairing phenomena in adolescence. Borderline Personality Disorder (BPD), characterized by affective instability, behavioral impulsivity, and persistent interpersonal deficits, has been found to be highly predictive of NSSI in adolescence (You et al., 2012). Emotion regulation (ER), or the means by which we manage and modify affect, is a core feature of BPD (Glenn & Klonsky, 2009) and NSSI (Adrian et al., 2011). Linking these constructs, theoretical work by Selby and Joiner (2009) posits that BPD individuals experience "emotional cascades" (i.e., ER involving both emotional intensity and rumination) resulting in subsequent behavior dysregulation (e.g., NSSI). Despite this model, empirical work has yet to examine the extent to which ER difficulties mediate the relation between BPD symptomatology and NSSI behavior in adolescent inpatients, where self-harm remains quite severe. Against this background, the aim of the current study is twofold: 1) investigate a mediation model between BPD, ER, and NSSI, and 2) examine this relation across cross-informant BPD data (child-reported, parent-reported, clinician-rated).
Methods: The sample included 387 adolescent inpatients from a private, psychiatric facility (Mean age=15.38, SD=1.43; 63% female; 81% Caucasian). Three measures of BPD were used: a clinician-based, continuous rating of BPD symptomatology (Childhood Interview for DSM-IV Borderline Personality Disorder, CIBPD; Zanarini, 2003), a child-based, continuous self-report rating (Borderline Personality Features Scale for Children, BPFS-C; Crick, Murray-Close, & Woods, 2005), and a parent-report continuous rating (parent version of the BPFS-C; BPFS-P). ER was assessed with a self-report continuous rating measure (Difficulties in

Emotion Regulation Scale, DERS; Gratz & Roemer, 2004). NSSI was captured with a continuous self-report rating measure (Deliberate Self-Harm Inventory, DSHI; Gratz, 2001).
Results: Bivariate analyses revealed significant correlations between two measures of BPD (BPFS-C, CIBPD) and all other main study variables: DERS, DSHI. Parent-reported BPD (BPFS-P) was only significantly correlated with the DSHI, but not DERS. Gender was significantly correlated with all main study variables, warranting inclusion as a covariate in subsequent mediation analyses. Using Hayes (2012) Process command, three mediation models were tested. Indirect effect findings indicated that DERS significantly mediated the relation between the BPFS-C and DSHI (CI: .015-.050), CIBPD and DSHI (CI: .037-.122), but not BPFS-P and DSHI (CI: -.004-.012). In the BPFS-P model, there were insignificant direct effects between BPFS-P and DERS (p=.446), and BPFS-P and DERS (p=.171).
Discussion: This study is the first multiple-informant study of the mediating effect of ER difficulties on the relation between BPD and NSSI in adolescent inpatients. According to child and clinician rated data, findings consistently revealed that BPD is cross-sectionally linked to NSSI through ER difficulties. This yields direct support for the emotional cascade model proposed by Selby and Joiner (2009), suggesting that adolescent BPD is linked to behavioral dysregulation (NSSI) through ER difficulties. In contrast, parent-reported data yielded insignificant mediation and direct effects. One potential explanation is that teens generally try to hide NSSI from their parents (Baetans et al., 2014), and parents may also lack insight about their teens' NSSI and ER difficulties.

M36. NO WAY OUT: ENTRAPMENT AS A MODERATOR OF SUICIDE IDEATION AMONG SOLDIERS

Yossi Levi-Belz[1], Leah Shelef[2], Eyal Fruchter[2]

[1]Ruppin Acedemic Center, [2]Medical Corps

Background: Suicide is a leading and growing cause of death in the military during peacetime. The aim of this study was to examine the psychological mechanisms relating to entrapment, stress, and psychological protective factors that facilitate suicide ideation among soldiers.
Methods: One hundred sixty-eight soldiers (aged 18-21) comprised three groups: suicide attempters (n=58), those receiving treatment by a mental health professional, reporting no suicidal behavior (n=58), and controls (n=50).
Results: In general, the suicidal group scored than the two other groups on stress levels and entrapment while lower the other two groups in problem-solving abilities and social support. Moreover, the interaction of stress and entrapment predict suicide ideation beyond stress, protective factors, and entrapment alone.
Discussion: Entrapment is an important predictor of suicide ideation and can serve as a moderator, in that its presence may exacerbate the harsh situation of subjective stress within the army context and augment it into a suicide risk.

M37. A NEW TOOL TO BEHAVIORALLY ASSESS FEARLESSNESS: THE SELF-DIRECTED VIOLENCE PICTURE SYSTEM (SDVPS)

Sarra Nazem[1], Lisa Brenner[1]

[1]Rocky Mountain MIRECC, Denver VAMC

Background: A better understanding of why individuals die by suicide is critical to intervention and prevention efforts. One underlying mechanism theorized to contribute to suicide risk involves the acquired capability to inflict lethal self-injury. Although the construct of fearlessness as a component of acquired capability has received theoretical and conceptual support, most studies have relied on self-report methodology to study the construct. Behavioral measurements of fearlessness are necessary as they might improve the accuracy of suicide risk assessment tools as they do not rely on self-report. Study objectives included developing and establishing normative data on a new set of suicide-specific stimuli (SDVPS) to be used by researchers to assess fearlessness about death and dying.
Methods: Creation of the SDVPS involved the following: extensive internet-based search to identify suicide images; dissemination of images to suicide research experts to ascertain important themes; identification of local photographer with relevant suicide campaign experience; collaboration between PI and photographer to establish content/theme of each image. The final set of SDVPS included images portraying various methods of death by suicide. The SDVPS images were combined with images from iStock and the International Affective Picture System (IAPS).
Results: In addition to featuring the SDVPS images that have been validated in a Veteran population, preliminary information on SDVPS stimuli ratings (valence/arousal) will be provided. These ratings will be compared to ratings obtained from IAPS stimuli. Additionally, preliminary data on the relation between SDVPS stimuli ratings and other suicide risk assessment instruments will be featured.
Discussion: The creation and validation of the SDVPS provides a new tool by which researchers can begin to gather additional empirical evidence on the construct of fearlessness. Research implications will be discussed, with focus on the conceptualization of acquired capability and future behavioral paradigms to assess the construct. Information gathered from this study will further inform the theoretical and conceptual development of fearlessness as a risk factor for suicide. Furthermore, the study will contribute to the suicide literature by providing new empirical research on a possible objective measurement of suicide risk; these findings (and the SDVPS product) will be integral in the establishment of subsequent experimental paradigms.

M38. EXPLORING THE RELATIONSHIP BETWEEN COPING, EXPERIENTIAL AVOIDANCE AND THE RECENCY AND FREQUENCY OF SELF-HARM

Emma Nielsen[1], Kapil Sayal[2], Ellen Townsend[1]

[1]University of Nottingham, [2]University of Nottingham

Background: In the broadest sense, the term experiential avoidance (EA) encompasses all forms of escape behaviour that are utilised as methods to alter the form, intensity and/or function of an experience. Experiential avoidance has been outlined as a central component in the development of increased perceived stress due to its relationship with coping dynamics; EA demonstrates a propensity to engender coping responses that diminish resources, reducing an individual's capacity to navigate the nuances of day-to-day tasks.
The Experiential Avoidance Model (EAM: Chapman, Gratz & Brown, 2006) proposes that (non-suicidal) self-harm is principally a manifestation of experiential avoidance; a coping response used to modulate unwanted or intolerable aversive internal states.

The current study aimed to test the EAM in a community sample, exploring the relationship between coping functions, EA and 1) lifetime self-harm status (self-harm v. no self-harm), 2) self-harm recency and 3) self-harm frequency. The study sought to test whether the EAM is only applicable to non-suicidal self-harm, or whether it applies equally across self-harm, regardless of suicidal intent (e.g. including enactment of mixed intent, suicidal intent, ambivalence).

Methods: One thousand, three hundred and thirty two adult participants took part in the cross-sectional, community-based survey. Participants varied in age between 16 and 69 years (Mean: 19.57, ±6.22). The majority of the sample was female (75.2%). Participants completed a battery of online, self-report measures assessing self-harm, momentary affect, experiential avoidance and coping in response to stressors. Six hundred and seventy participants (50.3%) completed an absence of intent condition (non-suicidal self-harm), with 662 (49.7%) answering in regards to self-harm, regardless of the presence or absence suicidal intent. Over forty percent (41.7%) of participants were based in North America, .3% South America, .8% Asia, 6.3% Australasia, .1% Africa and 50.8% Europe.

Results: Those with a history of self-harm reported significantly higher levels of experiential avoidance and lower levels of approach and reappraisal coping. No differences were observed between the absence of intent and regardless of intent conditions on any measures. Lower levels of approach and reappraisal coping and higher endorsement of experiential avoidance were also associated with more recent self-harm. However, neither emotional avoidance nor coping dynamics predicted recency of behaviour engagement. Lifetime frequency of self-harm was not correlated with coping or experiential avoidance. All analyses adjusted for age and negative affect.

Discussion: Results indicate that the Experiential Avoidance Model has theoretical utility in non-clinical samples, demonstrating equal applicability to self-harm regardless of suicidal intent and self-harm enacted in the absence of suicidal intent. Coping responses may be an important psychological factor when considering the dynamics underpinning self-harmful behaviour engagement. Further insight into coping which an individual believes will 1) allow them to deal directly with a stressor, 2) allow them to reinterpret or construct the problem, or 3) permit the avoidance of distress, may be particularly important.

M39. RACIAL/ETHNIC DISCRIMINATION AND RISK FOR SUICIDAL BEHAVIOR: THE MEDIATING ROLES OF POSTTRAUMATIC STRESS AND RUMINATION VARY ACROSS RACE/ETHNICITY

Lillian Polanco-Roman[1], Regina Miranda[1], Elizabeth Jeglic[1]

[1]City University of New York

Background: Following adolescence, emerging adulthood is a particularly vulnerable period for suicidal behavior (Kessler et al., 2005), and research has demonstrated that racial and ethnic minority emerging adults are more likely to attempt suicide than their White counterparts (Gutierrez et al., 2001; Polanco-Roman et al., 2014). There is evidence that racial/ethnic discrimination may increase risk for suicidal ideation and attempts (Gomez, Miranda & Polanco, 2011; Polanco-Roman & Miranda, 2013), but the mechanisms involved remain understudied. Some individuals may process racial/ethnic discrimination as a traumatic experience, as it may elicit similar responses, such as hyperarousal, avoidance, and emotional distress (Bryant-Davis & Ocampo, 2005; Carter, 2007). Considering that traumatic experiences (Stein et al., 2010) and rumination (Morrison & O'Connor, 2008) have been identified as risk

factors for suicidal behavior, the present study examined whether posttraumatic stress and rumination help to explain the relation between racial/ethnic discrimination and risk for suicidal behavior.

Methods: A sample of 1290 emerging adults, ranging in age 18-29 years (M=19.87; SD=2.25), was recruited from a public university in New York City. The sample was predominantly female (71%), born in the U.S. (76%) and racially and ethnically diverse, with 46% Hispanic/Latino, 20% non-Hispanic White, 18% non-Hispanic Black, 12% Asian, and 4% identifying as other race or ethnicity. Participants completed a battery of self-report surveys including the Suicidal Behaviors Questionnaire-Revised (SBQ-R; Linehan & Nielsen, 1981), which assessed risk for suicidal behavior; the Impact of Events Scale-Revised (IES-R; Weiss, 2007), which assessed posttraumatic stress; the Ruminative Responses Subscale of the Response Styles Questionnaire (RSQ; Nolen-Hoeksema et al., 1999), which assessed rumination, and the General Ethnic Discrimination Scale (Landrine et al., 2006), which assessed the frequency of racial/ethnic discriminatory experiences. Study procedures were IRB approved. Informed consent was obtained from each participant, who received credit toward fulfillment of a course requirement.

Results: Data were analyzed using multiple hierarchical linear regression models adjusting for age and gender. The mediation effect was tested following the guidelines of Preacher and Hayes (2008), and bootstrapping procedures to resample the distribution by 10,000 with 95% confidence intervals were employed using the SPSS computational tool PROCESS (Hayes, 2013). Analyses were stratified by race to explore racial/ethnic group difference in the relation. There was a significant direct effect of racial discrimination on risk for suicidal behavior among Black, Asian and Latino individuals, which was not evident among individuals who identify as non-Hispanic White or other race/ethnicity. This effect was fully mediated by posttraumatic stress among Black and Latino individuals. Meanwhile, rumination emerged as a significant mediator in the relation between racial discrimination and risk for suicidal behaviors among Asian individuals.

Discussion: The present findings suggest that racial discrimination may increase risk for suicidal behavior among Black, Asian, and Latino young adults, but not among White young adults. While posttraumatic stress fully accounted for the relation among Black and Latino individuals, rumination better accounted for the relation between racial discrimination and risk for suicidal behavior among Asian individuals. Thus, Black and Latino young adults may be more likely than White young adults to experience racial/ethnic discrimination as a trauma and develop posttraumatic stress in response, which may increase risk for suicidal behavior. Among Asian individuals, racial discrimination may yield ruminative thinking, which may increase risk for suicidal behavior. These findings may inform prevention and intervention targeted at reducing risk for suicidal behavior by probing about experiences of racial/ethnic discrimination and how they were processed. Thus, for those for whom these experiences were traumatic, it may prove helpful to explore more adaptive responses such as targeting ruminative thinking, particularly among racial/ethnic minority youth, for whom such experiences are common.

M40. FAMILY HISTORY OF SUICIDE, EXPOSURE TO INTERPERSONAL VIOLENCE IN CHILDHOOD AND INTERPERSONAL FUNCTIONING IN SUICIDE ATTEMPTERS

Mia Rajalin[1], Tatja Hirvikoski[2], Ellinor Salander-Renberg[3], Marie Åsberg[4], Jussi Jokinen[5]

[1]Umeå University, Umeå, [2]Department of Women's and Children's Health, Paediatric Neuropsychiatry Unit, Center of Neurodevelopmental Disorders at Karolinska Institutet (KIND), Karolinska Institutet, Stockholm, Sweden; Habilitation & Health, Stockholm County

Council, Stockholm, Sweden, [3]Department of Clinical Sciences, Umeå University, Umeå, Sweden, [4]Department of Clinical science, Karolinska Institutet, Stockholm, Sweden, [5]Department of Clinical Sciences, Umeå University, Umeå, Sweden and Department of Clinical neurosciences, Karolinska Institutet, Stockholm, Sweden

Background: Difficulties in interpersonal relationships are associated with a wide range of psychiatric diagnosis and interpersonal problems are also one of the main reasons people seek help within psychiatric care. The aim of the present study was to examine the relationship between family history of suicide, childhood adversity and interpersonal problems in suicide attempters. Further we wanted to describe specific patterns of interpersonal problems in this specific patient group.
Methods: A total of 181 suicide attempters were included. Family history of suicide was assessed with the Karolinska Suicide History Interview or in patient records. Childhood adversity was assessed with The Karolinska Interpersonal Scale of Violence (KIVS). The Inventory of Interpersonal problems (IIP) was used to assess type of interpersonal problems.
Results: Suicide attempters with high exposure to interpersonal violence in childhood reported interpersonal problems related to social avoidance, whereas suicide attempters with a positive family history of suicide had significantly more often an intrusive personal style. The results remained significant after adjustment for comorbidity with substance abuse and personality disorder.
Discussion: The specific interpersonal patterns related to early adversity and family history of suicide that appeared in suicide attempters in this study may interfere with their ability to create stable, long-lasting relationships. In regards of treatment of suicidal patients these personal qualities could cause difficulties in the alliance with health care personnel and make it harder for suicide attempters to accept treatment.

M41. CLASSIFICATION OF FACIAL EXPRESSIONS OF EMOTION IN CHILDREN WITH AND WITHOUT A HISTORY OF MATERNAL DEPRESSION AND SUICIDAL THINKING

Aliona Tsypes[1], Katie Burkhouse[2], Brandon Gibb[2]

[1]Binghamton University (SUNY), [2]Binghamton University (SUNY)

Background: Research demonstrates that maternal history of depression is associated with suicidal thinking in their offsprings (Hammerton et al., 2015; Klimes-Dougan et al., 1999), yet the mechanisms of this relation remain equivocal. The ability to correctly identify facial expressions of emotion might be one of these potential mechanisms. Indeed, being able to accurately infer what others are thinking and feeling based on social cues, such as facial expressions, is important for adaptive and context-appropriate self-regulation. Overall, although a large number of studies suggest that major depression is associated with a negative response bias in the interpretation of facial expressions of emotion, few studies have examined identification accuracy of facial expressions in individuals at familial risk for psychopathology, and these studies provide mixed results. Even less is known about potential emotion recognition impairments in children with and without a history of suicidal thinking who are at risk for internalizing problems by virtue of maternal depression history. The present study sought to address this gap in the literature.
Methods: Participants comprised three groups based on maternal history of a major depressive disorder (MDD) and a history of suicidal ideation (SI) in their children: Mom MDD/Child SI

(n = 35); Mom MDD/No Child SI (n = 76); and Controls (n = 91). The average age of the mothers at baseline in the present study was 40.40 years (SD = 6.92). The average age of the children at baseline was 10.90 years (SD = 1.93; 52.5% girls). The Structured Clinical Interview for DSM-IV Axis I Disorders and the Schedule for Affective Disorders and Schizophrenia for School-Age Children were used to assess for current DSM-IV Axis I disorders and suicidal ideation. The Morphed Faces Task with angry, happy, and sad facial expressions from a standardized stimulus set (Matsumoto & Ekman, 1988) was used to assess sensitivity to identifying emotional expressions in children. Stimuli for the task were created by morphing a neutral expression and an emotional expression. Responses were averaged across low (10-30%), medium (40-60%), and high (70-90%) morph levels for each emotion type. This allowed us to examine (i) sensitivity in detecting subtle signs of emotion (i.e., differences in the level of morph needed to correctly identify a given emotion) as well as (ii) misclassification errors (i.e., misclassifying faces as a different emotion).

Results: Analyses were conducted using a 3 (Group: Mom MDD/child SI; Mom MDD/no child SI; Controls) × 3 (Target Emotion: angry, happy, sad) × 3 (Endorsed emotion: angry, happy, sad) × 3 (Morph Level: low, medium, high) repeated measures ANOVA, with proportion of faces classified as each emotion type per level of morph serving as the dependent variable. In this analysis, we found significant main effects of Target Emotion, Endorsed Emotion, and Morph Level. We also found the following significant interactions: Target Emotion x Endorsed Emotion; Target Emotion x Morph Level; Endorsed Emotion x Morph Level; Target Emotion x Endorsed Emotion x Morph Level. Importantly, we also found a significant Target Emotion x Endorsed Emotion x Morph Level x Group interaction. To determine the form of this interaction, we conducted analyses separately for each of the three Target Emotions. Results indicated a significant Group × Endorsed Emotion x Morph Level interaction for angry and happy, but not for sad, faces. Additional analyses revealed that the children in the Mom MDD/child SI group were significantly more likely to misclassify angry facial expressions as sad at high levels of morph, compared to the Controls.

Discussion: Our findings suggest that although children with a history of maternal depression and suicidal thinking do not appear to exhibit biases in their sensitivity in detecting facial displays of emotion, the do exhibit misclassification errors. Specifically, they appear to incorrectly identify full-intensity angry emotions as sad. To our knowledge, this is the first study to investigate the recognition of emotional facial expressions in children with or without a history of suicidal thinking and maternal depression. These findings are, however, in line with some of the previous studies that focused on examining emotion recognition accuracy in depressed or at risk for depression children. For example, 9-11 year old children with higher levels of depression made a higher number of errors when detecting anger (Van Beek and Dubas, 2008). It is possible that difficulties in identifying angry facial expressions might signal avoidant emotion regulation strategies, which lead to less careful inspection of negative facial expressions and thus higher number of recognition errors that are biased towards labeling emotional stimuli as sad.

M42. HEALTH CARE RESOURCES, FAMILY SUPPORTS, AND LONG-TERM MENTAL HEALTH OUTCOMES FOR SUICIDAL ADOLESCENTS

Mary LeCloux[1], Peter Maramaldi[2], Kristie Thomas[2], Elizabeth Wharff[3]

[1]West Virginia University, [2]Simmons College, [3]Boston Children's Hospital

Background: Suicide is a significant public health problem in the U.S. Suicide is currently the third leading cause of death for all individuals ages 15-24 (CDC, 2012) and, in 2010, the

estimated cost of deaths from suicide was $44 billion (AFSP, 2015). Few studies have investigated the relationship between specific social and institutional resources and later suicide risk for suicidal youth. Using a theoretical framework that combines the Behavioral Model of Health Services Use (Andersen, 1995) and the Children's Network Episode Model (C-NEM) (Costello, Pescosolido, Angold, & Burns), this study investigated the relationship between three resources addressed under policy in the Patient Protection and Affordable Care Act (ACA) (2010) and depression and suicidality in a nationally representative sample of suicidal adolescents. This study examined whether type of insurance (public, private/other, or none), receipt of routine medical care, availability of school-based mental health treatment, and parental support during adolescence were related to levels of depression, suicidal ideation and suicide attempts during young adulthood. It was hypothesized that having routine medical care, school-based treatment, and higher levels of parental support w

Methods: Longitudinal bivariate and regression analyses were conducted using data from the National Longitudinal Study of Adolescent Health (Harris et al., 2009). The sample included only those respondents who reported "seriously considering suicide" during the first year of data collection. Primary predictors at Wave I included: type of insurance, receipt of a routine physical, availability of school-based counseling, and parental connection subscale scores. Demographic variables and two proxies for symptom severity at Wave I were entered as controls. Symptom severity was measured with scores from the Center for Epidemiological Studies Depression Scale (CES-D) and whether or not a suicide attempt had been made at Wave I. Outcome measures included scores on the CES-D, presence of suicidal ideation, and presence of a suicide attempt at Waves III and IV.

Results: Between 15-17% of this sample reported suicidal ideation during the later waves and approximately 4% reported attempts. Additionally, those respondents who had made a suicide attempt at Wave I were at significantly higher risk for suicide attempt at both of the later waves. Additionally, these respondents were more likely to report suicidal ideation at Wave IV, and had higher depression scores at Wave III. Having public insurance at Wave I was associated with significantly higher depression scores at Wave IV, even with demographic and symptom severity factors controlled. Higher levels of parental support at Wave I were associated with lower levels of depression at Waves III and IV, but with all predictors in the model, this relationship only remained significant at Wave IV. Having had a physical at Wave I was associated with a higher risk of suicide attempt at Wave III and the availability of school-based treatment during Wave I was not associated with any of the outcomes.

Discussion: Because suicidal adolescents continue to be at high risk for depression and suicidality as they enter adulthood, prevention and intervention strategies for this population are crucial. Youth who are publically insured may be at particular risk for later negative outcomes, and may benefit from specific outreach and intervention programs. More research is needed to examine the relationship between routine medical care and long-term outcomes for this population, as this was an unexpected result. Additionally, as the measure for school-based treatment was relatively broad, more research on the long-term efficacy of specific types of school-based treatment protocols for suicidal youth may be warranted.

M43. DETERMINATION OF AN APPROPRIATE DAYS-SUPPLY OF MEDICATIONS WITH THE POTENTIAL FOR MISUSE, DIVERGENCE, AND INTENTIONAL OVERDOSE DISPENSED IN COMMUNITY PHARMACY PRACTICE

Christine Leong[1], Silvia Alessi-Severini[1], Jitender Sareen[1], Murray W. Enns[1], James Bolton[1]

[1]University of Manitoba

Background: Means restriction is an evidence-based strategy in suicide prevention. Community pharmacists frequently encounter patients at risk of medication misuse, divergence, and intentional overdose. However, few studies have examined the perspective of pharmacists on the dispensing of select medications commonly associated with misuse, divergence, and overdose.
Methods: An online survey was disseminated by electronic mail to community pharmacists listed in the College of Manitoba Pharmacist pharmacy directory (n=377). The survey was open from July to September 2014 and three e-mail reminders were delivered. Descriptive statistics were used to describe demographic information of the pharmacist and practice setting, as well as the pharmacists' perceptions of an appropriate days-supply and frequency of dispensing of medications with the potential for misuse, divergence, and intentional overdose.
Results: A total of 82 community pharmacists responded to the survey. Most viewed a 30 days-supply as appropriate for a benzodiazepine for insomnia (78%) and anxiety (68%), an opioid for chronic pain (79%), and an antidepressant (52%), antipsychotic (61%), lithium (55%), and valproic acid for mood/anxiety disorder (52%). However, a 90 days-supply was not uncommonly considered appropriate for an antidepressant (43%), antipsychotic (33%), lithium (36%), and valproic acid (39%). The majority of respondents considered 3-4 days for a benzodiazepine, 1-2 days for an opioid, and 7 days for an antidepressant, antipsychotic, lithium, or valproic acid, as "too early" for a patient to request a refill prior to when their next prescription is due. Factors that were deemed very important in aiding pharmacist decisions on providing medications to at-risk patients include pharmacist's familiarity with the patient (79%), ease of access to the patient's medical history information (63%), and ease of access to the prescribing physician (49%). Only 10% and 19% felt they were confident in their ability to identify and intervene, respectively, on a patient at risk for self-harm or suicide.
Discussion: Respondents of this survey have described an appropriate days-supply and frequency of dispensing of select medications from the perspective of the community pharmacist. However, many expressed a need for improved systems for identifying and managing patients who may be at risk for medication misuse, divergence, and overdose. Previous studies have demonstrated a reduction in overdose deaths when regulations were in place to limit the general access to methods that could result in intentional death. As such, the appropriate restriction of the quantity of medication dispensed may offer a potential strategy for reducing the risk of intentional overdose for at-risk patients. However, the balance between restricting supply in the interest of safety against the practicality, patient preference, cost, and feasibility of the patient to go to the pharmacy often represent a challenge for restricting medication supply. A collaborative approach between physician and pharmacist to define which patients may benefit from limiting the days-supply is necessary. Findings from this study will provide foundational information for the development of effective and feasible strategies for limiting the means of medication misuse, divergence, and overdose.

M44. PROPOSAL MODELLING TOOL FOR SUICIDE PREVENTION AND INTERVENTION IN FIVE CITIES IN COLOMBIA

Edgar Munoz[1], Gloria Macias[1], Maria Gutierrez[2], Juan Rivas[1], Francisco Bonilla[2], Daniel Tobon[2]

[1]Universidad del Valle, [2]Instituto Cisalva

Background: More than 800,000 people each year worldwide commit suicide, 75% of suicides are from low and middle-income countries according to World Health Organization. Colombia has a suicide rate of 4.2 per 100,000 and young among 20 - 24 years old are the most affected.

We aim to develop a strategy to reduce the risk of suicide based in two types of data sources. First, data from interventions supported by evidence-based medicine. Second, data from interventions already developed in each city according to the cultural context and community work. Our study was part of the government public health policies to reduce the rate of self - inflicted injuries and suicide. We were sponsored by the Colombian Ministry of Health and the Pan-American Health Organization

Methods: This is a qualitative study based in Stress Vulnerability and Ecologic Theoretical Models in order to develop a proposal model with different levels of intervention. The develop of the model was based in three main components: 1) Systematic Review of evidence-based medicine practices about the suicidal process and the chance of intervention; 2) Review of international and domestic interventions policies for suicide; 3) Focus groups and Interview with key informants about institutional initiatives on intervention, prevention and medical care in the suicide process that have been developed in the 5 cities of interest (Bogota, Medellin , Pereira, Pasto and Arauca)

Results: After the implementation of the three components, we have achieved a proposal of an integrative model for a therapeutic approach of the suicidal process, with the following categories:

1. Common Structures

a) PUBLIC POLICY ON SUICIDE AND PREVENTION

I. Reorientation of the public policy to include specific programs for suicidal behavior in each city.

II. Disclosure of existing policies and intervention programs for suicidal behavior.

b) SURVEILLANCE SYSTEMS

I. Registration of suicide attempt through the National Institute of Health

II. Unification of surveillance systems to collect information of suicidal behavior (National Institute of Legal Medicine and Forensic Science, Health Care System, case reporting outside the system).

III. Surveillance training program for medic and paramedic personnel (physicians, psychologists, social workers, nurses)

c) HEALTH CARE SYSTEM

I. Development and promotion of continuing education programs for the humanization of health services and upgrade the management of mental disorders and suicidal behavior.

II. Standardization of guidelines of management suicidal behavior, with defined routines and indicators to guide the health personnel in the care of the suicide attempt.

III. Increased

Discussion: An intervention model for suicidal process implies multiple variables in its development, so mental and public health professionals must consider the early stage identification of mental disorders and the behavior of the disorders at the population level. According to this, the use of stress and ecological vulnerability models allow to define different components in the work and structure by developing a summary matrix.

It is possible that the strategies listed in the final model have differential probabilities of development according to the technological and economic development of a specific area. This situation implies, that the final model it will be a flexible model, and each area/city can adapt it and make it viable in the experience gathered.

M45. DISORDERED EATING SYMPTOMATOLOGY AND RISK FOR SUICIDAL BEHAVIOR: THE ROLE OF EXPERIENTIAL AVOIDANCE

Sasha Rojas[1], Kayla Skinner[1], Jennifer Veilleux[1]

[1]University of Arkansas

Background: Individuals suffering from a wide range of eating disorders are at increased risk for suicidal behavior (Crow et al., 2009; Franko & Keel, 2006). However, independent to eating disorder diagnoses, the influential mechanisms involved in the relation between disordered eating symptomatology and suicidal behavior remains unclear. Experiential avoidance plays a significant role in eating disorders (Crow, Eisenber, & Neunmark-Sktainer, 2008), which may also serve as a poor maladaptive coping strategy associated with increased risk for suicidal behavior. The current study examined the potential role of experiential avoidance in the association between eating symptomatology and suicidal behavior.
Methods: Participants included 218 individuals (M = 32.33, SD = 9.57) who identified as predominately female (66.1%) and Caucasian (78.9%). Participants were identified from a larger study of 1128 U.S. adults. Suicidal behavior was assessed with the Suicide Behaviors Questionnaire-Revised (SBQR; Osman et al., 2001), eating symptomatology was assessed via the Eating Disorders Diagnostic Scale (EDDS; Stice et al., 2000), and facets of experiential avoidance was assessed with the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gamez et al., 2011). The University of Arkansas Institutional Review Board approved all study procedures. A parallel mediation model, conducted using PROCESS macro for SPSS (Hayes, 2013) was employed with eating disorder symptoms as the predictor, suicide behaviors as the outcome variable, and the six facets of experiential avoidance as the mediators.
Results: The model predicted 46 % of the variance in suicidal behavior [$F(7, 206) = 8.12$, $p < .001$]. Analyses of indirect effects revealed a total indirect effect of eating pathology on suicidal behavior via facets of experiential avoidance, (Total Indirect Effect = .03, Bootstrapped SE = .01, LLCI = .01, ULCI = .05). Only two of the specific indirect effects were significant (i.e., with confidence intervals that did not include zero): Distress Aversion (Indirect Effect = .02, Bootstrapped SE = .01, LLCI = .01, ULCI = .04) and Procrastination (Indirect Effect = .01, Bootstrapped SE = .005, LLCI = .001, ULCI = .02).
Discussion: Results suggest that experiential avoidance, in part, plays a role in the relation between eating pathology and suicidal behavior. Distress aversion and procrastination appeared to be the only mechanisms through which disordered eating predicted suicidal behavior. Taken together, distress aversion and delaying impeding distress may be important aspects of experiential avoidance to understand and target among individuals suffering from disordered eating symptomatology and evidencing risk for suicidal behavior.

M46. FRIENDSHIP, DEPRESSION AND SUICIDE ATTEMPTS: EXPLORATORY ANALYSIS OF A LONGITUDINAL FOLLOW-UP STUDY

Julia Marver[1,2], Hanga Galfalvy[2], Ainsley Burke[2], Elizabeth Sublette[2], Maria Oquendo[2], J. John Mann[2], Michael Grunebaum[2]

[1]New York State Psychiatric Institute, [2]Columbia University

Background: Deficient social adjustment and support are associated with depression, suicidal thoughts and behavior. Comparatively little suicide research has studied the more specific domain of friendship. Studies of friendship have assessed its effects on mental and physical health outcomes (Cohen and Wills, 1985; Umberson and Montez, 2010), but not on suicidal

behavior. This is particularly true of adult samples, an important demographic in that suicide rates among Americans ages 35-64 rose by 28 percent from 1999 to 2010, with the greatest increase among people in their 50s (CDC, 2013). Relevant studies have mostly been retrospective or cross-sectional in adolescent or geriatric samples. The goal of this exploratory study was to investigate the effects of friendship on risk of suicide attempt and related outcomes in a study of depressed adults who presented for treatment of a major depressive episode (MDE) and were followed longitudinally for up to one year. We hypothesized that participants reporting lower frequency and quality of contacts with friends would be at greater risk of suicide attempt during follow-up.

Methods: 132 adults with DSM-IV Major Depressive Disorder (MDD) were followed for up to one year after presenting for treatment of an MDE. Items from the baseline Social Adjustment Scale-Self Report (SAS-SR) assessing frequency and quality of recent friendship contacts were used to create a friendship score. Patients received follow-up research assessments at 3-months and 1-year. We used survival and other methods with unadjusted and adjusted models to explore the relationships of friendship with time after baseline to a first suicide attempt, time to recurrent MDE, and depression severity (Hamilton Depression Rating Scale (HAM17)); Beck Depression Inventory (BDI)) and suicidal thoughts (Scale for Suicidal Ideation (SSI)).

Results: In an unadjusted Cox model, more impaired friendship predicted greater risk of a suicide attempt (Wald $\chi 2=5.24$, df=1, p=0.022, HR=1.81, 95% CI=1.09-2.99), but not after adjusting for baseline subjective depression (BDI). In patients in remission for at least the first 3 weeks of follow-up (N=79), friendship did not predict recurrent MDE (Wald=2.19, df=1, p=0.138, OR=1.3, 95% CI=0.93-1.73). Friendship predicted suicidal ideation (yes/no) at 3-month follow-up (Wald=5.83, df=1, p=0.016, OR=1.73, 95% CI=1.11-2.71), but not after adjusting for baseline SSI and not at 1-year (unadjusted). Friendship predicted subjective depression (BDI) at 3 months (Coefficient=0.26, t=2.92, p=0.004, 95% CI=1.16-6.01) and 1 year (Coefficient=0.23, t=2.44, p=0.016, 95% CI=0.56-5.39), but not after adjusting for baseline BDI (p=0.245 and p=0.315, respectively). Friendship predicted clinician-rated (HAM17) depression severity at 3-month follow up (Coefficient=0.24, t=2.80, p=0.006 , 95% CI=0.60-3.50), even after adjusting for baseline severity (Coefficient=1.56, t=2.24, p=0.027, 95% CI=0.19-3.01). There was a trend toward friendship predicting clinician-rated depression at 1-year (Coefficient=1.45, t=1.88, p=0.062, 95% CI=-0.08-2.97).

Discussion: Impaired quality and quantity of friendships predicted greater risk of a suicide attempt during up to one year prospective follow-up of depressed adults in an unadjusted Cox model. However, the effect lost statistical significance after adjustment for baseline confounds, in particular subjective depression. Similarly, poorer friendship score predicted more severe subjective and clinician-rated depression at 3-month and 1-year follow-up and presence of suicidal ideation at 3-month follow-up, but these effects lost statistical significance after adjusting for baseline severity, except for HAM17 which was robust to adjustment. Thus, the effect of friendship deficits on suicide attempt risk seems to occur through the relationships of friendship with both depression severity and suicidal thoughts. Effective treatment of depression, particularly subjective symptoms, is an essential component of suicide prevention. Interventions to increase quality and frequency of friendship contacts in persons with deficits in these areas may reduce depressive symptoms and suicidal thoughts. Limitations include sample size, self-report scales, and lack of a validated friendship measure. Given recently increasing suicide rates among adults, further research is warranted, including the development of measures to assess friendship relations in this age group.

M47. DISCREPANCIES BETWEEN PARENT AND CHILD REPORTS OF DISTRESS AND SUICIDAL IDEATION AND MENTAL HEALTH CARE USAGE

Elise Paul[1]
[1]Cornell University

Background: Parents often serve as gatekeepers to mental health care services for their children, making parent recognition of internalizing symptoms and suicidal ideation crucial. Further, developmental theory and empirical research stress the importance of parent recognition of child affect for the organization and capacity to tolerate difficult emotions (Fonagy et al., 2003), a key process related to suicidality (Shneidman, 1996; Williams & Pollack, 2008).

Extant studies indicate that parents generally under-report their children's internalizing distress. There is some evidence to suggest that parent under-recognition of these symptoms is related to suicidal ideation (Bein, Petrik, Saunders, & Wojcik, 2014; van de Looij-Jansen et al., 2011).

Methods: The sample includes 1124 parent-child dyads who participated in the ages 8, 9, 10, 11, & 12 interviews of the Longitudinal Studies of Child Abuse and Neglect. Age 8 suicidal ideation, anxiety/depressive symptoms, and aggressive symptoms were assessed in children using the Trauma Symptom Checklist (Briere, 1996), and in parents using the Child Behavior Checklist (Achenbach, 1991). Discrepancy scores were created by subtracting parent from child scales. At the Age 12 interview, suicidal ideation and behavior data were collected from children using the Youth Self-Report Form (Achenbach, 1991). At each year between 9 and 12, parents were asked if their child had been hospitalized for psychological problems, and if so, how many times.

Results: At age 8, 7.7% (n = 104) of children and 3.1% (n = 42) of parents reported child suicidal ideation. Agreement between children and parents was poor (K = .13). There were no significant differences between child and parent reported anxious-depressive or aggressive symptoms. At age 12, 3.3% (n = 45) of youth reported suicidal ideation and 2.7% (n = 37) reported suicidal behavior. Between ages 9 and 12, 3.2% (n = 28) of youth had at least one psychiatric hospital admission. The mean number of psychiatric admissions was 1.86 (SD = 1.46) for those with at least one admission.

Parent-reported suicidal ideation, internalizing, and aggressive symptoms had stronger associations than child reports with subsequent mental health care usage. Further, parent under-recognition of internalizing distress and aggressive symptoms were associated with a reduced number of hospital admissions. Child, but not parent-reported, suicidal ideation and internalizing distress and parent under-recognition of internalizing distress were prospectively related to more severe suicidal ideation and suicidal behavior at age 12.

Discussion: Most parents were unaware of their 8-year old children's suicidal ideation, underscoring the importance of child assessments in clinical practice (Bein et al., 2014; Breton et al., 2002).

Parent under-recognition of children's internalizing distress may be useful in determining the course of suicidal thoughts and behaviors in early adolescence (Bein et al., 2014). Suicide prevention efforts should encourage parents to become more sensitive to their children's internalizing distress.

M48. INCIDENCE OF COMPLETED SUICIDE IN AN EPIDEMIOLOGICAL FIRST EPISODE PSYCHOSIS COHORT: EARLY RISK FACTORS AND COMPARISON TO SUICIDE ATTEMPTS

José M Pelayo-Terán[1,2], Yolanda Zapico-Merayo[3], Rosa Ayesa-Arriola[1], Elisa García Alcaraz[4], Begoña Vicente Hernández[5], Rocío Pérez-Iglesias[6], Javier David López Moríñigo[7], Benedicto Crespo-Facorro[8]

[1]University Hospital "Marqués de Valdecilla". University of Cantabria. CIBERSAM (Centro Investigación Biomédica en Red Salud Mental). Santander, Cantabria. Spain., [2]University Hospital "Marqués de Valdecilla". University of Cantabria. CIBERSAM (Centro Investigación Biomédica en Red Salud Mental). Santander, Cantabria. Spain. Hospital El Bierzo. SACYL. Ponferrada, León, [3]Hospital El Bierzo. SACYL. Ponferrada, León, [4]Department of Psychiatry, Elche General University Hospital, Alicante, Spain, [5]University Hospital "Marqués de Valdecilla". University of Cantabria. CIBERSAM (Centro Investigación Biomédica en Red Salud Mental). Santander, Cantabria. Spain, [6]University Hospital "Marqués de Valdecilla". University of Cantabria. CIBERSAM (Centro Investigación Biomédica en Red Salud Mental). Santander, Cantabria. Spain. Department of Psychosis Studies. Institute of Psychiatry, King's College London. London, UK, [7]Department of Psychosis Studies. Institute of Psychiatry, King's College London. London, UK, [8]University Hospital "Marqués de Valdecilla". University of Cantabria. CIBERSAM (Centro Investigación Biomédica en Red Salud Mental). Santander, Cantabria.

Background: The lifetime risk of suicide death following a first episode psychosis is estimated to be around 5%. This risk is particularly in the first year the first year of the initial contact with mental health services, when the suicide attempts are also highly common (2-25%). Both completed suicide and suicide attempts have been associated to different factors but still it is unknown if the risk is specific for completed or suicide attempt.
The aims of the current study were to investigate the incidence of completed suicide in an epidemiological first episode psychosis cohort along 3 year follow-up, the risk factors associated to these incidence and to compare the patients that mad a completed suicide with those with a suicide attempt

Methods: 397 naïve first episode patients (DSM-IV diagnosis: Schizophrenia, Schizophreniform disorder, schizoaffective disorder, brief psychotic disorder) referred to the Cantabria Programme for First Episode Patients (PAFIP) were included from 2001 to 2010 and followed up to three years. Suicidal behaviour was investigated prospectively over three years. Risk factors included premorbid and sociodemographic variables (gender, age at onset, duration of untreated psychosis, education, social status, drugs use), clinical baseline scores (SANS SAPS and Calgary Depression Scale for Schizophrenia). Kaplan-Meier survival curves were used to assess time to completed suicide. Factors were initially compared between completers, attempters and those who did not attempt with ANOVA and Chi square tests and then a logistic regression analysis was performed to predict completed suicide and to compare completers versus attempters entering the significant variables.
Results: 31 patients made a suicide attempt (7.81%) and 6 completed suicide over the period (1.51%). 6 Attempts were made in the first month and a total of 15 in the first year (48.39%). 2 completed suicides were made in the first month (33.33%), 2 in the second month (33.33%), 1 in the fourth (16.67%) and 1 in the second year (annual incidence: 1.26% in the first year, 0.25% in the second one). The most common method in completed suicide was jumping from height (50%) and self-poisoning in attempters (51.4%). The dropouts were only 48 (12.09%).

The only differences found were in clinical improvement (Completers: 33.33%; Non Attempters: 88.3%; Chi2: 11.627; p=0.001; Attempters: 83.9%; Chi2:4.500; p=0.034) and in Disorganized Score (C: 9.83; NA: 6.07; A: 5.61; F: 3.81; p=0.023) and a negative difference compared to attempters in depressive symptoms (Completers: 0.67; Attempters: 4.27; F11.909; p<0.001).The logistic regression for completed suicide (R2:0.258; χ2:15.125; p=0.001) included both disorganized symptoms (ExpB:1.290; p=0.021) and nonresponse (ExpB:13.812; p=0.003) as significant predictors. The model used to compare suicide and attempts (R2:0.258; χ2:15.125;p=0.001) also included disorganized score (p=0.035) and response (p=.044).
Discussion: Completed suicide is a fatal event that frequently occurs in very early phases of the psychotic illness. Whereas a number of predictor seem to predict suicide attempt, these factors appear to operate differentially in the specific risk for a complete suicide. Early intervention programmes and particularly efforts focused in early detect severe patients to avoid resistance and achieve clinical improvement may help to prevent and reduce suicide risk in psychotic illnesses.

M49. ACTIVE AND PASSIVE PROBLEM SOLVING IN THE RELATION BETWEEN DEPRESSIVE SYMPTOMS AND FUTURE SUICIDAL IDEATION

Victoria Quinones[1], Justyna Jurska[2], Eileen Fener[3], Regina Miranda[3]

[1]University of Maine, [2]Fordham University, [3]CUNY Hunter College

Background: Prior research suggests that a depressed mood, a passive style of problem solving, and a suicide attempt history increase risk for suicidal ideation and behavior (Lewinsohn, Rohde, & Seeley, 1994; Pollock & Williams, 2004). Research also shows that suicide attempters generate more passive and less active solutions to problems, when compared to inpatients with and without suicidal ideation (SI), suggesting that active problem solving is adaptive (Linehan, Camper, Chiles, Strosahl & Shearin, 1987). Furthermore, the ability to problem solve has been associated with decreases in SI over time, and improvements in problem solving have been associated with decreases in depressive symptomatology and suicidal intent (Khurana & Romer, 2012; Schotte et al., 1990). These findings may suggest that the way an individual solves problems may influence the relation between depression and suicidal thinking. The current study therefore examined whether active problem solving would decrease, whereas passive problem solving would increase, the prospective relation between depressive symptoms and SI among individuals with and without a history of suicide attempts.
Methods: A sample of 324 (73% female) emerging and young adults, ages 18-34 (M = 19, SD = 2.22), were recruited from a study examining cognitive risk for suicidal behavior. At baseline, participants with (n = 78) and without (n = 246) a history of suicide attempts completed the Beck Depression Inventory (Beck, Steer, & Brown, 1996), used to measure depressive symptoms, the Beck Hopelessness Scale (BHS; Beck & Steer, 1988), used to measure hopelessness, and the Beck Scale for Suicide Ideation (BSS; Beck & Steer, 1991), used to measure suicidal ideation. Social problem solving was measured using the Means-Ends Problem-Solving (MEPS; Platt et al., 1975) task administered approximately a month later. Participants were asked to describe how they would solve four interpersonal problems when presented with the beginning and ending for each scenario. Responses were then coded for active and passive means using an adapted coding scheme (see Lyubomirsky & Nolen-Hoeksema, 1995). SI was assessed again at a 6-month follow-up using the BSS.
Results: A multiple linear regression analysis examining predictors of future suicidal ideation found that only the three-way interaction among active problem-solving, depressive symptoms,

and suicide attempt history predicted suicidal ideation at 6-month follow-up, b =−0.06, SE = 0.02, partial r=−.19, p < .01, adjusting for baseline hopelessness and SI.
Tests of simple effects revealed that among non-attempters, there was no statistically significant relation between depressive symptoms and future SI at low, b=−0.02, p = .27, average, b=−0.02, p = .28, or high, b = −0.02, p = .49, levels of active problem-solving, after adjusting for baseline SI, hopelessness, and passive problem-solving. Among suicide attempters, there was a statistically significant relation between depressive symptoms and future SI at low, b = 0.20, p = .01, and average, b=0.12, p <.05, but not high, b = 0.04, p = .61, levels of active problem-solving, adjusting for baseline ideation, hopelessness, and passive problem-solving.

Discussion: High levels of active problem solving buffered against the relation between depressive symptoms and future SI among suicide attempters, whereas passive problem solving did not moderate the relation between depressive symptoms and future SI. This study extends our knowledge by showing that active problem solving is adaptive and may serve a protective role for future SI, especially among individuals with a suicide attempt history presenting with symptoms of depression. Intervention and prevention programs for suicidal behavior may utilize these findings to tailor therapies to people who are at a higher risk for suicidal thinking and behavior (i.e., depressed people who have a history of suicide attempts). Groups of people who are more vulnerable to suicidal thinking or behaviors may benefit more from problem-solving therapies in which they are taught how to generate active, constructive solutions to their interpersonal problems.

M50. PRISON SUICIDE: THEORISING ITS REGULATION

Philippa Tomczak[1]

[1]The University of Sheffield, England

Background: Suicides in English and Welsh prisons rose by 69% between April 2013 and 2014, despite recent strengthening of prison inspection, monitoring and regulation mechanisms. Such suicides form traumatic bereavements for prisoners' families and friends, affect fellow prisoners and custodial staff, and leave prisons open to legal challenges. Despite the importance of regulating closed penal institutions with coercive powers over detainees, there is a dearth of related scholarship. I seek to address this gap, providing a ground-breaking and timely analysis of the relationships between prison suicide and regulation, and developing regulatory theory to take into account privatisation and multiple penal regulators.
Methods: This study provides a ground-breaking theoretical insight into the complex relationships between prison suicide and regulation, and addresses a fundamental failing in the sociology of punishment: the lack of attention to regulation (Braithwaite, 2003). This timely analysis of an issue with social and human rights repercussions makes a substantive and original contribution to scholarship. The research aims to theorise the how, who and by whom of prison suicide regulation. The objectives are i) to consider how prison suicide is regulated, who is regulated and who regulates; and to develop regulatory theory: ii) to account for public and voluntary sector prison regulation and iii) to apply to the increasingly but unevenly privatised prison setting.
Results: My research theorises: whether privatisation and the service provider is important in the translation of regulatory measures; how heterogeneous regulatory activities (operating at both the macro- and micro-scales through various public and voluntary sector actors) can positively impact upon macro-level penal policy and the micro-level experience of

imprisonment; and why regulatory activities fail to bring about enduring reductions in prison suicide, more substantive penal reforms and greater challenges to the legitimacy of penal institutions and their practices. Drawing on the analysis of macro- and micro-level factors, and (un)successful penal reform translations, I then apply regulatory theory and the regulatory pyramids (Ayres and Braithwaite, 1992) to theorise public and voluntary sector prison regulation activities in relation to prison suicide. The regulatory pyramids originated in administrative regulation, so will be developed to theorise the heterogeneous regulation of the unevenly privatised prison estate.

Discussion: Recent years have seen prison inspection, monitoring and regulation mechanisms multiply, with the 2008 establishment of the Independent Advisory Panel and Ministerial Council on Deaths in Custody, the 2004 expansion of the Prisons and Probation Ombudsman to investigate prison deaths, and the 2003 formation of Prison Independent Monitoring Boards. Despite this expansion and the enduring lobbying activities of voluntary organisations, suicides in English and Welsh prisons are at a 9 year high. Literature considering prison regulation mechanisms is limited, but includes work by Ann Owers, Toby Seddon, Mary Seneviratne and Jon Vagg. Alison Liebling has studied the relationships between the
quality of prison life and prison suicide (2004) but has not considered how multiple penal regulators affect prison suicide, nor the recent context of increasing prison privatisation.

Prison suicides involve individual people in specific places, but are also affected by political and structural conditions, such as budget cuts reducing prison officer numbers. Analyses should therefore consider micro- and macro-scale contributing factors alongside the heterogeneous regulation thereof.

M51. SELF-POISONING SUICIDE DEATHS IN BIPOLAR DISORDER: CHARACTERISTICS AND COMPARISON OF SUBSTANCES INGESTED

Ayal Schaffer[1], Lauren Weinstock[2], Mark Sinyor[3], Catherine Reis[4], Benjamin Goldstein[5], Anthony Levitt[6]

[1]Sunnybrook Health Sciences Centre, University of Toronto, [2]Brown University, Providence, Rhode Island, United States, [3]Assistant Professor, Department of Psychiatry, University of Toronto, Toronto, Canada, [4]Department of Psychiatry, Sunnybrook Health Sciences Centre, Toronto, Canada, [5]Associate Professor, Departments of Psychiatry and Pharmacology, University of Toronto, Toronto, Canada, [6]Full Professor, Department of Psychiatry, University of Toronto

Background: Suicide is one of the top causes of death for people with bipolar disorder (BD). People with BD account for up to 10% of all suicide deaths. Methods of suicide death in BD vary across studies and countries, however self-poisoning deaths are consistently found to be the first or second most common method. Self-poisoning accounted for 24.9-29.8% of deaths in the three largest studies to report BD suicide methods, but there is a paucity of data describing this group within BD suicides. Furthermore, little is known about which substances are ingested in self-poisoning, and which of these specific substances were ultimately lethal. While there is some available data on recent prescription of medication prior to suicide death, there are no studies in BD that we are aware of that extensively report on the presence of specific classes of medications based on toxicology at the time of death, a more robust approach that ensures that the compound was in fact being ingested by the decedent. Examining methods of suicide is a key component of developing a suicide prevention strategy that incorporates means restriction for a specific group such those with BD.

Methods: As part of a larger study on all suicides in the City of Toronto - the Toronto Analysis of Suicide for Knowledge and Prevention (TASK-P) study, we examined coroner data from all suicide deaths pertaining to people with BD from 1998-2012 (n = 207) and collected data on sociodemographics, mental illness clinical variables, recent stressors, and details of suicide method. Any person with BD who died by self-poisoning, as a single or combination method of suicide, was included in the BD self-poisoning suicide group. All other BD suicide deaths were included in a non-self-poisoning suicide group. As a comparison group, we also included self-poisoning suicide deaths in people without BD. A detailed toxicology report was available for nearly all deaths by self-poisoning. We recorded the presence of all substances and whether they were determined by the pathologist to be lethal and/or present at time of death. These included psychotropic medications, non-psychotropic medications, over the counter medications, alcohol, illicit substances, and poisons. Comparisons of the self-poisoning and non-self-poisoning suicide deaths groups were conducted by univariate analyses and logistic regression.

Results: We identified 207 people with BD who died by suicide, of whom 36.7% died by self-poisoning. There were also 585 cases of self-poisoning suicide death in people that did not have BD.

Results of logistic regression examining correlates of self-poisoning method of suicide among all those with BD found several significant independent variables, including older age ($p < 0.0001$), greater likelihood of past suicide attempts ($p = 0.011$), and comorbid substance abuse ($p = 0.02$).

For the BD group, opioids, antidepressants, and benzodiazepines were the most common classes of identified lethal medication taken. Opioids, OTC medications and alcohol were similar in the BD and non-BD self-poisoning deaths. For the BD group, benzodiazepines were the most common type of medication present at time of death (57%), followed closely by antidepressants (53.9%). Only 28.9% of those with BD had any type of traditional mood stabilizer detected.

Discussion: With over a third of all BD suicides occurring via self-poisoning, this is clearly an important area of study. Among those with BD, older age, past suicide attempt and substance abuse were independent correlates of self-poisoning as the method of death, suggesting this may represent higher risk groups for which means restriction regarding potentially lethal substances could be especially important.

With regards to substances taken, the predominance of medications not specifically indicated for BD is quite striking, with high rates of opioids, benzodiazepines, and antidepressants being present and / or lethal, in comparison with agents such as mood stabilizers and atypical antipsychotics. These results require replication in separate analyses.

M52. RISK-TAKING BEHAVIOR AND SUICIDALITY: THE UNIQUE ROLE OF ADOLESCENT DRUG USE

Brooke Ammerman[1], Laurence Steinberg[1], Michael McCloskey[1]

[1]Temple University

Background: Nearly 4,600 youth aged 10-24 commit suicide each year, making suicide the third-leading cause of death among adolescents and young adults. Given the high prevalence rates, in addition to potential detrimental effects and negative outcomes in later life, extensive literature has examined potential risk factors of adolescent suicidality. Research has suggested

associations between several risk-taking behaviors and the presence of suicidality. For example, greater substance use, physical violence, and delinquency have all been related to an increased likelihood of suicide attempts. Despite strong support for the implications of individual risk behaviors in suicidal thoughts and behaviors, little research has concurrently examined multiple risk behaviors in these relationships. Further, the majority of these studies have been cross-sectional in nature. The current study aimed to fill this gap by simultaneously examining multiple risk behaviors in association with adolescent suicidality both contemporaneously and prospectively.

Methods: Data from the National Longitudinal Study of Adolescent Health (Add Health) were used in the current study. Participants who completed the in-home interview at Wave I and Wave II, and who also had sample weights from Wave I, were included in analyses, resulting in a final sample of 4,834 adolescents. Participants were in the 7th-12th grade at the time of data collection, and were an average age of 15.15 at Wave I. The following risk-taking behaviors were assessed at both Wave I and Wave II: risky sexual behavior, tobacco and alcohol use, drug use, delinquent behavior, and violent behavior. Each risk behavior was examined as a latent variable, consisting of four to seven different aspects of risk. Participants were also assessed for the presence of suicidal ideation and suicide attempts at both waves. All analyses were conducted in Mplus version 7.0 and included the cross sectional grand sample weights from Wave I.

Results: Two separate factor analyses were conducted for Wave I and Wave II risk behaviors; both models demonstrated good fit. Then, all risk behaviors were examined as independent predictors of suicidal ideation and suicide attempts both contemporaneously and prospectively. All risk behaviors predicted concurrent suicidal ideation at Wave I and Wave II, expect risky sexual behavior which only was predictive at Wave I. Only the presence of violent behavior at Wave I prospectively predicted suicide attempts at Wave II. All risk behaviors at Wave I also contemporaneously predicted the presence of suicide attempts; however, only drug use at Wave II predicted suicide attempts at Wave II ($b=.26$, $p<.001$). Following this, all significant risk behaviors were then examined simultaneously to predict suicidal ideation and suicide attempts. Drug use significantly predicted concurrent suicidal ideation at Wave I ($b = .48$, $p <.001$) and Wave II ($b = .50$, $p <.001$) and suicide attempts at Wave I ($b = .75$, $p <.001$), above and beyond all other risk behaviors.

Discussion: Drug use was consistently related to suicidal ideation and suicide attempts across both time points. Moreover, these relationships remained after considering other risk behaviors in the model, supporting a strong literature on the association between drug use and suicidality. These findings also add to the literature examining the interpersonal theory of suicide, which proposes that suicide is most likely to occur when an individual both desires to commit suicide and has the capability for suicide. Despite little evidence directly examining the overlap of drug use and the acquired capability for suicide, the current findings may suggest that those who engage in risky behaviors have higher acquired capability for suicide, supporting previous research, and, furthermore, that there may be a unique impact of drug use on suicidality. Moreover, this behavior may be particularly salient among adolescence due to the interaction of an increased sensitivity to reward during this developmental period and the overtly painful experience of drug use (e.g., needle injection). These findings highlight the importance of early intervention of drug use, which may also indirectly decrease suicidal thoughts and behaviors.

Tuesday, October 13, 2015

1:00 PM - 2:30 PM

Poster Session II

T1. SUICIDE BY PLASTIC BAG ASPHYXIATION WITH AND WITHOUT GASSING IN HONG KONG 2005-2013: EVIDENCE FOR THE EMERGENCE OF SUICIDE BY HELIUM INHALATION

Shu-Sen Chang[1], Esther Lee[2], Qijin Cheng[2], Paul Yip[2]

[1]Institute of Health Policy and Management, and Department of Public Health, College of Public Health, National Taiwan University, Taipei, Taiwan, [2]The University of Hong Kong

Background: There were early reports of a rise in suicide by plastic bag asphyxiation (PBA) in the USA following the publication of "Final Exit", and recent studies indicated a rise in asphyxial suicide by the inhalation of helium inside a plastic bag in the USA and UK. Recent trends in PBA suicide with or without gassing were little studied outside these countries.
Methods: We analysed PBA suicide with or without gassing in Hong Kong (2005-2013) using the Coroner's files of suicide. The reports of these suicides in major Hong Kong newspapers were also collected and analysed.
Results: We identified 67 PBA suicides in Hong Kong in 2005-2011, accounting for 0.8% of all suicides in the period. Amongst them 46 (69%) were PBA suicides without gassing , 15 (22%) used helium, and 2 (3%), 2 (3%), 2 (3%) used butane, nitrogen, and petroleum respectively. Annual number of PBA suicide without gassing ranged between 1 and 9 without an obvious trend; by contrast, the number of helium suicide increased from one in 2011 to three in 2012 and 11 in 2013, accounting for 1.2% of all suicides in 2013. One suicide by a 24-year-old man in 2012 received extensive media reporting and was described as "the first ever helium suicide in Hong Kong" although it was actually the third one in our data; within 10 days it was followed by another suicide by a young male of the same age using the same method. Helium suicides were much younger than PBA suicides without gassing and non-PBA suicides (median age 32 vs 60 vs 50 years), and were more likely to be male (80% vs 61% vs 62%). Amongst the 15 helium suicides, there was evidence for online searching for the helium inhalation method in three and online ordering of helium in four.
Discussion: A rise in helium inhalation within a plastic bag as a suicide method emerged following extensive media coverage of a case in 2012 in Hong Kong, and suicides using this method showed distinct demographic profiles similar to that of the first widely publicized case. Public health measures are needed to prevent a potential further increase in helium suicide and may include responsible media reporting and regulating online information about and accessibility to this method.

T2. DOES OWN-GROUP ETHNIC DENSITY PROTECT AGAINST SUICIDE AMONG SERIOUS MENTAL HEALTH DISORDERS?

Andrea Fernandes[1], Javier Lopez-Morinigo[2], Rina Dutta[2], Chin-Kuo Chang[2], Robert Stewart[2], Richard Hayes[2]

[1]King's College London/Mental Health Research UK, [2]King's College London

Background: The ethnic density effect has been known to have a positive effect on health and well-being.
In the late 1930s Faris and Dunham noted, in an area largely dominated by black ethnic groups, White people had higher rates of psychiatric admission while the reverse was true in a largely White residential area (i.e. Black people had worse mental health). Halpern & Nazroo defined this as the beneficial effect on health and well-being in people from minority ethnic groups where the proportion of their own group ethnicity is relatively high – this effect is now known as the ethnic density effect.

There is a plethora of studies demonstrating positive effects on health [Becares et al, 2008; Becares, 2009] in non-clinical settings. Community studies conducted in South East London have shown that, among ethnic minority groups, as ethnic minority density increases, there is a decrease in the rate of self-harm and suicidal attempts [Neeleman & Wessely, 1999]. Whether these effects persist in clinical mental health settings remains to be clarified.

The aim of our study is to ascertain the effect own-group ethnic density may have on completed suicide among those with a serious mental health illness.

Methods: We used a pseudonymised secondary mental health care research database (Research Ethics Approval: 08/H0606/71+5) to identify patients with a psychiatric diagnosis of Schizophrenia (ICD10 code:F20), Schizoaffective disorder (F25), Bipolar Disorder (F31), Depression (F32 - F32.9), Organic Disorder (F00) and Substance Abuse (F10 - F19). The observation window was between 1st of January 2007 to the 31st of December 2013. Data on gender, age, marital status, deprivation score, ethnicity, address of longest duration in the observation window and associated ethnic density were extracted. Competing risk survival analysis was conducted (using STATA, version MP12) to obtain suicide hazard risk ratios relative to reference groups within each category analysed. Competing risk analysis takes into account the possibility that individuals could have died from other (competing) causes of death other than suicide. These causes of death may be linked with having a mental disorder or living in areas of differing ethnic density groups
Results: In our cohort of 76809 patients, there were 204 (0.26%) suicide completions during the 2007-2013 observation period.
Of these, 51.8% were female and 49.6% aged 15-44 years; 50% were single, 22.6% married or co-habiting and 22% divorced. 70% of our cohort was of White origin. Our SMR analysis showed individuals with a diagnosis of schizophrenia, schizoaffective, bipolar disorder, major depression and substance abuse had 5 to 8 fold higher rates of suicide than the general population.

The competing risk analysis indicated that living in areas of high or low ethnic density did not have an effect on the risk of completing suicide (HR 0.92; 95% CI 0.52 – 1.61; p-value 0.774).

There were other factors such as being male (1.84; 1.04–3.24; 0.034), being older (1.74; 1.01 – 3.03; 0.047), having severe depressive symptoms (2.31; 1.17 – 4.56; 0.015) and severe physical illness (2.11; 1.02 – 4.35; 0.043) that seem to be at increased risk of completing suicide.

Being divorced (0.16; 0.036 – 0.76; 0.021) and living in areas of higher deprivation (0.25; 0.08 – 0.81; 0.021) seemed to have a protective effect on the risk of completing suicide.

Discussion: Living in areas of high or low ethnic density did not have an effect on the risk of suicide. Our results suggested that being divorced is protective of suicide in those with a mental illness. Some studies have indicated divorced men having lower rates of suicide compared to divorced women and within marriages, men experience better emotional support compared to

their counterparts. Patients living in most deprived areas had the lowest rates of suicide compared to lesser deprived areas. There is evidence, in serious mental illness, those living in higher socio-economic status, are at higher risk of committing suicide. Limitations: Compared to the White ethnic group, there were relatively low numbers in ethnic minority groups and we could not use individual ethnic groups to assess ethnic density in separate subgroups of ethnicity. The low numbers of ethnic minority groups may reflect lower referrals of ethnic minority groups in secondary mental health care. Individuals were excluded from the cohort if they had missing ethnicity. We did not investigate whether these missing ethnicities were captured elsewhere on their medical record. The study's strengths lie in the use of a large case register of psychiatric patients.

T3. ASSOCIATION BETWEEN BULLYING-VICTIMISATION AND SUICIDALITY OUTCOMES IN YOUTH: RESULTS FROM A PROSPECTIVE BIRTH COHORT

Michel Boivin[2], Louise Arseneault[3], Johanne Renaud[1], Richard Tremblay[4], Sylvana Côté[4], Marie-Claude Geoffroy[1]

[1]McGill University, [2]Université Laval, [3]King's College London, [4]Université de Montréal

Background: To test whether victims of bullying are at heightened risk for suicide ideation and attempt, using both cross-sectional and longitudinal investigations.
Methods: Data were from 1446 individuals born in the Canadian Province of Quebec in 1997/1998 and followed-up until 15 years of age. Information about bullying and suicide ideation and attempt in the past year was collected at ages 13 and 15 years from self-report. Logistic regressions were used to model the effect of bullying on suicidality adjusting for confounders and prior mental disorders.
Results: In longitudinal analyses, exposure to bullying at 13 years predicted suicide ideation and attempt 2-years later, even after adjusting for baseline suicidality, prior mental disorders, social class, intelligence, family functioning and structure, coercive parenting and maternal suicidality history. Moreover, reduction of bullying predicted reduction of suicide ideation and attempt. In cross-sectional analysis, being victim of bullying was associated with suicide ideation and attempt at both 13 and 15 years. Associations did not vary by sex, suggesting that exposure to bullying similarly affected females and males.
Discussion: Our results suggest that decreasing bullying in school may help reducing suicide ideation and attempt in youths. Interventions should also additionally focus on preventing potential victims of bullying to be the target of such bullying, and on referring the victims of bullying to mental health services if appropriate.

T4. INSOMNIA SEVERITY AND SUBTYPES: PREDICTIVE VALIDITY OF SLEEP DISTURBANCE IN TREATMENT RESISTANT DEPRESSION

Evan Gilmer[1], Gustavo Turecki[2]

[1]NYU School of Medicine, [2]McGill University

Background: Treatment resistant depression (TRD) is often defined as failure to respond to antidepressant therapy otherwise shown to be effective in treating of major depression. Current estimates include a 12 month prevalence rate of ~3% failure to 1 antidepressant trial and ~2% failure to 2 antidepressant trials. Results from the (STAR*D) study, indicated the rate of

remission appeared to be comparable for the initial and second-course of treatment (37 and 31%), and then to decline more substantially for the third and fourth steps of treatment (14 and 13%). Identification and treatment of refractory symptoms, when treated early in the course of illness, have been shown to improve outcomes. Examining individual symptom contribution from a dimensional perspective may be valuable in detecting resistance previously obfuscated by rigidly defined cut off scores less nuanced in detecting the presence of residual or sub attenuated symptoms even in those who have achieved remission. Insomnia is one of the most common residual symptoms reported by patients who have undergone pharmacotherapy and is the only symptom capable of predicting recurrence. To our knowledge, sleep disturbance has yet to be assessed in TRD.

Methods: The present study aims to evaluate the impact of sleep disturbance by measuring fluctuations in depressive severity and prevalence of insomnia in TRD, defining the contribution of specific insomnia subtypes in differentiating response from non-response.

Study participants included participants between the ages of 18-65 enrolled in the Depressive Disorders Program (DDP) at the Douglas Mental Health Research University Institute in Montreal, QC Canada. The study was approved by both McGill University's and The Douglas Mental Health Research University's Institutional Review Board. The DDP is a super-specialized (third-line) service for youth and adults presenting with refractory and/or recurrent major depressive disorder with or without the presence of suicidal behavior. Participants were referred to the program whereupon detailed psychiatric evaluations conducted by a multidisciplinary team of practitioners and psychiatric nurses determined eligibility for enrollment in the program.

Results: Chi-Square tests for independence indicated a significant relationship between MOI depressive severity $X2 = (6, N = 211) = 24.31$, $p < .001$. As expected, non-responders exhibited markedly higher rates for all residual insomnia symptoms. With a prevalence rate of 88%, MOI was the most notable residual symptom followed by EOI at 82% and LOI at a rate of 65%. Compared to non-responders, prevalence rates of residual insomnia were lower in the responder group despite exhibiting a two-fold increase in the rate of MOI at 64% compared to EOI and LOI residual rates (31%). A stepwise discriminate analysis was performed to assess the predictive validity of insomnia subtypes treatment response. IVs included EOI, MOI, and LOI. Wilk's Lambda was significant $\Lambda=.849$, $\chi2$ (4, N=211) = 33.61, $p<.001$ indicating IVs distinguished between responders and non-responders. Significant mean differences were observed for all predictors accounting for 15.13% of between group variability. The structure matrix indicated total HAM-D 17 total scores and MOI scores demonstrated the strongest relationship with the discriminant function (.881) and (.778) respectively. With an accuracy of 80.4%, cross-validated classification indicated significant predictive validity.

Discussion: Evidence linking sleep disturbance specifically to individuals with recurrent episodes of depression has been mounting. Despite this evidence, systematic assessment of insomnia has received little to no attention. The results of this preliminary investigation are limited by its retrospective design, reliance on self-report, and moderate sample size. As previously, our sample is not reflective of a general psychiatric population, but one in which specialized tertiary psychiatric care for the management of resistant or difficult to treat depression was received. Thus, our findings should be viewed as exploratory and provisional in nature. Nonetheless, the ability to successfully distinguish treatment response is supported. Prevalence and impact of specific insomnia symptomatology suggest that the relationship between TRD and insomnia follows a trajectory similar to MDD. Moreover, our results redefined and replicated previous reports of the inherent complexity and influence of sleep disturbance on TRD outcomes. What may be of most interest includes the robust influence and predictive validity of specific types of insomnia i.e. middle onset insomnia. Concurrent with

previous reports, the results of our investigation also indicated the presence of residual symptoms of insomnia in both responders as well as non-responders highlighting the need to rework initial assessments that reconsider insomnia as more than an expected qualifier for the diagnosis of depression, or a derivative of the culmination of comorbid Axis I diagnoses such as mania in Bipolar disorder.

T5. MILITARY SUICIDE EPIDEMIOLOGY AND ANALYTICS IN THE DEPARTMENT OF THE NAVY

Christine Glasheen[1], Laura Armstrong[2], Christopher Rennix[2]

[1]Department of the Navy, [2]EpiData Center, NMCPHC

Background: The Department of the Navy (DON) is committed to suicide prevention, which includes actively pursuing improvements in suicide epidemiology and analysis. To aid this effort, the EpiData Center Department (EDC) at the Navy and Marine Corp Public Health Center carries out a variety of suicide analyses and death review projects of service members who attempt or die by suicide, utilizing traditional epidemiologic methodology and devising novel approaches to medical surveillance. The Department of Defense Suicide Event Report (DoDSER), the traditional Department of Defense (DoD) data collection tool for suicide deaths and attempts, collects information related to health and psychosocial stressors; in the past, its validity and reliability as a data collection tool was identified as a concern (1). By linking DoDSERs to a wide-range of medical and personnel data sources, the EDC produces supplemental suicide analysis reports that provide integrated assessments of suicide cases to DON suicide prevention leaders.

Methods: Due to the design of military care, robust capture of military treatment facility health data occurs, much of which can be accessed in suicide analysis. Highlights of data used in population surveillance include: outpatient and inpatient medical encounter records, in-theater medical encounter data, pharmaceutical data, and laboratory testing records, including chemistry, microbiology, and pathology data. These data sources provide in-depth information of a service member's diagnostic, treatment, and prescription history. Personnel and deployment records are also utilized to provide additional information such as the number, length, and locations of deployments and deployment-related health concerns, including mental health. Electronic medical records of cases are reviewed for key suicide risk factors documented by provider or service member comments, including history of self-injurious behavior, chronic pain/sustained injury, anger/aggression, sleep problems, legal problems, work problems, and relationship issues.

Results: This presentation will provide an overview of DON suicide epidemiology and analytics and discuss the significant opportunities and challenges posed by using population medical encounter data and other data sources developed for force health readiness in this work. These challenges include determining the applicability of available data sources, working to understand data limitations, and consolidating data to provide meaningful information about cases and cohorts to DON action leaders.

Discussion: The EDC offers a unique perspective to conduct suicide epidemiology and analysis work due to the ability to integrate and evaluate the wide-range of DOD data on suicide death and attempt cohort populations. These extensive medical and personnel records provide in-depth information on cases and may enable the identification of risk factors. Future goals are to improve military suicide analysis and develop models based on trends in identified risk factors, while working to alleviate the influences of data limitations. This continued work will

assist the DON's force health preservation efforts, supplying leaders with an array of products that can be utilized in the improved suicide prevention efforts.
Disclaimer: The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, nor the U. S. Government.

Reference:

1.Final Report of the Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces (2010). The Challenge and the Promise: Strengthening the Force, Preventing Suicide and Saving Lives.

T6. ANALYSIS OF SUSPECTED SUICIDES BY AGE GROUP AT THE OFFICE OF THE MEDICAL EXAMINER

Douglas Gray[1], Hilary Coon[2], Amanda Bakian[2], Deborah Yurgelun-Todd[3], Todd Grey[4], McGlade Erin[3], Callor Brandon[4], Byrd Joshua[4]

[1]Veterans Affairs Medical Center, [2]Department of Psychiatry, University of Utah School of Medicine, [3]Veteran's Administration VISN 19 MIRECC, The Brain Institute and the Department of Psychiatry at the University of Utah School of Medicine, [4]Utah Office of the Medical Examiner

Background: The purpose of this study was to work collaboratively with the Office of the Medical Examiner to examine all suspected suicides in Utah over a one-year interval, using a structured interview of the next of kin. By following the cases prospectively as they were examined and given a final classification, we were able to compare groups of decedents with a final classification of Suicide, Undetermined, or Accidental death, and to better understand the characteristics of each group.
Methods: Starting with 1059 suspected suicides during the one-year study period, 96 were later determined to be natural deaths, 297 next of kin could not be contacted, and 3 declined to participate, leaving 633 completed structured interviews. As the OME examined the evidence available over time, including toxicology, cases were later given a final classification of suicide (n=245), accidental death (n=178), or undetermined death (n=210). Data analyses were performed with the SAS software package, using logistic regression, adjusting each model for decedent age and gender. The study looked at 58 variables from the structured interview. We were able to collapse the data for Accidental and Undetermined deaths for most variables, reducing the chance of a type I error, and we adjusted significance of multiple tests using a standard Bonferroni correction.
Results: In terms of demographics, the three groups were similar in age at time of death, race, and type of next of kin we interviewed. However, decedents classified as suicide were more likely to be male, to have a family history of suicide, to have an identifiable precipitant, and to die by firearm or hanging. Decedents with Veteran status were more likely to be classified in the suicide group. All three groups of decedents were remarkably similar in terms of rates of mental illness and psychiatric symptoms, although those with the final classification of suicide had more acute psychiatric symptoms in the two months preceding their death. Chronic pain was a significant problem for all three groups, but significantly higher in the combined accidental and undetermined groups (70%) compared with the suicide group (49%). New data looking at age stratification will be reviewed, including increased risk of Suicide classification (vs. Undetermined or Accidental), for the youngest (<25 years) and oldest (>55 years) groups

of suspected suicides (p = 0.03). In these youngest and oldest groups, method of death was more likely to be violent than drug-related (p=0.0002) compared to other age groups.
Discussion: This is the first study ever done in the United States looking prospectively at suspected suicides as they arrive at a statewide Office of the Medical Examiner. This is one of the largest suicide studies in the U.S. using the psychological autopsy method, with a detailed and structured interview of the decedent's next of kin.
Of 633 suspected suicides where next of kin interviews were completed, only 245 (37.8%) received a final classification of suicide, raising the possibility that mortality due to mental illness is much larger than current statistics indicate. In fact, the three classifications share similar rates of psychiatric diagnoses and psychiatric symptoms. Decedents classified as suicide, when compared with the other two classifications, are more likely to be male, to have a family history of suicide, and to die by violent method. The data demonstrated high rates of chronic pain for decedents in all three categories, but especially the undetermined and accident groups. This data should inform mental health professionals to add questions about pain to every patient evaluation. Stratification of data by age may help us to adjust prevention strategies by age group.

T7. THE COURSE AND PREDICTORS OF NON-SUICIDAL SELF-INJURY AND DELIBERATE SELF-HARM: A SYSTEMATIC REVIEW OF LONGITUDINAL STUDIES

Rebecca Groschwitz[1], Paul Plener[2], Teresa Schumacher[2], Lara Munz[2]

[1]University of Ulm, [2]Dept. of Child and Adolescent Psychiatry and Psychotherapy, University of Ulm, Ulm, Germany

Background: Non-suicidal self-injury (NSSI) has been shown to be a significant risk-factor for suicide attempts in a number of studies with suicide attempts also increasing in adolescence for the first time. Many studies have pointed to the fact that NSSI seems to be volatile over time. Nevertheless, little is known about the longitudinal course of this behavioral pattern.
Methods: Using a systematic search strategy using MEDLINE and OVID, we were able to retrieve 31 studies reporting longitudinal data on NSSI and deliberate self-harm (DSH). Only studies measuring NSSI/DSH at - at least - two consecutive points in the same individuals were included. Aims of this study were to describe the longitudinal course of NSSI and DSH and predictors for the occurrence of NSSI and DSH.
Results: Taken together, there is evidence for an increase in rates of NSSI and DSH in early adolescence, with a peak at 16 years of age and a decline in young adulthood. Overall, both NSSI and DSH showed high volatility between assessment points with some studies reporting an increase, and some reporting a decrease of self-harming behaviors over time. Female gender, rates of depressive symptoms, and previous NSSI were most often reported as predictors for both NSSI, and DSH.
Discussion: As NSSI has repeatedly been described as a risk-factor for suicide attempts, knowledge of its longitudinal course and significant predictors is of relevance for the prevention of suicidality.

T8. SLEEP DISTURBANCE AND ATTEMPTED SUICIDE IN RURAL CHINA: A CASE-CONTROL STUDY

Cun-Xian Jia[1], Wen-Chao Zhang[1], Li Wei[1], Ji-Yu Zhang[2], Xian-Chen Liu[3]

[1]Shandong University School of Public Health, [2]Shandong Center for Disease Control and Prevention, [3]The University of Tennessee Health Science Center

Background: Recent studies have demonstrated that sleep problems like insomnia, nightmares, and short sleep duration are associated with increased risk of suicidal behavior. For example, in a cross-sectional study of suicidal behavior in adolescents, sleep duration less than 8 hours was found to be associated with 3-fold increased risk of suicide attempts. However, few studies of the sleep and suicide association have well adjusted for mental disorders and multiple potential psychosocial confounders in a large representative sample of suicide attempters. Despite the high suicide rate in the rural and female population in China, no studies have been conducted to specifically examine the association between sleep disturbance and suicide attempts in this population.
Methods: The study group included 409 suicide attempters from 6 rural counties in Shandong Province, China and an equal number of controls matched on age, sex, and residency. Sleep disturbance was assessed by the item "sleep restless" in the Center for Epidemiologic Studies Depression Scale (CES-D).
Results: Sleep disturbance was reported more frequently in suicide attempters than in controls (3-4 days/week, 11.5% vs. 2.4%; ≥5 days/week, 30.3% vs. 7.5%, Chi-square=128.72, $p<0.001$). Suicide risk was significantly associated with increased frequency of sleep disturbance (OR=3.98, 95% CI=1.62-9.74 for 1-2 days/week; OR=3.28, 95%CI=1.21-8.84 for 3-4 days/week; OR=2.41, 95%CI=1.26-4.60 for ≥5 days/week) even after adjusting for potential psychosocial confounding factors and mental disorders.
Discussion: This finding may have important implications for early intervention and prevention of suicide.

T9. GENDER DIFFERENCES IN FACTORS ASSOCIATED WITH SUICIDALITY AMONG AN ELDERLY COMMUNITY SAMPLE IN SOUTH KOREA

Sangha Kim[1], Kounseok Lee[2], Jun Won Kim[3], Hye Jin Seo[4], Won-Myong Bahk[5]

[1]College of Medicine, The Catholic University of Korea, [2]Department of Psychiatry, St. Andrew's Hospital, [3]Division of Child & Adolescents Psychiatry, Seoul National University Hospital, [4]Department of Psychiatry, College of Medicine, The Catholic University of Korea, [5]Department of Psychiatry, Yeouido St. Mary's Hospital, College of Medicine, The Catholic University of Korea

Background: Suicide mortality rate in South Korea is highest among Organization for Economic Cooperation and Development (OECD) countries. There is a ten-fold difference between Korea and Greece, the country with the lowest suicide rate. Death rates from suicides have increased in Korea since mid-1990s when financial crisis hit Asia. Korea is among a few countries with continued increase in suicidal mortality since. This increase is largely attributable to rapid aging and increase in elderly suicide in Korea.
Methods: A survey was conducted to elderly residents 60-90 years of age from urban and rural catchment areas in South Choongchung province of South Korea in 2013 in order to evaluate correlates of suicidality. During a 12-month period, community elders were surveyed by trained mental health professionals from the South Choongchung community mental health centers. Interviews included evaluation of depressive symptoms using 15-item geriatric depression scale (S-GDS), marital status, socioeconomic status, educational achievement, alcohol intake history, religiosity, self-perceived health status, and perceived availability of

secondary support group. Current suicidal ideation and lifetime suicidal attempt were asked and checked yes/no. Factors associated with suicidality were evaluated separately for female and male elders considering their distinct psychosocial environment. The study was approved by the institutional review board of Kongju national mental hospital.
Results: After 12 months of fieldwork, a total of 7,783 completed interviews were obtained. The 12-month prevalence of suicidal ideation was 23.5% and the lifetime prevalence of suicidal attempt was 4.1%. Common factors associated with current suicidal ideation in both female and male participants were urban living, and poorer perceived health status. For females, younger age (odds ratio [OR] 0.98, 95% confidence interval [CI] 0.97-0.99) and drinking more than 2-4 times a week (OR 1.54. 95% CI 1.09-2.19) were additional factors associated with suicidal ideation. Being divorced, separated, or widowed (OR 1.37, 95% CI 1.07-1.76), drinking 2-4 times a month (OR 1.58, 95% CI 1.08-2.32), and higher scores on S-GDS (OR 1.16, 95% CI 1.11-1.21) were additional factors associated with suicidal ideation in males. Common factors related with lifetime history of suicidal attempt for both female and male participants were urban living, poorer perceived health status, and higher scores on S-GDS. Additional correlates of lifetime suicidal attempt for female participants were younger age (OR 0.95, 95% CI 0.92-0.97), drinking more than 2-4 times a week (OR 1.88, 95% CI 1.03-3.44), and absence of secondary support group (OR 1.34, 95% CI 1.02-1.76).
Discussion: Prevalence of suicidal ideation in community elders is very high reflecting poor mental health status of community elders in South Korea. Urban living and poor perceived health status are commonly associated with suicidality for both sexes. Female and male elders exhibited differential correlates of suicidality regarding marital status and perceived availability of secondary support group.

T10. ASSOCIATION OF SOCIO-ECONOMIC POSITION AND SUICIDE/ATTEMPTED SUICIDE IN LOW AND MIDDLE INCOME COUNTRIES IN SOUTH AND SOUTH-EAST ASIA – A SYSTEMATIC REVIEW

Duleeka Knipe[1], Robert Carroll[1], Kyla Thomas[1], Anna Pease[1], David Gunnell[1], Chris Metcalfe[1]

[1]University of Bristol

Background: Forty percent of the world's suicide deaths occur in low and middle income countries (LAMIC) in Asia. There is a recognition that social factors, such as socioeconomic position (SEP), play an important role in determining suicidal risk in high income countries, but less is known about the association in LAMIC.
Methods: The objective of this systematic review was to synthesise existing evidence and the association between SEP and attempted suicide/suicide risk in LAMIC countries in South and South East Asia. Web of Science, MEDLINE, MEDLINE in Process, EMBASE, PsycINFO, and article reference lists/forward citations were searched for eligible studies (till May 2013). Epidemiological studies reporting on the association of individual SEP with suicide and attempted suicide were included. Study quality was assessed using an adapted rating tool and a narrative synthesis was conducted.
Results: Thirty-one studies from nine countries were identified; 31 different measures of SEP were reported, with education being the most common. Most studies suggest that lower levels of SEP are associated with an increased risk of suicide/attempted suicide, though findings are not always consistent between and within countries. Over half of the studies included in this review were of moderate/ low quality. The SEP risk factors with the most consistent

association across studies were asset based measures (i.e. composite measures); education; and measures of financial difficulty/financial perception. Several studies show a greater than threefold increased risk with measures of SEP– with the largest and most consistent association with financial perception

Discussion: The current evidence suggests that lower SEP increases the likelihood of suicide/attempted suicide in LAMIC in South and South East Asia. However, the findings are severely limited by study quality; larger better quality studies are therefore needed.

T11. META-ANALYSIS OF THE ASSOCIATION BETWEEN SUICIDAL IDEATION AND LATER SUICIDE AMONG PATIENTS WITH EITHER A SCHIZOPHRENIA SPECTRUM PSYCHOSIS OR A MOOD DISORDER

Matthew Large[1]

[1]The School of Psychiatry, UNSW, Sydney, Australia, University of New South Wales

Background: Recent studies of patients with a mix of psychiatric diagnoses have suggested a modest or weak association between suicidal ideation and later suicide. The aim of this study was to examine the extent to which the association between expressed suicidal ideation and later suicide varies according to psychiatric diagnosis.

Methods: A systematic meta-analysis of studies that report the association between suicidal ideation and later suicide in patients with 'mood disorders', defined to include major depression, dysthymia and bipolar disorder, or 'schizophrenia spectrum psychosis', defined to include schizophrenia, schizophreniform disorder and delusional disorder.

Results: Suicidal ideation was strongly associated with suicide among patients with schizophrenia spectrum psychosis [14 studies reporting on 567 suicides, OR = 6.49, 95% confidence interval (CI) 3.82–11.02]. The association between suicidal ideation and suicide among patients with mood disorders (11 studies reporting on 860 suicides, OR = 1.49, 95% CI 0.92–2.42) was not significant. Diagnostic group made a significant contribution to between-study heterogeneity (Q-value = 16.2, df = 1, 1, $P < 0.001$) indicating a significant difference in the strength of the associations between suicidal ideation and suicide between the two diagnostic groups. Meta-regression and multiple meta-regression suggested that methodological issues in the primary research did not explain the findings. Suicidal ideation was weakly but significantly associated with suicide among studies of patients with mood disorders over periods of follow-up of <10 years.

Discussion: Our findings suggest that the association between suicidal ideation and later suicide is stronger in schizophrenia spectrum psychosis than in mood disorders. Although this result should be tested in further primary research the finding opens the possibility of early intervention to prevent suicide in schizophrenia, perhaps with early use of clozapine among those with suicidal ideas.

T12. META-ANALYSIS OF SUICIDE RATES AMONG PSYCHIATRIC IN-PATIENTS

Matthew Large[1]

[1]The School of Psychiatry, UNSW, Sydney, Australia, University of New South Wales

Background: Objective: To examine factors associated with the number of psychiatric admissions per in-patient suicide and the suicide rate per 100 000 in-patient years in psychiatric hospitals.
Methods: Random-effects meta-analysis was used to calculate pooled estimates, and meta-regression was used to examine between-sample heterogeneity.
Results: Forty-four studies published between 1945 and 2013 reported a total of 7552 in-patient suicides. The pooled estimate of the number of admissions per suicide calculated using 39 studies reporting 150 independent samples was 676 (95% CI: 604–755). Recent studies tended to report higher numbers of admissions per suicide than earlier studies. The pooled estimate of suicide rates per 100 000 in-patient years calculated using 27 studies reporting 95 independent samples was 147 (95% CI: 138–156). Rates of suicide per 100 000 in-patient years tended to be higher in more recent samples, in samples from regions with a higher whole of population suicide rate, in samples from settings with a shorter average length of hospital stay and in studies using coronial records to define suicide.
The pooled suicide rate in studies published after 1999 was 646 suicides per 100,000 patient years.

Discussion: Rates of in-patient suicide in psychiatric hospitals vary remarkably and are disturbingly high. Rates of inpatient suicide in recent studies are generally more than 50 times that of the general community, in some hospitals rates of suicide are over 100 times higher.
This poses a challenge to current practices of stratifying inpatients according to risk because the odds of suicide among high risk to low risk inpatients are much more modest than the odds of suicide among inpatients compared to the general community.

The author argues that risk stratification of inpatients should be abandoned in favour of a universal high standard of care for every psychiatric inpatient.

Reference

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Acta Psychiatr Scand. 2015 Jan 5. doi: 10.1111/acps.12383. [Epub ahead of print]

T13. USING DATA LINKAGE TO INVESTIGATE INCONSISTENT REPORTING OF SELF-HARM AND QUESTIONNAIRE NON-RESPONSE

Becky Mars[1], Rosie Cornish[2], Jon Heron[2], Andy Boyd[2], Catherine Crane[3], Keith Hawton[3], Glyn Lewis[4], Kate Tilling[2], John Macleod[2], David Gunnell[2]

[1]University of Bristol, [2]University of Bristol, [3]University of Oxford, [4]University College London

Background: The accuracy of self-harm prevalence estimates may be affected by selective non-participation of subjects with self-harm, and by misreporting of self-harm episodes; however, the extent to which this occurs is not currently known.
Methods: Data from 3027 participants from the Avon Longitudinal Study of Parents and Children (ALSPAC) birth cohort, 2363 of whom had responded to a self-harm questionnaire at age 16, were linked to England's Hospital Episode Statistics (HES) database. Rates of HES recorded self-harm were compared amongst those who completed (n=2,363) and did not complete (n=644) the self-harm questionnaire. We also compared HES recorded self-harm with participant self-reports to examine consistency.

Results: Fifty-four individuals (1.8%) had a self-harm event recorded in HES, with 41 (1.4%) recorded as having a hospital admission for self-harm. The prevalence of hospital admissions for self-harm recorded in HES was higher amongst those who did not complete the self-harm questionnaire than amongst those who did (self-harm hospital admissions: 2.0% in non-responders vs. 1.2% in responders, difference= 0.8%, 95% CI -0.4% to 1.9%).
Fifteen self-harm events were recorded in HES prior to completion of the self-harm questionnaire, Three of which (20%) were not reported by participants (1/12 hospital admissions and 2/3 A&E only attendances).

Discussion: Our sample size is small, however, the results provide preliminary evidence to suggest that self-harm prevalence estimates derived from self-report may be underestimated. More accurate figures may come from combining data from multiple sources. Future work will examine these issues in larger sample.

T14. SUICIDAL BEHAVIOUR AMONG PATIENTS WITH A FIRST-EPISODE PSYCHOSIS IN A 3-YEAR FOLLOW-UP: TIMING PATTERNS AND STAGE-RELATED RISK FACTORS

Rosa Ayesa-Arriola[2], Javier David Lopez Morinigo[3], Jose Maria Pelayo Teran[1,4], Rocio Perez-Iglesias[2], Anthony S David[3], Benedicto Crespo-Facorro[4]

[1]University Hospital "Marqués de Valdecilla". University of Cantabria. CIBERSAM (Centro Investigación Biomédica en Red Salud Mental). Santander, Cantabria. Spain., [2]Department of Psychiatry, Marqués de Valdecilla University Hospital. IDIVAL. CIBERSAN (G26).Department of Psychosis Studies. Institute of Psychiatry, King's College London, UK, [3]Department of Psychosis Studies. Institute of Psychiatry, King's College London, UK, [4]Department of Psychiatry, Marqués de Valdecilla University Hospital. IDIVAL. CIBERSAN (G26).

Background: Suicide is a major cause of death in psychosis, with an estimated lifetime risk of 5%. "Suicidal behaviours" are thought to be more common in early phases (2- 26% in the first years of contact or treatment). However, the prevalence of suicidal behaviour, periods of risk and specific factors associated, that may help to establish preventive and therapeutically approaches, are still poorly understood.
The aims of this study were to investigate the suicidal behaviour among a representative sample of subjects with a first episode of psychosis, to determine the highest risk period for suicide behaviour and to analyse the specific risk factors associated.

Methods: Suicidal behaviour prior to first presentation of psychosis and during a 3-year follow-up was examined in a sample of 397 naïve first episode patients (DSM-IV diagnosis: schizophrenia, schizophreniform disorder, schizoaffective disorder, brief psychotic disorder) referred to the Cantabria Program for First Episode Patients (PAFIP) from 2001 to 2010. Risk factors included premorbid and sociodemographic variables (gender, age at onset, duration of untreated onset, education, social status, drugs use, premorbid social adjustment), clinical and neuropsychological baseline scores and insight assessments. Factors were initially compared with Student´s T and Chi square test and then logistic regression analysis was performed to predict suicidal behaviour entering the significant variables.
Results: Sixty patients (15.11%) made a suicide attempt. Twenty five (6.3% of the sample) had attempted suicide before first presentation and 8 of these persisted after they initiated treatment. Of the remaining 35, 12 patients made 2 attempts and 5 of them 3 attempts. Six patients (1.51%) completed suicide over the follow-up period. The 32 patients that attempted

1 month before and 2 months after entering the program were classified as "early attempters". Individuals that attempted later in the follow-up period were considered "late attempters". The main risk factors included in the model (R2: 0.54; $\chi 2$=117.92; p<0.001) for any suicide attempt were depressive symptoms (OR: 4.52; CI: 1.72-11.85; p=0.002) and cannabis use (OR: 3.298; CI: 0.935-5.832; p=0.069). In the model for early attempt (R2: 0.23; $\chi 2$=30.95; p<0.001) the significant predictors were male gender (OR: 2.988; CI: 1.029-9.678; p=0.040), urban area (OR: 5.435; CI: 1.171-25; p=0.031), premorbid social adjustment (OR: 2.5; CI: 1.011-6.17; p=0.047), depressive symptoms (OR: 4.412; IC: 1.598-12.183; p=0.004) and hospitalization (OR: 5.017; CI: 1.367-18.414; p=0.015). In the model for later attempts (R2: 0.207; $\chi 2$=32.87; p<0.001) the only significant predictor was depressive symptom

Discussion: There is a critical period for suicide attempts around first presentation of psychosis. Some factors related to a poorer adjustment, male gender, living in urban areas and hospitalization may help to identify higher suicide risk and to design specific interventions in these patients. However, the depressive symptoms and substance use are still not only the strongest predictors of suicidal behaviour in different stages but also modifiable factors to take into account and to be include as a main focus in early intervention programmes.

T15. USING TEXT MESSAGES TO PREDICT DEPRESSION AND SUICIDAL BEHAVIOR AMONG LGBT INDIVIDUALS

Megan Lytle[2], Vincent Silenzio[1,2], Cecilia Ovesdotter Alm[3], Christopher Homan[3]

[1]University of Rochester, [2]University of Rochester Medical Center, [3]Rochester Institute of Technology

Background: Evidence consistently suggests that lesbian, gay, and bisexual (LGB) individuals are approximately twice as likely to report attempting suicide as non-LGB individuals. Moreover, transgender individuals also report a high prevalence of attempting suicide. Although connectivity is associated with psychological well-being and is a protective factor against suicidal behaviors; LGBT youth (18-29 years in age) tend to have less social well-being in comparison to older LGBT adults, and in part, this may be due to geographic social isolation. Specifically, LGBT individuals tend to create their own online communities to enhance their social capital and minimize stigma as well as other negative experiences in the physical world. With approximately 97% of emerging adults (18-29 year olds) owning their own cell phones, electronic communication such as text messaging provides a new and innovative way to investigate the suicidal behaviors within this hidden community. Therefore, this research has implications for enhancing current suicide prevention hotlines, augmenting outreach programs, as well as the development of culturally appropriate suicide prevention interventions.

Methods: Computational linguistic modeling can be used to identify affect in electronic communication such as text messages. This type of modeling will be used to explore inferences of affective states. Evidence suggests that course-grain affective states (e.g., distressed versus non-distressed) as well as more fine-grained distinctions (angry, fearful, happy, and sad) can be determined using a small dataset of short texts; therefore, a model will be developed to infer whether individuals are distressed or non-distressed as well as to explore granularity (e.g., sadness). Specifically, linguistic features such as key words, word counts, word tense, and pronouns will be used to predict affective states. The data will be divided, and the model will be developed on training data and cross-validated using the test data.

Machine learning refers to a type of artificial intelligence that can be used to automatically classify information. Emerging linguistic themes from the data will be analyzed and used to develop a machine learning model to classify individuals as either having a high or low risk for

attempting suicide. The model will be developed on a training data and cross-validated using a test data.

Results: As a work in progress, proof of concept will be presented using training data from a LGBT suicide prevention organization. Specifically, the data collected during volunteer trainings will be used to create and evaluate the models. Based on previous research that examined language used in suicide notes, it is expected that responses linked to suicidal behavior will have different linguistic and textual features (e.g., greater use of past tense).
Discussion: LGBT suicide is a growing and important public health concern. Based on the gaps in research, this study uses innovative methods to better define this population and identify suicidal youth as a step toward developing a web-based LGBT suicide prevention intervention. Using text data, emerging linguistic patterns will be identified to help to characterize this hidden population. This research has implications for (1) enhancing an ongoing crisis intervention effort and (2) using machine learning models to create a web-based suicide prevention intervention that can be individualized and connect LGBT persons to resources. Therefore, this research has the potential to provide critical information about the contributing factors to suicide risk that are specific to LGBT individuals.

T16. THE INTRAURBAN GEOGRAPHY OF SUICIDE IN TORONTO

Mark Sinyor[1], Richard Maaranen[2], Shauna Brail[2], Ayal Schaffer[3]

[1]Sunnybrook, University of Toronto, [2]University of Toronto, [3]Sunnybrook Health Sciences Centre

Background: Suicide research has consistently identified a person's social environment as a key factor in his or her risk for suicide. Negative economic conditions such as rising unemployment rates as well as poverty and social deprivation in general can contribute to higher rates of suicide death. Notably, the impact of higher unemployment may be attenuated in countries with more generous unemployment protection policies. There is a growing body of literature in the social sciences regarding urban inequality and its impacts on cities and society across the globe. For instance Toronto, Canada's largest city, is described as being home to three distinct cities – a city of wealth composed largely of Caucasians who are concentrated largely along the subway lines and which is growing in size; a city of middle income households in decreasing pockets across the city, and a growing city of low income households living on the edges of the Toronto region comprised in large part of new immigrants and visible minorities. This study aims to identify the spatial distribution of suicide deaths in Toronto and to determine whether meaningful differences exist between the "three cities".
Methods: Suicide deaths (n=3,317) were identified through records of the Office of the Chief Coroner (OCC) of Ontario (1998-2012). Postal code of last known residence was available for 3,025 (91%) of the 3,317 suicide victims and confirmed by a review of each chart. Most or all of the remaining 9% were likely homeless at the time of death. Neighborhood level data for the City of Toronto was accessed through the Neighborhood Change Research Partnership (NCRP). This database contains information on 96 Forward Sortation Areas (FSAs) collected by Statistics Canada including population by age, ethnicity, visible minority status, immigration, education level, single person households, average individual income, population with low income/poverty, unemployment rate, proportion of dwellings needing major repairs, housing affordability (according to a threshold of 30% of income spent on housing), proportion of rental housing and proportion in high rise apartments. Linear regression analyses were used to determine which of the above variables at a population level were associated with suicide deaths.

Results: For the 3,025 people included in the study, suicide rates in Toronto's 96 FSAs ranged from 2.5 per 100,000/year at the north-eastern uptown end of the city to 25.7 per 100,000/year in the middle of the downtown area. The strongest positive correlation between a socioeconomic population variable and suicide rate was the percentage of single person households (those living alone) (0.76) which was maintained after accounting for other covariates. Other positively associated factors included percentage rental housing (a proxy for lack of wealth) (0.52), Aboriginal population (0.48), higher education levels (university degree) (0.37) and housing affordability (0.33). Negatively associated factors were immigrant status (-0.36) and visible minorities (-0.19). Neither unemployment rate (-0.08), average individual income (0.06), or the "3 cities" demarcation showed an association with suicide rates.
Discussion: This study of the urban geography of suicide deaths in Canada's largest city unexpectedly found that several important markers of socioeconomic deprivation, such as unemployment rate and average income, were not associated at a population level with rates of suicide death. The fact that the percentage of people living alone showed the strongest correlation is in keeping with the notion that social isolation may be a key contributor to suicide death. The results should be interpreted with caution as it is unclear whether they would have been different if we had been able to determine a place of residence for the 9% of homeless suicide victims. Likewise, while this study examines suicide death and population measures of deprivation, we were unable to determine, for example, whether individual suicide victims in high income areas may themselves have had a low income. Further study in this area is warranted.

T17. EXPLORING GENETIC RISK FACTORS THAT INTERACT WITH SHORT-TERM AMBIENT AIR POLLUTION EXPOSURE TO INCREASE SUICIDE RISK

Amanda Bakian[1], Brian Robison[2], Todd Darlington[2], Jim VanDerslice[3], Yue Zhang[4], Doug Gray[2], Todd Grey[5], Brandon Callor[5], Perry Renshaw[2], Rebekah Huber[6], Leslie Jerominski[2], Brian Dalley[7], Michael Klein[8], Nicola Camp[4], Rob Sargent[4], Hilary Coon[2]

[1]University of Utah, [2]University of Utah Department of Psychiatry, [3]University of Utah Department of Family and Preventive Medicine, [4]University of Utah Department of Internal Medicine, [5]Utah Department of Health Office of the Medical Examiner, [6]The Brain Institute at the University of Utah, [7]University of Utah Huntsman Cancer Institute, [8]University of Utah HSC Cores

Background: Suicide's etiology is complex and it is it is widely hypothesized that interactions between an individual's underlying genetic predisposition and environmental factors are in suicide's causal pathway. Current research points to acute ambient air pollution exposure as an environmental contributor to suicide. We recently reported increased risks of suicide associated with short-term exposure to nitrogen dioxide (20%) and fine particulate matter (5%) among suicide decedents from Salt Lake County, Utah. Study findings point to heterogeneity among individuals in their susceptibility to suicide following acute ambient air pollution exposure based on as yet unknown underlying phenotypic and genetic characteristics. We hypothesize that air pollution may be implicated in the pathophysiology of suicide through biological mechanisms involving the serotonergic, inflammation and/or oxidative stress pathways. The objective of this study was to identify candidate genetic risk factors on serotonergic, inflammation, and oxidative stress pathways that interact with short-term ambient air pollution exposure to increase suicide risk among Utah suicide decedents.

Methods: Our study was made possible through a long-standing collaboration between the University of Utah Department of Psychiatry and the Utah State Office of the Medical Examiner (OME). Starting in 1996, the OME has collected DNA samples from the majority of suicide victims in Utah with 400+ additional DNA samples currently being collected annually (N >3400 DNA samples from 1996-present). Whole exome (including promoter regions) sequence data has been generated on a subset of suicide decedents (N = 185; Illumina HiSeq). A literature search was conducted to identify candidate genetic risk factors on serotonergic, inflammation, and oxidative stress pathways that have been implicated in suicide risk. Differences in the frequency of candidate genetic risk variants were compared in exome sequence data of Utah suicide decedents versus exome and genome sequence data from publicly available datasets including the 1000 Genomes Project (N = 181) and the Wellderly Study (N = 454) using the Gemini and VAAST software tools.
Results: The literature search resulted in the identification of candidate genes in serotonergic, inflammation, and oxidative stress pathways. Preliminary results suggest possible significant gene variation in multiple genes in serotonergic and oxidative stress pathways including TPH1 and SLC6A4 on the serotonergic pathway and GSTM1 and GSTP1 in the oxidative stress pathway.
Discussion: Study findings suggest that certain genetic risk factors in serotonergic, inflammation, and oxidative stress pathways are more common in the exome sequence data of Utah suicide decedents compared with exome and genome sequence data from multiple background populations. The next step will be to determine how gene variation in TPH1, SLC6A4, GSTM, and GSTP1 moderates the association between suicide risk and short-term ambient air pollution exposure using data on air pollution exposure that is currently being linked to records from suicide decedents. The identification of genetic risk factors that interact with short-term ambient air pollution exposure will be translated into clinical and public health interventions aimed at reducing vulnerable individuals' exposure to ambient air pollution.

T18. GENETIC RISK FOR SUICIDE IN A HIGH RISK EXTENDED FAMILY WITH UNUSUALLY HIGH RATE OF FEMALE SUICIDE

Hilary Coon[1], Todd Darlington[2], W. Brandon Callor[3], Richard Pimentel[4], Rob Sargent[5], Venkatesh Rajamanickham[5], Shruti Muralidhar[6], Leslie Jerominski[2], Brian Dalley[7], Michael Klein[8], Jeff Cardon[2], Nate Hansen[2], Sheila Crowell[9], Amanda Bakian[2], Ken Smith[10], Hao Hu[11], Chad Huff[11], Megan Williams[6], Nicola Camp[5], Todd Grey[3], Douglas Gray[2]

[1]University of Utah School of Medicine, [2]Department of Psychiatry, University of Utah School of Medicine, [3]Utah State Office of the Medical Examiner, Utah Department of Health, [4]Pedigree and Population Resource, University of Utah, [5]Department of Internal Medicine, University of Utah School of Medicine, [6]Department of Neurobiology & Anatomy, University of Utah School of Medicine, [7]High Throughput Genomics, Huntsman Cancer Institute, University of Utah, [8]Health Sciences Center Core Research Facilities, University of Utah, [9]Department of Psychology, University of Utah, [10]Department of Family and Consumer Studies, University of Utah, [11]Department of Epidemiology, the University of Texas MD Anderson Cancer Center

Background: Aggregated data across multiple large studies suggest that genetic factors play an important role in suicide risk, with heritability estimates of completed suicide of 45%. Utah is consistently in the top 10 states for rate of suicide, and offers unique resources to study this risk. Our group investigates suicide genetic risk factors using a large collection of DNA

(>3400) obtained through a long-term collaboration with the Utah State Office of the Medical Examiner (OME). Suicide cases are also linked to the Utah Population Database (UPDB), a database that includes medical data and demographic information for over 7 million individuals, and genealogical data back to the pioneer founders of Utah on 2.5 million individuals (hci.utah.edu/groups/ppr). Through this linking, the UPDB has identified extended family clusters at very high familial risk for suicide compared to expected familial risk in the Utah population. We received permission to conduct de-identified studies of these extended high-risk families, and de-identified records for other unrelated cases in this large DNA resource.

Methods: One initial focus of our studies has been on an unusual high-risk extended family where 10 of the 19 suicide cases in the family were female (53%). While suicidal behaviors are more common in women, significantly fewer women die by suicide (~5.5/100,000) than men (~20.2/100,000). Analyses of familial sharing of exome sequence variants in this extended family may therefore reveal genetic risk for vulnerability in women. Comparisons of shared sequence variants with publicly available data in the 1000 Genomes Project, the NHLBI Exome Sequencing Project, and whole genome data from the Wellderly Study were made using several software tools (Shared Genomic Segments; pedigree Variant Annotation Analysis and Search Tool; Gemini).

Results: Preliminary results from these analyses suggest potentially important gene variation in several genes associated with neural function, transcription, mitochondrial function, and ubiquitination (e.g., SIRT3, SDHA, BTAF1, SEMA5B, ANAPC10, FHOD3, IQSEC3). Follow-up analyses are underway using additional exome sequence data from 40 female and 145 male suicide decedents in the study, in addition to Illumina HumanExome chip data from 471 other Utah suicide cases.

Discussion: Our results implicating multiple risk genes and gene pathways will provide a starting point for additional follow-up studies in our own data resource, and in other publicly-available genetically informative data sets. Suicide is one of the leading causes of death worldwide. Eventual discovery and replication of genetic risk factors could lead to interventions that have broad impact.

T19. RARE EXOME VARIATION IN SUICIDE DECEDENTS: NEURONAL SIGNALING AND SYNAPTIC STRUCTURE GENES

Todd Darlington[1], Shruti Muralidhar[2], Nancy William[2], Rob Sargent[3], Jeff Cardon[4], Leslie Jerominski[4], W Brandon Callor[5], Todd Grey[6], Douglas Gray[4], Nicola Camp[3], Megan Williams[2], Hilary Coon[4]

[1]University of Utah, [2]Department of Neurobiology and Anatomy, University of Utah, [3]Department of Internal Medicine, University of Utah, [4]Department of Psychiatry, University of Utah, [5]State of Utah Office of the Medical Examiner, [6]State of Utah, Office of the Medical Examiner

Background: The neurobiology of suicide is complex and largely unknown. Our laboratory recently reported findings showing an association between completed suicide, risk for asthma, and a variant in the brain-derived neurotrophic factor (BDNF) gene. Variations in genes comprising many components of the neurotrophic signaling pathway are connected with suicide. One of the primary functions of neurotrophic signaling in the brain is the induction and maintenance of neuronal structure. Neurotrophins may stimulate growth and branching of dendrites, the formation of dendritic spines, and the location and type of synaptic junctions with other neurons.

Methods: In collaboration with the State of Utah Office of the Medical Examiner over 3400 DNA samples from de-identified suicide decedents were collected since 1996. Exome sequencing from 185 suicide decedents was performed using Agilent SureSelect and Illumina HiSeq. Quality (Picard, Fastqc), alignment (BWA), variant calling (GATK v3), and annotation (snpEff) were performed using protocols in use by the Utah Genome Project. Gemini was used to identify rare (<2% dbSNP frequency), deleterious (Gemini medium or high impact) variation in candidate genes related to neurotrophic signaling and synaptic structure/transmission. Candidate genes were determined by review of literature and the STRING database of gene-gene interactions. Follow-up studies on brain tissue from suicide decedents have commenced. Intermountain Donor Services receive next-of-kin authorization for research on de-identified tissue. Hippocampi are fixed in 4% PFA and sliced at 400um. Neurons are identified and micro-injected with fluorescent dye, making visible neuronal substructures (dendrites and spines). Spine distribution and density are quantified using standard methods. Filled slices are immunostained with antibodies for excitatory (VGLUT) and inhibitory (VGAT) synapses.
Results: We identified potentially deleterious rare variation in candidate genes in the suicide decedents including the previously reported BDNF variation (rs66866077). Furthermore, several other potentially deleterious exome sequence variants were enriched in suicide cases, as follows: three variants in neurotrophic tyrosine kinase receptor 1 (NTRK1, rs6336, rs6339, rs35669708); variants in src-homology domain containing 1 (SHC1, rs149067447) and 2 (SHC2, rs61749990); one variant each in protocadherin 1 (PCDH1, rs12517385), nerve growth factor (NGF, rs11466111), glutamate receptor, ionotropic, AMPA 1 (GRIA1, rs3811982); and two variants in glutamate receptor, ionotropic, NMDA 2A (GRIN2A, rs61758995, rs61731465). The procedure for filling neurons from the CA3 region of the hippocampus is established and spine and synapse analysis is ongoing.
Discussion: Using a candidate gene approach, we identified rare variation in genes involved in neurotrophin signaling (BDNF, SHC1, SHC2, NTRK1, and NGF), genes involved in synaptic structure (PCDH1), and synaptic transmission (GRIA1 and GRIN2A). All reported variants are rare in control comparison samples, non-synonymous coding, and are predicted to have functional consequences. These data suggest that along with changes in gene expression, neuronal structure and synapses may play a major role in the etiology of suicide behaviors. Our future plans are to identify and compare changes in gene expression, neuronal structure (dendritic branching and spines), and synaptic composition in suicide decedents and controls.

T20. A GENE-ENVIRONMENT INTERACTION STUDY OF CHILDHOOD SEXUAL TRAUMA AND THE DOPAMINE D4 RECEPTOR (DRD4) PREDICTING SUICIDAL THOUGHTS AND BEHAVIORS IN ADOLESCENTS

Jim Doorley[1], Travis Mallard[1], Caitlin Williams[1], Christianne Esposito-Smythers[1]

[1]George Mason University

Background: Prior studies have demonstrated a link between sexual trauma and suicidal thoughts and behaviors (STBs) among adolescents. However, not all adolescents who experience serious early-life adversities, such as sexual trauma, develop STBs. The consideration of genetic moderators of this relationship may improve our understanding of this association. While the DRD4 gene is understudied within this context, the long variant of the DRD4 VNTR polymorphism (DRD4L) may confer risk for various externalizing and impulsive behaviors. Further, these behaviors have frequently been linked to STBs in adolescents. Thus, consistent with the stress-diathesis model of suicidal behavior, it stands to

reason that the presence of both DRD4L (a potentially high-risk genotype) and sexual trauma (an acute environmental stressor) may confer greater risk for STBs than either risk factor alone. The current study examines the association between sexual trauma, DRD4L, and STBs in a clinical sample of adolescents.
Methods: Data were obtained from 76 psychiatrically hospitalized adolescents as part of a larger assessment study. Adolescents were genotyped for the VNTR polymorphism of the DRD4 gene and identified as carriers of either the long variant (DRD4L) or the short variant (DRD4S). Mood disorders (i.e., major depressive disorder, dysthymic disorder, and depressive disorder NOS) were assessed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997). Data were collected on history of childhood sexual trauma (i.e., sexual abuse or assault on the K-SADS-PL) as well as current suicidal ideation (SI) on the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991), and whether or not the adolescent was admitted to the inpatient unit for a recent suicide attempt (SA).
Results: Preliminary analyses found that the diagnosis of a mood disorder was significantly correlated with SI, and thus was added as a covariate in subsequent analyses. Hierarchical linear or logistic regression analyses were performed to examine whether DRD4 status (DRD4L vs. DRD4S) moderated the relationships between (1) sexual trauma and SI or (2) sexual trauma and suicide attempts. Results indicated that neither DRD4 nor sexual trauma were directly associated with SI or SA within our sample. However, there was a significant interaction between sexual trauma and DRD4L subtype in the prediction of SI. Specifically, DRD4L carriers who had experienced sexual trauma reported more severe SI relative to those with either risk factor alone. There was no DRD4 by sexual trauma interaction in the prediction of a recent SA.
Discussion: To our knowledge, this is the first study to examine the synergistic effects of DRD4 and sexual trauma on STBs in a sample of psychiatrically hospitalized adolescents. These results suggest that adolescent victims of sexual trauma who possess the DRD4L VNTR polymorphism (versus DRD4S) may be at heightened risk for more severe SI, and thus deserve close clinical attention. Future research that examines gene x environment interactions among traumatized adolescents is warranted and may improve prediction of youth at greatest risk for STBs.

T21. OPEN BOARD

T22. POLYGENIC RISK SCORE ANALYSIS OF SUICIDAL BEHAVIOR SEVERITY IN BIPOLAR DISORDER

Clement Zai[1], Arun Tiwari[2], Vincenzo de Luca[2], John Vincent[2], James Kennedy[2]

[1]Centre for Addiction and Mental Health, [2]CAMH

Background: Twin and family studies suggest that suicidal behavior is at least partly genetic. While there have been few genome-wide significant or suggestive findings of suicide attempt or suicidality, a recent study pointed to a possible shared genetic component between suicidal ideation and major depression. The authors of that study found suicide attempt to be at least partly distinct from mood disorder based on their polygenic score analyses.
Methods: We followed up with our recently published a genome-wide association study (GWAS) of suicide behavior severity, from suicidal ideation to serious suicide attempt in bipolar disorder patients by conducting polygenic risk score analyses using available GWAS results for major psychiatric disorders from the Psychiatric Genomics Consortium.

Results: Preliminary findings from our polygenic risk score analysis did not support a shared genetic component between suicidal behavior severity and risk for attention-deficit hyperactivity disorder (ADHD) in our discovery sample of bipolar disorder patients.
Discussion: While suicidal behavior and ADHD may not have a significant genetic overlap, specific symptoms of ADHD (hyperactivity/impulsivity versus inattention) should be explored. We will also be analyzing for possible overlaps in genetic components between suicidal behavior and risk for other psychiatric disorders.

T23. EVALUATION OF RESTING STATE FUNCTIONAL CONNECTIVITY AS A BIOMARKER FOR SUICIDAL BEHAVIOR

Ricardo Caceda[1], Andrew James[1], Zachary Stowe[1], Bettina Knight[1], Clint Kilts[2]

[1]University of Arkansas for Medical Sciences, [2]University of Arkansas for Medical

Background: Annually, over 41,000 people in the US and one million worldwide die by suicide. The high and rising prevalence of suicide is complicated by the clinical challenge of identifying patients at highest risk for suicide and thus most needing intervention. Thus, there is a pressing need to move beyond self-report to identify reliable biomarkers of future suicidal behavior. A functional magnetic resonance imaging (fMRI)-based technology with potential clinical application is the study of the association of suicidal risk with altered resting state brain functional connectivity (rsfcMRI). We sought to test the ability of patterns of resting state connectivity to discriminate acute suicidal behavior from depression.
Methods: Twenty-eight adult participants underwent resting-state fMRI: 9 depressed patients hospitalized following a suicide attempt within the past 72 hours, 9 depressed control patients without suicide attempt, and 10 healthy individuals without depression. We evaluated group-differences in resting-state connectivity among 20 independent neural processing networks identified via independent component analysis.
Results: We report increased functional connectivity between the default mode network (including posterior cingulate, medial prefrontal, and bilateral inferior parietal cortex) and a superior parietal network for the suicide attempter group compared to depressed controls ($F(2, 24)=5.34$, $p= 0.0121$ uncorrected).
Discussion: These preliminary results suggest that intrinsic functional connectivity between resting-state brain networks may differentiate depressed patients who do and do not attempt suicide. Ongoing extension of the study sample and future replication will further examine a role of rsfcMRI as a potential biomarker of risk for suicidal behavior.

T24. OPPORTUNITIES AND CHALLENGES: EXPLORING A PUBLIC HEALTH APPROACH TO SUICIDE PREVENTION IN RURAL COMMUNITIES

John Cutcliffe[1], Jose Carlos Sanots[2]

[1]Wright State University, [2]University of Coimbra, Portugal

Background: This paper focuses on suicide prevention in rural populations and presents the perspective that such efforts have not adopted public health approaches and therefore, widespread or significant reductions in the national rates have not been realized. We argue that an ecological public health approach holds the greatest promise.
Methods: Drawing on Canadian examples, we illustrate how Federal governments must be directly responsible for such approaches.

Results: There are many examples where the Canadian government could provide leadership in suicide prevention (e.g. prisons, armed forces, veterans, and restricting access to means) and we review the successes and failures in each of these areas. Finally, the barriers that prevented action (such as avoiding involvement in health which is a provincial jurisdiction) can be overcome and have been in other countries.
Discussion: This paper concludes by calling for a new ecological approach to suicide prevention, renewed Federal leadership and new solutions to the political barriers that have existed in Canada.

T25. OPEN BOARD

T26. INTERACTION BETWEEN MULTIPLE FORMS OF BULLYING AND DEPRESSION PREDICTS SUICIDALITY IN YOUTH

Tamar Kodish[1], Joanna Herres[2], Annie Shearer[3], Helen Squitieri[4], Tita Atte[2], Guy Diamond[5]

[1]Drexel University, [2]Drexel University, [3]Drexel University, [4]Drexel University, [5]Drexel University

Background: Suicide is the third leading cause of death among youth in the U.S. (CDC, 2013). Research has examined individual (i.e. psychopathology) and external (i.e. school and peer related) risk factors of suicidality (Gould et al, 1996; Kandel et al, 1991). Studies have consistently shown that depression is the most significant predictor of suicide in adolescence (Brent et al., 1993). In addition, bullying, defined as intentional and repeated peer aggression, has been associated with negative mental health outcomes, including depression, anxiety and suicidality (Hinduja & Patchin, 2010; Wang et al, 2009). However, a direct relationship between bullying and suicidality has not yet been established (CDC, 2014). Even less is known about whether distinct types of bullying interact with depression to predict suicidality. The present study examines if three different forms of bullying (physical, verbal and cyber) independently and cumulatively moderate the relationship between depression and suicidality in a large sample of youth participating in a primary care suicide-screening program.
Methods: The study examined data collected from the Behavioral Health Screen (BHS), a comprehensive, primary care suicide-screening program. The sample consisted of 5,429 youth, ages 14-24 (M=16.77, SD=2.5), screened at their primary care office when there was a concern regarding behavioral health. The online screener was administered in the waiting or exam room on an electronic device. The BHS assesses mental health in several domains, including depression, suicidality and school-related problems. The BHS scales are internally consistent, with Cronbach's alphas ranging from 0.75-0.87 (Diamond et al, 2010). This study used the depression and suicide scales, and separate items assessing cyber, verbal and physical bullying. Participants indicated whether they experienced each type of bullying "never" (0), "sometimes" (1) or "often" (2). Dummy coded variables were created for the cyber, verbal and physical bullying items; 0 indicated the participant had not experienced the type of bullying and 1 indicated the participant had experienced the type of bullying. We also created a cumulative bullying index using the dummy-coded variables to develop a scale ranging from 0 (experienced no forms of bullying), to 3 (experienced all three forms).
Results: To test whether bullying moderated effects of depression on suicidality, we conducted four independent analyses, regressing the suicidality scale on depression, each type of bullying (cyber, verbal, physical, cumulative), and the interaction terms between depression and each type of bullying, controlling for gender, race, ethnicity and age. The first regression revealed

that interaction between depression and verbal bullying significantly predicted suicidality (β=.029, p<.05). The second regression showed that the interaction between depression and physical bullying also significantly predicted suicidality (β=.025, p<.05). The third interaction, between depression and cyber bullying, was not significant (β=.023, p=.068). Lastly, the interaction between depression and the cumulative bullying index was the most significant of the four types of bullying (β =.216, p<.001) in predicting suicidality. A graphical representation showed that for youth experiencing multiple different types of bullying, there was a greater relationship between depression and suicidality.

Discussion: This study demonstrates the utility of the BHS in not only identifying suicide risk, but also establishing predictors of suicidality. This study advances prior findings by suggesting that the interaction between bullying and depression is significantly associated with suicidality. Specifically, the interaction between depression and in-person types of bullying predicted suicidality more strongly than cyber bullying. Experiencing multiple forms of bullying played the greatest role in strengthening the relationship between depression and suicidality. These findings suggest that prevention and intervention programs should (1) evaluate depression in youth experiencing bullying to better understand other factors that may be contributing to suicidality in children that are bullied, (2) work to reduce physical and verbal face-to-face peer aggression and (3) target multiple different types of bullying. In addition, future research might investigate how specific constructs or elements of depression interact with different forms of bullying to predict severity of suicidality.

T27. FAMILY SUPPORT AND MENTAL HEALTH SERVICE USE AMONG SUICIDAL ADOLESCENTS

Mary LeCloux[1], Peter Maramaldi[2], Kristie Thomas[2], Elizabeth Wharff[3]

[1]West Virginia University, [2]Simmons College, [3]Boston Children's Hospital

Background: While multiple evidence-based treatments have been shown to ameliorate suicidal ideation and behaviors among adolescents (Brent, McMakin, Kennard, Goldstein, Mayes, & Douaihy, 2013; Singer & O'Brien, in press), fewer than 35% of suicidal youth report having contact with a mental health provider within the past year (Husky, Olfson, he, Nock, Swanson, & Merikangas, 2012). While family members can serve as informal supports for youth and can help connect them with services (Gourash, 1978), suicidal youth are also more likely to experience neglect, abuse, and dysfunction within their families (Bridge, Goldstein, & Brent, 2006). This study investigated whether levels of perceived family support were related to the likelihood that suicidal adolescents would utilize mental health services and, secondly, whether this relationship was mediated by symptom severity. It was hypothesized that, if higher levels of parental support were related to a lower likelihood of mental health service use, that this relationship would be mediated by the severity of symptoms reported.

Methods: Using a prospective design, bivariate and mediational analyses were conducted using data from the first two waves of data from the National Longitudinal Study of Adolescent Health. Two different models were tested using two different proxies for symptom severity at Wave I: scores on the Center for Epidemiological Studies Depression Scale (CES-D) and whether or not a suicide attempt was reported. The relationship between scores on the parental connection subscale at Wave I, each measure of symptom severity at Wave I, and mental health service use ("receipt of emotional or psychological counseling") at Wave II were tested. The sample included only those respondents who reported "seriously considering suicide" during the first year of data collection.

Results: 30.6% of the sample reported a suicide attempt during Wave I and 78.3% reported no mental health service use at Wave II. Higher parental connection scores were consistently associated with a lower likelihood of mental health service use. Having attempted suicide and higher CES-D scores were associated with a higher likelihood of mental health service use. In Model 1, there was strong evidence that the presence of a suicide attempt mediated the relationship between parental connection and mental health service use. For Model 2, however, once CES-D scores and parental connection were concurrently entered into the model, parental connection scores became non-significant. Additional tests showed that depression did not mediate the relationship between parental connection and mental health service use.
Discussion: Despite the fact that suicidal adolescents are at high risk for suicide attempts, few of them have contact with mental health providers. Parental support appears to be highly protective, at least for suicide attempts. The continued development of family-based interventions for this population would be extremely beneficial. Additionally, different types of symptomatology (depression versus suicidal behavior) appear to have different relationships to both parental connection and mental health service use. Future research should continue to investigate the relationships between different types of symptomatology, family dynamics, and mental health service use in this population.

T28. THE SUICIDE IDEATION AND BEHAVIOR ASSESSMENT TOOL: DEVELOPMENT OF A NOVEL MEASURE OF SUICIDAL IDEATION AND BEHAVIOR AND PERCEIVED RISK OF SUICIDE

Larry Alphs[1], Carla Canuso[1], David Williamson[1]

[1]Janssen Scientific Affairs, LLC

Background: Suicide is one of the most preventable types of death. Clinicians wanting to monitor suicidal ideation, behavior, and risk require a tool that includes all of these components. Ideally, such a tool should also allow assessment of change as the result of intervention. The Suicide Ideation and Behavior Assessment Tool (SIBAT) is based on an established measure of suicidal ideation and behavior: the InterSePT Scale for Suicidal Thinking–Plus (ISST-Plus) and includes a clinical global judgment of suicide risk and recommendations for consequent optimal management. Items from the ISST-Plus have been expanded upon and reorganized into 10 modules that allow for efficient, comprehensive data collection. The SIBAT is divided into patient-report and clinician-rated sections. The frequency with which individual modules are administered can be customized and adjusted to meet clinicians' needs. Thus, responses less susceptible to change, such as demographics and medical history, are segregated into modules distinct from responses more likely to fluctuate, such as current suicidal ideation. The development of the SIBAT will be described and preliminary information on its content will be presented.
Methods: The SIBAT Consortium, a group of clinical trial and academic experts in scale development, suicidology, and clinical management of suicidal patients, met regularly over 18 months and developed a modular instrument based on clinician consensus, a review of suicide literature, and the ISST-Plus. During revisions of the provisional version of the SIBAT scale, modules were added and item wordings refined. A draft version agreed upon by the SIBAT Consortium was reviewed by 14 patients from a psychiatric clinical research setting and by 686 members of Patients Like Me, an online patient community of individuals who self-identified as being at risk for suicide. All participants evaluated items from the patient-reported modules of the SIBAT in terms of semantic clarity, relevance of questions, and adequacy of response

choices. This feedback was incorporated and approved by the SIBAT Consortium. Modifications of selected SIBAT items based on these cognitive interviews will be presented.
Results: The iterative SIBAT-development process, which included both expert clinician and patient input, has created an instrument that has high face validity for the assessment of suicidal ideation, behavior, and risk. We propose that this instrument will be able to capture patient and clinician estimates of short-term and long-term risk and will be sensitive to changes in these estimates.
Discussion: As presently developed, the SIBAT supports the comprehensive assessment of suicidal ideation, behavior, and risk as determined by direct input from patients and their rating clinicians. The SIBAT's flexible modular structure, which employs computer-based interviews, allows for efficient collection of this information. A planned validation program will examine the reliability, validity, and psychometric structure of the SIBAT. The results from this validation program will support the SIBAT's use as an instrument that will efficiently provide consistent clinical judgments for both imminent and long-term suicide risk across a broad range of patient populations.

T29. EVALUATION OF A SUICIDE PREVENTION GATEKEEPER TRAINING ON AN AMERICAN INDIAN RESERVATION

Mary Cwik[1], Lauren Tingey[1], Alexandra Maschino[1], Kyle Hill[1]

[1]Johns Hopkins

Background: The devastating toll of suicide deaths and attempts is one of the greatest public health issues affecting American Indian and Alaska Native (AI/AN) communities, particularly youth. In 2011, the proportion of AI/AN high school students was higher than the proportion of total U.S. students for having serious thoughts of suicide (21.8% vs. 15.8%), making suicide plans (17.7% vs. 12.8%), attempting suicide (14.7% vs. 7.8%) and receiving medical attention for a suicide attempt (6.1% vs. 2.4%) (Suicide Prevention Resource Center, 2013). Inadequate mental health services in AI/AN communities and structural barriers to care result in low use of formal mental health services, further compounding these risks (Barlow & Walkup, 1998; Cunningham, 1993; Nelson, McCoy, Stetter et al., 1992; Novins, Beals, Roberts et al., 1999).
Methods: Considering this context, there is strong rationale for piloting and evaluating "Gatekeeper Training" for suicide prevention in AI/AN communities. This study was a community-based cross-sectional pre-post evaluation of ASIST participation on trainees' self-reported knowledge and attitudes about suicide prevention and self-efficacy to intervene with at-risk individuals. Recruitment and data collection occurred between March 2008 and June 2010. 84 individuals consented to study participation over the course of six ASIST trainings; training size ranged from 7-23 participants per training.
Results: The majority of participants were American Indian and female (89.3%); average age was 36. Significant increases in knowledge (i.e., it is not dangerous to speak directly about suicide, p=0.000) and self-efficacy (identify at risk youth, p=0.000; help a suicidal youth, p=0.000) were observed post-test, as well as high overall participant satisfaction (3.53/5) and intent to use skills on a daily (36.4%) or monthly (66.3%) basis. Lowest rated was how the training addressed cultural differences (2.93).
Discussion: Results support the promise of gatekeeper training and represent the first known evaluation on a reservation, but indicate a strong need for cultural adaptation of this program with American Indians. Potential improvements for this population and next research steps will be discussed.

T30. PREVALENCE AND CORRELATES OF MENTAL HEALTH CARE SERVICE UTILIZATION AMONG A NATIONAL SAMPLE OF FIREFIGHTERS REPORTING CAREER SUICIDE IDEATION, PLANS, AND ATTEMPTS

Melanie Hom[1], Ian Stanley[1], Fallon Moberg[1], Thomas Joiner[1]

[1]Florida State University

Background: Recent research suggests that rates of suicide ideation, plans, and attempts among United States firefighters may be especially high relative to the general population. Given that connection to evidence-based treatment is a key component of effective suicide prevention strategies, it is important to understand patterns of service use among at-risk firefighters. Among the general population, evidence suggests that only 50% of individuals with suicidal thoughts or behaviors report accessing treatment; however, usage rates among firefighters, specifically, are unknown. This study aimed to: (1) investigate rates of mental health service utilization among firefighters with career suicide ideation, plans and attempts; and (2) identify correlates of service use and potential barriers to care in this high-risk population.

Methods: Participants included N = 483 current or retired firefighters (91% male; mean age = 36.4, SD = 10.9) who reported career suicide ideation, plans, and attempts via a nationally distributed web-based survey on firefighter behavioral health. Measures included a demographics survey, medical history overview, the Self-Injurious Thoughts and Behaviors Interview—Short Form (SITBI-SF), and the Perceived Stigma Scale (PSS). Descriptive statistics, chi-square tests, and logistic regression modeling were used to identify rates and correlates of service use, as well as barriers to care.

Results: Overall, 76.8% of participants reported receiving some form of mental health care services during their time in the fire service; specifically, 75.6% reported seeking outpatient counseling/treatment, 50.9% reported utilizing psychiatric medications, and 4.8% reported inpatient hospitalization. Individuals who had made a suicide attempt while serving as a firefighter were the most likely to have had contact with mental health care services (92.9%), but a majority of those with suicide ideation only (67.5%) or a suicide plan without an attempt (77.4%) also sought treatment during their firefighting career. There were no notable differences in service use rates with regards to gender, age, education, firefighter rank, career or volunteer firefighter status, or geographic location; however, firefighters without a record of military service were more likely to seek care than those with a military record (OR = 4.10, 95% CI = 2.35-7.14). In terms of barriers to care, firefighters were significantly more likely to cite stigma and attitudinal barriers (e.g., embarrassment) than structural barriers (e.g., cost) as reasons they might not seek out treatment ($\chi 2 = 95.209$, $p < .001$).

Discussion: Findings were promising in that they revealed relatively high rates of service use among firefighters reporting career suicide ideation, plans, or attempts as compared to the general population. However, suicidal firefighters with a history of military service appear to be less likely to engage in treatment, highlighting a potential subgroup for targeted screening and intervention. These findings also suggest that it may be useful to address stigma and attitudinal barriers to care, in particular, in order to improve treatment engagement in this population. Additional research is warranted to examine the nature and temporality of the relationship between service use and suicide ideation, plans, and attempts since it is not clear if firefighters sought care specifically for their suicidality or for another reason.

T31. EPIGENETIC REGULATION OF THE AMYGDALA BY CHILDHOOD MALTREATMENT AND SUICIDE

Pierre-Eric Lutz[1], Stephan Busche[1], Laura Fiori[1], Jennie Yang[1], Raphaël Poujol[1], Alpha Diallo[1], Naguib Mechawar[1], Carl Ernst[1], Tomi Pastinen[1], Gustavo Turecki[1]

[1]McGill University

Background: Childhood maltreatment (CM) is a global problem of significant proportion that affects children of all ages, race, economic and cultural backgrounds. There is a strong relationship between CM and mental health outcomes throughout the lifespan. Accordingly, CM is among the strongest predictors of psychiatric pathology, in particular depression and suicide.

Understanding how negative early-life experiences can affect behavior and mental health over the lifespan is a major challenge. Epigenetic mechanisms, in particular DNA methylation, have recently emerged as forms of genomic plasticity that have the potential to modify gene expression and brain function over extended periods of time.

We hypothesize that CM contributes through epigenetic adaptations to the risk of suicide into adulthood. We focus our analysis on the lateral amygdala, a brain structure that is critically involved in emotions and stress regulation. A growing number of studies have indicated relationships between CM and morphological and functional changes in the amygdala. Therefore, amygdala dysfunction observed in individuals who experienced CM is likely an important contributor to suicidal behaviors later in life.

Methods: Using brain post-mortem tissues available through the Douglas-Bell Canada Brain Bank, the present study compares (i) 22 depressed suicide completers with a history of CM, with (ii) 17 psychiatrically normal individuals with no history of CM. Information on psychiatric diagnoses and history of CM were obtained through psychological autopsies for all subjects.

We recently initiated a unique and comprehensive epigenetic analysis of the human amygdala using next-generation sequencing approaches, within the framework of the International Human Epigenome Consortium (IHEC).

Results: We first performed a genome-wide analysis of gene expression in the lateral amygdala using RNA-Seq. In addition, to assess epigenetic processes that mediate changes in gene expression and amygdala function, we characterized genome-wide patterns of DNA methylation using Whole-Genome Bisulfite Sequencing. We are currently combining the large data sets from these transcriptomic and epigenetic analyses to uncover gene networks and pathways that are disrupted as a function of CM and suicide. Preliminary findings will be presented.

Discussion: Genomic regions that show evidence of both differential gene expression and epigenetic reprogramming will be further investigated. Most significant findings will be validated using alternative technologies (Nanostring for RNA-Seq, and Targeted bisulfite sequencing for DNA methylation), and explored at the functional level using in vitro cellular assays.

Overall, the present project will allow us to robustly and specifically identify novel candidate pathways that are epigenetically induced by CM and contribute to suicide, as well as to propose possible avenues for intervention.

T32. SUICIDAL BEHAVIOR IN VETERANS CORRELATES WITH BRAIN GLUTAMATE LEVELS

Colin Riley[1]
[1]The University of Utah

Background: Efforts at understanding the neurobiological correlates of suicidal behavior have thus far provided inconclusive. Previous neuroimaging studies have implicated prefrontal systems including the anterior cingulate cortex (ACC) which is known to mediate inhibitory function and emotional reactivity. We have employed two-dimensional J-resolved magnetic resonance spectroscopy (2D-JMRS) to evaluate the relationship between history of suicidal behavior and brain chemistry in the anterior cingulate cortex (ACC) of a cohorts of veterans. These novel methods allow concurrent measurement of glutamate, glutamine, and GABA. These three metabolites are critical for both excitatory and inhibitory neurotransmission. Recently, NMDA receptor antagonists have shown promise in the treatment of refractory depression. Accordingly, we hypothesized that history of suicidal behavior would be related to elevated levels of glutamate within the ACC.
Methods: A total of 32 veteran participants (mean age = 36.09 years) completed a clinical interview including the Columbia Suicide rating Scale and were scanned on a 3 Tesla Siemens (Erlangen, Germany) Verio(TM) whole-body MRI scanner using 12-channel phased-array head coil for signal reception. MRS data were acquired from the voxels positioned bilaterally within the ACC using 2D MRS acquisition and data processing methods described elsewhere (1). The ACC neurochemical profiling included analysis of creatine, n-acetyl aspartate, choline-containing compounds, GABA, glutamate, glutamine, and my-inositol.
Results: Eighteen of the participants endorsed a past history of suicidal behavior whereas 13 reported no history of suicidal behavior. Total Suicide Behavior Score for the Lifetime was positively correlated with ACC glutamate levels ($r = 0.495$, $p < 0.03$). Symptoms of anxiety as measured by the Hamilton Rating Scales for Anxiety (HAM-A) were also positively correlated with ACC glutamate levels ($r = 0.48$, $p < 0.04$). No relationship between suicidal behavior or anxiety and either glutamine or GABA were observed.
Discussion: These findings are consistent with other investigations, which have found altered metabolite levels in brains of individuals with psychiatric disorders. Of interest, elevated ACC glutamate levels have also been reported in individuals with bipolar depression, which is associated with a markedly increased risk of suicidal behavior. Moreover, glutamatergic neurotransmission is an important current target for drug development and the present results suggest that MRS may provide an effective means to monitor treatment-related changes.

T33. CORTISOL RESPONSE PREDICTS MAGNITUDE OF SUICIDE IDEATION INCREASES TO LIFE EVENTS

Sadia Chaudhury[1], Hanga Galfalvy[1], Barbara Stanley[1]

[1]New York State Psychiatric Institute/Columbia University

Background: The stress-diathesis model of suicidal behavior (SB) posits that suicide risk is determined by a trait-like predisposition in the face of a stressor. While trait characteristics, such as impulsivity and aggression, have been identified as diatheses, biological diatheses have been harder to identify. Cortisol, which is secreted via the hypothalamic-pituitary-adrenal (HPA) axis in response to stress, is a potential biomarker given findings of HPA axis dysregulation in depressed individuals (Rao, 2008; Young et al 2000), and those at risk for SB (Mann 2003, McGirr et al, 2010). The Trier Social Stress Test (TSST) is a highly effective

psychosocial stress paradigm used to measure HPA axis activation in response to induced stress (Kirschbaum et al, 1993). Ecological Momentary Assessment (EMA), real-time data collection in an individual's natural setting, allows for the identification of changes in affect and behavior that precede SB within a natural context. The purpose of the present study is to relate suicidal ideation (SI) endorsed through EMA with cortisol response to stress, as measured by TSST, to determine if there is a biological subtype of suicidal individuals who are more prone to experience SB in response to life events.

Methods: Subjects (n=50) who met criteria for borderline personality disorder participated in this study after providing written informed consent. Most subjects had comorbid Major Depressive Disorder (76%, n=38) and a prior suicide attempt (80%, n=40). The sample was mostly female (86%, n=43), Caucasian (56%, n=28), single (82%, n=41), and college-educated (46%, n=23).

Subjects completed the TSST, a well-validated laboratory paradigm that measures salivary cortisol response to psychosocial stress. Subjects also completed EMA, where they were given a personal digital assistant that randomly prompted subjects to answer a series of questions 6 times daily for one week. The questions assessed changes in both stressors and SI that occurred since the last prompt.

Cortisol response to the TSST was defined as the area under the curve of log-transformed cortisol values (AULC), calculated from the subject's baseline cortisol level. We assessed the effect of trigger events and cortisol response on the change in SI using mixed effect regression models by including an event indicator, the cortisol response measure, and their interactions as fixed effects, in addition to subject-specific random intercepts.

Results: TSST cortisol response predicted higher increase in SI in response to a negative life event, as reported on the EMA (t=2.41, df=870, p=.016) in the joint model that included all negative stressors. As an integrity check, we also measured whether TSST cortisol response predicted higher increase in SI in response to positive stressors, and found that it did not. In the individual models for each stressor, cortisol response was found to predict higher SI in response to two particular stressors: being disappointed by someone (t=2.27, df=870, p=.0237) and being reminded of something painful from the past (t=3.8, df=870, p=.0002).

Discussion: Our results suggest that there is a biological subtype of suicidal individuals who are more reactive to life events. Stress response, as measured by the TSST, suggests that cortisol response serves as a biomarker to distinguish a more highly reactive, and thus more acutely at-risk population for suicide. This finding is particularly interesting because the sample in this study, individuals with borderline personality disorder, represent an extreme of stress reactivity, thereby restricting the range. Given the strong findings in this subset of suicidal individuals, the findings are likely to be even stronger in suicidal individuals without borderline personality disorder.

T34. IDENTIFYING EMOTIONAL STATES IN INDIVIDUALS IMMEDIATELY FOLLOWING A SUICIDE ATTEMPT

Sadia Chaudhury[1], Megan Chesin[1], Taylor Burke[2], Barbara Stanley[1]

[1]New York State Psychiatric Institute/Columbia University, [2]Temple University

Background: While much is known about warning signs and risk factors for suicidal behavior, very little research has been conducted on the emotional experiences of individuals following a suicide attempt (SA). Some have suggested that those who attempt suicide experience "suicide catharsis," whereby their symptoms are alleviated upon making a SA (Walker, Joiner,

& Rudd, 2001). While there has been support for this hypothesis (Jallade, Sarfati, & Hardy-Barle, 2005; Sarfati, Bouchaud, & Hardy-Baylé, 2003; Slorach, 1972; Suominen et al., 1996; Van Praag & Plutchik, 1985), others have found evidence refuting this hypothesis (Pompili et al, 2009). The current study tracks the emotional states of suicide attempters, both immediately and 24 hours after an SA. The purpose of the study is to identify the emotional states experienced by individuals following a SA, and to understand how these emotional states change over the course of the day following an SA.

Methods: Fifty-six subjects who presented to a psychiatric emergency department for a SA completed an assessment post ED-discharge about their emotional states immediately, and one day, after the index SA. Subjects were on average 33 years old (SD=11.3) and mostly female (54%, n=30), Caucasian (57%, n=32), and single (75% n=42). Most subjects had a current mood disorder (n=52, 93%) or borderline personality disorder (n=36, 64%), and had made a previous SA (n=33, 59%).

Local IRB approval was obtained, and written informed consent was obtained from all subjects. Subjects were asked to retrospectively recall how well 25 adjectives described their emotional state immediately following, and one day after, the index SA on a 5-point Likert scale. To improve recall, subjects described the circumstances of the SA prior to completing the assessment. Signed Rank tests were used to compare states reported immediately following and one day after the SA. Where significant differences (or strong trends towards differences) were found, Wilcoxon rank sum tests were used to test whether state changes were related to BPD diagnosis.

Results: The emotional states felt the most intensely immediately after the index SA were: sadness (mean=3.9, SD=1.5); disconnectedness from the world (mean=3.6, SD=1.6); fatigue (mean=3.4, SD=1.7); and frustration with self (mean=3.3, SD=1.7), while those experienced most intensely 24 hours after the SA were: sadness (mean=3.6, SD=1.5); fatigue (mean=3.6, SD=1.6); disappointment with self (mean=3.6, SD=1.6); and disconnectedness from the world (mean=3.2; SD=1.7). Subjects reported feeling more alive one day after their SA than they had immediately following it ($S=106.5$, $p<.05$). Subjects also reported feeling less disappointed with others and better able to relate to others one day after the SA than they had immediately following it ($S=-59.5$, $p<.05$) ($S=31.5$, $p<.05$). There was a strong trend for subjects to report feeling more connected to the world one day after the SA ($S=-63$, $p<.10$), as well as less relief from tension or anxiety and less distraction from their problems one day after the SA than they had immediately following it ($S=-106$, $p<.10$) ($S=-86$, $p<.10$). There were no differences between BPD and non-BPD patients in the magnitudes of the self-reported changes in these six states.

Discussion: The purpose of this study was to understand the emotional states experienced by patients following a SA. To collect the most robust data, subjects were asked to rate the degree to which they felt a series of emotional states, as opposed to being asked to spontaneously recall their emotional states. Our findings suggest that suicide attempters experience a range of emotions both immediately after, and one day after, a SA, with the most intensely felt states being sadness, disconnectedness, fatigue, frustration with self, and disappointment with self. While subjects reported some emotional relief one day after their SA (feeling more connected to the world and more alive), they also reported less relief from tension and anxiety and less distraction from their problems one day after their SA. These findings oppose the suicide catharsis hypothesis given the distress subjects continued to feel one day after their attempt. Our results suggest that clinicians should explore a patient's feelings following their SA, as the lingering sadness and tension may make them particularly susceptible for another SA. Interventions targeting these feelings may help reduce future suicidal behavior in this high-risk population.

T35. EFFECTIVENESS OF ADJUNCT MINDFULNESS-BASED COGNITIVE THERAPY TO PREVENT SUICIDAL BEHAVIOR (MBCT-S) IN OUTPATIENTS WHO ARE AT ELEVATED SUICIDE RISK: FINDINGS FROM A PILOT STUDY

Megan Chesin[1,2], Beth Brodsky[2], Alejandro Interian[3], Anna Kline[3], Miriam Latorre[3], Barbara Stanley[4]

[1]William Paterson University, [2]New York State Psychiatric Institute, [3]VA New Jersey Healthcare System, [4]Columbia University

Background: Suicidal behavior is an important public health problem. Suicide is the 10th leading cause of death in the U.S., where it claims approximately 40,600 lives each year (Centers for Disease Control and Prevention, 2014). Internationally, there are at least 800,000 suicides annually (World Health Organization, 2014). The few efficacious treatments to prevent suicidal behavior that exist are limited in terms of their feasibility and broad applicability to suicidal individuals. We thus developed a ten-session protocol combining Mindfulness-Based Cognitive Therapy (MBCT) specifically tailored to address suicide-related concerns with the Safety Planning Intervention, a brief intervention focused on improving individual suicide crisis coping skills. Here, we report on the feasibility, acceptability, safety, and preliminary effectiveness of the intervention, Mindfulness-Based Cognitive Therapy to Prevent Suicidal Behavior (MBCT-S), in a sample of suicidal outpatients.

Methods: Eighteen high suicide risk psychiatric outpatients, i.e., outpatients who had a history of suicidal ideation with method or plan or suicide attempt within the past 6 months and suicidal ideation at study entry, were enrolled and assessed for suicidal ideation, depression and hopelessness using the Scale for Suicidal Ideation, the Beck Depression Inventory-II, and the Beck Hopelessness Scale. All participants received adjunct MBCT-S. Assessments were repeated at MBCT-S termination. To measure feasibility, acceptability, and safety, we calculated enrollment, drop out, and treatment completion rates and counted adverse events. We also examined survey data collected from both patient participants and their referring clinicians.

Results: We found significant reductions in suicidal ideation and depressive symptoms (d=.59, d=.61, respectively), but not hopelessness, with MBCT-S treatment. Eighty-nine percent (n=16/18) of those who enrolled and received some MBCT-S treatment completed the protocol, i.e., attended at least 5 of 9 sessions. Among the 16 individuals who completed MBCT-S treatment, adherence was good. On average, completers attended seven sessions (range=5 to 9). When asked to rate their overall satisfaction with the mindfulness-training component of MBCT-S on a scale of "0, unsatisfied" to "4, very satisfied," completers' responses (n=14 providing data) ranged from satisfied to very satisfied (mean satisfaction rating=3.4, sd=.8). Participant perceptions of the safety planning component of MBCT-S ranged from neutral to satisfied (mean satisfaction rating=2.6, sd=1.1). One-hundred percent of 8 referring clinicians who completed our survey said that they would recommend MBCT-S to other suicidal patients. Only three serious adverse events, an ambiguous suicide attempt, a hospitalization for suicide risk, and a medical hospitalization, were detected by the research team during the trial. None of these events was deemed to be study related by the IRB.

Discussion: We found MBCT-S was feasible, acceptable, and safe as an adjunct to treatment as usual for high suicide risk outpatients. Eighty-nine percent of participants allocated to receive MBCT-S completed treatment. Satisfaction with treatment components was high. There were few serious adverse events during the study. None of these events were deemed to

be study related by the IRB. MBCT-S significantly reduced suicidal ideation and depression in outpatients in usual care who had suicidal ideation and a recent history of suicide-related event or active suicidal ideation. Our data suggest providing a mindfulness-based, adjunctive psychosocial intervention to individuals who remain at-risk for suicidal behavior despite ongoing treatment is practical and effective for reducing suicidal thoughts and depression. A controlled trial that includes an active comparison treatment and tracks suicide attempts is needed to confirm these preliminary findings.

T36. LESSONS LEARNED ABOUT SUICIDE PREVENTION AND PATIENT SAFETY FROM A MEDICATION PACKAGING INTERVENTION

Peter Gutierrez[1], Lisa Brenner[1], Hal Wortzel[1], Jeri Forster[1], Rebecca Leitner[1]

[1]Rocky Mountain Mental Illness Research, Education and Clinical Center

Background: The purpose of this study was to determine if participants' adherence with prescribed medications would be enhanced as a function of how those medications were dispensed. Previous research supports a range of benefits to blister packaging (BP) medications for at-risk patients. Non-adherence is a significant issue for those with psychiatric illness. Moreover, studies suggest that psychiatric symptoms interfere with adherence and partial adherence is associated with poorer psychiatric outcomes, including suicide. Blister packaging, a structured means of dispensing medications was expected to increase adherence, and decrease subsequent poor outcomes in patients at risk for suicide. The specific aims of the study were to: examine if blister packaging medication significantly increased medication adherence; determine if blister packaging decreased self-poisoning behavior; determine if blister packaging medications decreased overall symptom distress; and determine if blister packaging medications reduced additional negative medical and psychiatric outcomes.

Methods: A sample of 303 veterans being discharged from the psychiatric inpatient unit and receiving services in outpatient mental health, substance abuse, and PTSD clinics at an urban Veterans Affairs Medical Center in the western United States were recruited. All patients diagnosed with major affective disorder, bipolar affective disorder, PTSD, and/or schizophrenia were eligible to participate. Consenting patients were randomly assigned by the pharmacy staff to either receive their medications in blister packs or traditional methods used by the hospital's pharmacy. All medications, psychiatric and otherwise, being prescribed by a VA provider and dispensed by the hospital pharmacy were repackaged for participants in the blister pack condition. Participants completed a set of self-report measures, a structured diagnostic interview, and a structured interview on intentional self-harm at baseline and a shorter set of measures at one-month follow-up for up to 12 months. They were given the option of telephone follow-ups, although the majority chose to do in-person follow-ups, and were compensated for their time. The overall retention rate was 55%, with no significant differences by condition.

Results: Despite randomization to condition, there were significant differences for gender, service connection for military incurred disability, number of prescribed medications, diagnosis with alcohol abuse, and diagnosis with alcohol dependence. These variables were controlled in all analyses. A significant difference in adherence was found such that participants in the blister pack condition were more adherent on the medication for which their adherence was worst at the 12-month follow-up. There was also a significant difference in the change in adherence from 1-12 months such that blister pack condition participants improved by 37% and control participants' adherence got worse by 29%. Differences in the number of overdoses in the two conditions could not be tested because there were none. There were also

no differences in number of emergency department presentations or hospitalizations between conditions. Differences were found in reported symptom distress from 1-3 months and 1-6 months, with the blister pack condition participants reporting lower levels of distress. These differences were not clinically significant.
Discussion: Among veterans at high risk for suicide, adherence was significantly better, for certain medications, in the BP condition. But the most striking finding was the lack of overdoses, or suicide attempts by any other means, in this high risk sample. Significant efforts were made to retain participants in the study. Participants felt cared for and strongly connected to the study staff. Those feelings likely had an overall positive effect on participants' functioning. The safety protocol required sharing new information about suicide risk with participants' providers. When we learned about new onset risk not documented in the patient's electronic medical record we informed the patient's provider. Patients were at times directly escorted to their clinician's office for an emergency appointment, to the psychiatric emergency services, and occasionally an inpatient psychiatric hospitalization was facilitated. This level of monitoring is not standard practice. We believe that the observed significant benefits of blister packaging medications for patients at high risk of suicide justify further study to determine how this approach can best be used to manage suicide risk and improve patient functioning.

T37. A PILOT INTERVENTION TO REDUCE DEPRESSIVE SYMPTOMS AND SUICIDAL BEHAVIORS OF YOUNG ASIAN AMERICAN WOMEN

Hyeouk Hahm[1], Aileen Lee[2], Christina Lee[3], Michelle Tagerman[4], Mihoko Maru[4]

[1]Boston University School of Social Work, [2]Brandeis University, [3]Wellesley College, [4]Boston University

Background: Despite their image as a "model minority," young Asian American women have the highest rates of depression and suicide compared to women of other ethnicities. We developed AWARE intervention (Asian Women's Action for Resilience and Empowerment), a ten-session group psychotherapy intervention for Asian American women aimed at reducing depression and suicidality.
Methods: Nine women participated in AWARE pilot study. Upon completion of AWARE intervention, two post-intervention evaluations using a focus group format were used to assess the safety and preliminary efficacy of AWARE.
Results: AWARE intervention participants reported that AWARE reduced mental health symptoms. Participants reported that their "sadness," "depressive symptoms," and "anger" were more manageable. They reported feeling "stronger" and "more confident," learning more about "boundaries," and "communicating better with their parents."
Discussion: The pilot study provides evidence that AWARE is safe and efficacious in reducing symptoms of depression, anxiety, and suicide ideation in a sample of young Asian American females. The randomized clinical trial (RCT) that is currently being conducted will provide more definitive conclusions.

T38. OPEN BOARD

T39. THE INTERNAL STRUGGLE HYPOTHESIS OF SUICIDE AND QUALITATIVE REASONS FOR LIVING AND REASONS FOR DYING

Keith Jennings[1], David Jobes[2], Stephen O'Connor[3], Aaron Beck[4], Gregory Brown[4]

[1]Military Suicide Research Consortium, [2]The Catholic University of America, [3]Western Kentucky University, [4]University of Pennsylvania

Background: Suicide is a national health crisis, with over 32,000 people taking their own lives each year in the United States alone (Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2014). Despite the seriousness of the behavior, mental health providers are often ill-equipped to effectively assess and treat suicidal individuals (Jobes, Rudd, Overholser, & Joiner, 2008). Researchers have proposed various theories and conducted extensive empirical research in attempts to develop more effective clinical assessments of suicidal risk. Of particular interest to the current study are efforts to understand suicide risk as a spectrum of suicidal thinking. Kovacs and Beck (1977) developed the "Internal Struggle Hypothesis," which describes the phenomenon of psychological ambivalence towards living and dying. Jobes and Mann (1999) further examined this struggle by developing the qualitative "Reasons for Living vs. Reasons for Dying (RFL/RFD) Assessment." The primary purpose of this investigation was to reliably code a sample of suicide attempters' qualitative written responses to the RFL/RFD Assessment, and then examine psychological differences between sub-types of suicide attempters derived from the coding as measured on 10 standardized measures pertaining to suicide risk and mental health.
Methods: This study examined an archival qualitative dataset derived from a sample of 120 adult suicide attempters, ranging in age from 18 – 66 years old, who were previous participants in a randomized controlled trial of a suicide-specific intervention conducted by Brown and colleagues (2005). The following measures were used to compare the results of the participants' coded, qualitative responses in order to determine the clinical utility of the qualitative coding systems used in this investigation: (a) the Beck Depression Inventory – II (BDI-II) (Beck, Steer, & Brown, 1996); (b) the Beck Hopelessness Scale (BHS) (Beck, Weissman, Lester, & Trexler, 1974; Beck, Steer, & Ranieri, 1988); (c) the Hamilton Rating Scale for Depression (HRSD) (Hamilton, 1960); (d) the number of previous suicide attempts, which has been shown to be associated with increased risk for eventual death by suicide (Joiner & Rudd, 2000); (e) the Scale for Suicide Ideation (SSI) (Beck et al., 1988); (f) the Scale for Suicide Ideation – Worst (SSI-W) (Beck, 1997); (g) the Short Form-36 Revised (SF-36R) (Ware, 2000); (h) the Suicide Index Score as calculated from responses to 2 items on the SSI (Brown, Steer, Henriques, & Beck, 2005); (i) the Suicide Intent Scale (SIS) (Beck, Morris, & Beck, 1974); (j) the Lethality Scales (Beck, Beck, & Kovacs, 1975); and (k) the Reasons for Living versus Reasons for Dying Assessment (RFL/RFD) (Jobes, 2006).
Results: Micro-Coding Qualitative Content of RFL/RFD Responses: The most frequent RFL responses were Family, Plans and Goals, and Self, accounting for 66.0% of all RFL's. The most frequent RFD micro-coded responses were General Descriptors of the Self, Others (Relationships), and Hopelessness, accounting for 77.7% of all RFD's.
Comparison of the Macro-Coded "Orientation" Construct: Findings from the macro-coding of the suicide orientation construct resulted in 83 participants (70.9%) being coded as "self-oriented" and 34 participants (29.1%) being coded as "relationally-oriented." Results suggested that self-oriented patients experience significantly higher levels of suicidal ideation than do relationally-oriented patients.

Comparison of the Macro-Coded "Motivation" Construct: Findings from the macro-coding of the suicide motivation construct resulted in 25 participants (21.4%) being coded as "life-motivated," 60 participants (51.3%) being coded as "ambivalent-motivated," and 32 participants (27.3%) being coded as "death-motivated." Results suggested that life-motivated

patients experience significantly lower levels of depression, hopelessness, and engage in significantly less lethal suicide attempts than do death-motivated patients.

Discussion: The present study suggests that instilling hope, future plans and goals, and increasing social connectedness among patients suffering from suicidal ideation is imperative to effectively managing suicide risk. Reducing a negative internal focus on the self, and increasing a patient's focus on external, relational factors is also key to reducing overall risk of suicide. From a clinical treatment perspective, there are only a few current evidence-based treatments for suicide explicitly focused on treating these constructs that have been replicated in multiple randomized controlled trials (Brown & Jager-Hyman, 2014).
The RFL/RFD assessment could serve as a way to help the patient and the clinician articulate the specific reasons why the patient is considering suicide, as well as the specific reasons the patient desires to continue living. Patients are likely unable to clearly identify what drives them to want to kill themselves due to cognitive constriction and problem-solving deficits (Shneidman, 1990). Conducting the RFL/RFD assessment can help both the patient and the clinician better understand the unique experience of the patient, which will help to focus treatment on the specific constructs driving the patient's suicidality.

T40. SUICIDE RISK PARAMETERS IN THE PREDICTION OF SELF-REPORTED SLEEP DISTURBANCES

Joanne Kim[1], Kiara Timpano[2], Thomas Joiner[3], Rebecca Bernert[1]

[1]Stanford University School of Medicine, [2]University of Miami, [3]Florida State University

Background: Suicide represents a global disease burden and leading cause of death. Sleep disturbances are among the top 10 warning signs of suicide by SAMHSA, and preliminary research suggests that sleep disturbances are an evidence-based risk factor for suicide. However, a scarcity of research has evaluated these findings according to suicidal risk parameters and among a nonclinical sample of young adults. The current study aimed to investigate whether: 1) insomnia and sleep quality were cross-sectionally associated with suicidal ideation, controlling for depression; 2) sleep disturbances were differentially associated with the bidimensional symptom structure of suicidal ideation (i.e., Suicide Ideation & Desire vs. Resolved Plans & Preparations); and 3) suicide attempt history predicted poorer self-reported sleep disturbances.
Methods: Participants (N=477 college undergraduates; 66% female) completed the Insomnia Severity Index (ISI), Pittsburgh Sleep Quality Index (PSQI), Beck Scale for Suicide Ideation (BSS) and Beck Depression Inventory (BDI). BSS items were categorized into two separate symptom dimension subscales for Suicide Ideation & Desire or Resolved Plans & Preparations. Presence or absence of past suicide attempts was dichotomized according to BSS Item 20. Hierarchical linear multiple regressions were used to evaluate symptom associations with sleep measures (ISI, PSQI), controlling for BDI in the regression block. We expected that: greater ISI and PSQI scores would predict increased BSS Total scores; and Resolved Plans & Preparations would be differentially associated with sleep disturbances compared to Ideation & Desire Symptom Dimensions. Finally, suicide attempt history was hypothesized to predict greater sleep disturbances, as measured by the ISI and PSQI.
Results: Controlling for BDI, hypotheses were partially supported, with greater PSQI scores among participants (M Age=18.9, SD=1.7) predicting elevated BSS Total scores ($t=1.93$, $\beta=.11$, $p=.054$). However, this emerged as a non-significant trend in the expected direction. ISI scores failed to predict increased BSS Total scores ($p>.05$). Next, against expectation, both

BSS Ideation & Desire (ISI: t=3.37, β=.38, p<.01; PSQI: t=2.76, β=.38, p<.01) and greater Resolved Plans & Preparations subscales (ISI: t=2.42, β=.31, p<.05; PSQI: t=2.65, β=.39, p<.02) were significantly associated with sleep disturbances. Last, although participants with past suicide attempts (N=27) had higher mean ISI and PSQI scores than those without past attempts, this difference was not statistically significant (ISI: p=.09; PSQI: p>.05).
Discussion: Hypotheses were partially supported, showing that poor sleep quality, but not insomnia, predicted suicidal ideation, independent of depressive symptoms. This non-significant association may be due to the low endorsement of suicidal ideation and small number of those with past suicide attempts (N=27). Results revealed that sleep disturbances did not vary according to the structure of suicidal symptoms, but were each associated with poorer sleep. Future research is warranted to evaluate sleep according to such parameters and to evaluate their use within standardized suicide risk assessment frameworks.

T41. STUDYING THE MOST AT-RISK POPULATIONS: LESSONS LEARNED FROM A CLINICAL TRIAL OF BIPOLAR PATIENTS WITH SUICIDAL IDEATION AND BEHAVIOR

Rebecca Montana[1], Stephanie Salcedo[1], Thilo Deckersbach[1], Andrew Nierenberg[1], Louisa Sylvia[1]

[1]Massachusetts General Hospital

Background: Bipolar disorder is a chronic and debilitating mood disorder characterized by episodes of mania or hypomania that typically alternate with periods of major depression. These individuals experience high rates of suicidal ideation and behavior, with risk of death due to suicide estimated to be 20 times greater than the general population. Despite this high risk combination of suicide and bipolar disorder, clinical trials of bipolar disorder often exclude individuals with suicidal ideation or behavior as they are considered too risky to study. Sleep disturbance in bipolar disorder is not only a prodromal and causal symptom of bipolar mood episodes, but it is also associated with suicidal ideation and behavior.
Methods: This study has two primary goals: First, we aim to determine the relationship between suicidality and sleep disturbance; Second, to pilot a brief Cognitive Behavioral Therapy-based intervention (6-8 weeks) for sleep disturbance to reduce suicidal ideation and/or behavior. We planned to enroll 40 patients with bipolar disorder (type I or type II) over two years between the ages of 18 and 65 with reported sleep disturbance.
Results: All eligible participants that have enrolled in the study have reported suicidal ideation within the last month as defined by the C-SSRS. Eleven participants were female (55%) and 95% of participants were white. We began enrollment in 2012 and have met several challenges in recruitment and retention. Over the past three years, we have screened >200 participants and only consented 20 eligible patients. In regards to retention, nine have dropped out (45%).
Discussion: Challenges to recruitment and retention for this high risk population will be presented. For example, several participants who were suicidal and demonstrated interest in the study did not have a current treatment provider (i.e., often not taking any psychotropic medications and not meeting regularly with any providers). Given that we were offering an adjunctive psychosocial intervention, this complicated eligibility for these participants. In regards to attrition, it is perhaps not surprising that nearly one out of every two suicidal bipolar patients drops out of a clinical trial as they lack motivation (or find study procedures burdensome) and are hopeless (or often have no faith that the study will help them). Given the dearth of studies examining this high risk population, we believe that this study is addressing a critical gap in the field. There is a clear need for increased research focusing on suicidal risk

among patients with serious mental illness. Our difficulty in studying this high risk population indicates that we need to find alternative ways to study suicidality among depressed and bipolar populations in order to ultimately improve their treatment.

T42. SOCIAL MEDIA AND SUICIDE PREVENTION

Jo Robinson[1], Eleanor Bailey[2], Georgie Cox[2], Sarah Hetrick[2], Maria Rodrigues[3], Steve Fisher[3], Helen Herrman[2], Matt O'Donnell[4]

[1]Orygen, [2]Orygen, The National Centre of Excellence in Youth Mental Health, [3]Community Works, [4]String Theory Health

Background: The media is thought to play an important role in suicide prevention however the growth of social media presents new challenges. For example, concerns have been expressed with regard to the use of social media sites for the expression of suicidal feelings, and for the communication about methods of suicide-related behaviour. But given its increasing popularity it also leads us to question the potential for social media to be used a preventative tool. Aims are to:

1. Present findings from a systematic review relating to social media and suicide prevention
2. Present findings of a stakeholder consultation that examined gaps in knowledge and future priorities for work in this field
3. Describe a new project that involves the development of a suite of suicide prevention interventions to be delivered via social media.

Methods: Systematic review: Electronic databases were searched for articles published between 1991 and April 2014. English language articles with a focus on suicide-related behaviour and social media were included. Stakeholder consultation: A series of online surveys were administered to: i) People who conduct research into suicide and social media; ii) Organisations that use social media for suicide prevention; and iii) Social media users. Safe conversations: A group of high school students are participating in an 8-week program that will result in the development of a suite of suicide prevention interventions to be delivered via social media. The impact of participating in the project is being assessed via ongoing focus groups and questionnaires administered before and after the program. The interventions themselves will be evaluated via closed Facebook groups.

Results: Systematic review: Thirty studies were included, 4 described the development of social media sites designed for suicide prevention, 6 examined the ability of social media to reach or identify people at risk; 15 examined ways in which people used social media for suicide prevention-related purposes; and 5 examined the experiences of people who had used social media sites for suicide prevention purposes.

Stakeholder consultation: In total 99 people completed the surveys. Overall social media was seen as a useful way of delivering suicide prevention activities, and whilst risks were identified the benefits were seen to outweigh the risks. Safe conversations project: This is due to be complete in June 2015 and results will be presented including the interventions themselves plus the evaluation findings.

Discussion: Together these studies demonstrated that social media platforms can reach large numbers of hard-to-engage individuals, may allow others to intervene following an expression of suicidal ideation online, and provide an anonymous, accessible and non-judgmental forum for sharing experiences. Challenges include difficulties controlling user behaviour and

accurately assessing risk, issues relating to privacy and confidentiality, and the possibility of contagion. However, overall social media was recognised as holding potential for delivering suicide prevention activities. To the best of our knowledge, the Safe Conversations project is the first study to test the impact of suicide prevention interventions designed by and for young people that can be delivered via social media. If these interventions are found to be safe, acceptable and effective they can be rolled out rapidly using a range of social media platforms at no cost, paving the way for a new generation of approaches to suicide prevention.

T43. MEANING-CENTERED MEN'S GROUPS FOR MEN FACING RETIREMENT: AN UPSTREAM INTERVENTION TO DECREASE RISK FOR ONSET OF SUICIDE IDEATION

Marnin Heisel[1], Gordon Flett[2], Paul Links[1], Ross Norman[1], Sisira Sarma[1], Sharon Moore[3], Norm O'Rourke[4], Rahel Eynan[1], Kim Wilson[5], Paul Fairlie[2], Beverly Farrell[6], Kristan Harris[6], Michelle Kerr[7], Bonnie Schroeder[8]

[1]The University of Western Ontario, [2]York University, [3]Athabasca University, [4]Simon Fraser University, [5]University of Guelph, [6]St. Joseph's Healthcare London, [7]Kiwanis and Hamilton Road Seniors and Community Centre, City of London, [8]Canadian Coalition for Seniors' Mental Health

Background: Older men have the highest rates of suicide worldwide (WHO, 2014). Few intervention studies have investigated suicide risk reduction among middle-aged and older adults, and nearly none has aimed explicitly to reduce risk among men. Men's suicide rates increase at retirement age (Statistics Canada, 2014; WISQARS, 2015); retirement may thus be a life transition that can trigger a crisis of meaning, thus increasing suicide risk.
Methods: We are recruiting 100-120 community-residing men facing retirement into a multi-stage study to develop, validate, and disseminate Meaning-Centered Men's Groups (MCMG) in community settings. MCMG consists of 12-session courses of a facilitated group experience for cognitively-intact men, 55 years or older, struggling to transition to retirement, consistent with our research demonstrating a robust negative association between perception of Meaning in Life (MIL) and late-life suicide ideation (Heisel & Flett, 2014). Group sessions focus on enhancing camaraderie and mutual support, encouraging expression of personal experiences with retirement, and discussing the meaning of work, retirement, leisure, relationships, and generativity. Participants cannot meet criteria for an active untreated mental disorder.
Results: We are iteratively evaluating the efficacy of MCMG in preventing the onset or reducing the severity of depression and suicide ideation, and in enhancing MIL and satisfaction with retirement, compared with a current-events discussion group control. Groups are being delivered in a community center, co-facilitated by a social service worker, to enhance uptake and sustainability. An initial uncontrolled group is underway with 10 men 60-70 years of age (M=65.7, SD=3.2). Participants reported moderate to strong health ratings and generally positive feelings towards retirement at eligibility, and moderate to strong life satisfaction (Satisfaction with Life Scale; M=26.7, SD=5.3), moderate alcohol use (Alcohol Use Disorders Investigation Test; M=5.1, SD=2.4), and low to moderate depressive symptom severity (Geriatric Depression Scale; M=7.2, SD=6.3) and suicide ideation (Geriatric Suicide Ideation Scale; M=45.9, SD=8.3) at pre-group assessment. Participants have expressed comfort and satisfaction with initial group sessions on a session-by-session feedback form designed to assess their experiences with MCMG to help shape this novel intervention. Initial qualitative and quantitative findings will be presented along with lessons learned.

Discussion: Findings to date support the feasibility of recruiting men concerned about the transition to retirement into a community-based group intervention. Additional findings will be discussed in the context of the aging population and the need for innovative interventions targeting potentially vulnerable groups.
Funding for this study has been provided by Movember Canada.

T44. THE DEVELOPMENT AND INITIAL VALIDATION OF THE BRIEF ADOLESCENT SUICIDE IDEATION SCALE (BASIS)

Marnin Heisel[1], Sandra Fisman[1], Julie Eichstedt[1], Stephanie Rabenstein[2], Heather Jacques[2], Kerry Collins[1], Devita Singh[1], Carlie Kramer[2], Brenda Davidson[2], Gina Bhullar[1], Paige Ethridge[3], Rahel Eynan[1], Gordon Flett[4]

[1]The University of Western Ontario, [2]London Health Sciences Centre, [3]Lawson Health Research Institute, [4]York University

Background: Suicide is a leading cause of death among North American youth. Enhanced suicide risk detection and intervention is thus necessary among adolescents in schools and in primary care, emergency and mental health services. The purpose of this study is to develop and initially validate a novel measure (the Brief Adolescent Suicide Ideation Scale or BASIS) for use with community and hospital clinical care providers, to enhance suicide risk detection and monitoring among adolescents.
Methods: We employed an iterative psychometric process of developing, revising, and validating the BASIS involving: 1) initial selection, refinement, and extensive adaptation of relevant items from an Heisel & Flett's (2006) Geriatric Suicide Ideation Scale (GSIS) for use with adolescents; 2) focused feedback on the items from experts in mental health, suicidology, and test development; 3) feedback from adolescent healthcare professionals on the further revisions to the BASIS; 4) real-time feedback from adolescent mental health clients while reading the BASIS items aloud; 5) assessment of the reliability and validity of the BASIS among 100-150 adolescents receiving mental health services.
Results: Preliminary findings from this on-going study will focus on iterative feedback on the revisions to the BASIS, including expert feedback on the appropriateness and relevance of the items and qualitative feedback from adolescents on the item content and format, and initial psychometric findings from the validation portion of this study.
Discussion: Implications from our preliminary findings will be discussed, in the context of clinical and public health approaches to detecting and reducing risk for suicide among adolescents.
Funding for this study was provided in part by the Children's Health Foundation, London Health Sciences Centre (SF; MJH) and by an Early Researcher Award to Dr. Heisel from the Ontario Ministry of Research and Innovation.

T45. ASSOCIATIONS BETWEEN PERCEIVED CRITICISM AND SUICIDE IDEATION AND ATTEMPTS

Christopher Hagan[1], Thomas Joiner[1]

[1]Florida State University

Background: The effect of perceived criticism from others is one potentially important risk factor for suicide that has received scant attention, despite decades of research on the role of criticism in the treatment and course of mental illnesses such as schizophrenia, depression, bipolar disorder, and anxiety disorders. The current study analyzed the unique effect of perceived criticism's association with suicidal ideation and attempts as well as its connection with the well-established suicide related constructs of thwarted belongingness, perceived burdensomeness, and the acquired capability to enact self-harm as described in the Interpersonal Psychological Theory of Suicide.
Methods: In one session, participants completed a series of self-report questionnaires, clinical interviews with a trained and supervised graduate student clinician, as well as an assessment of their pain tolerance in a laboratory setting.
Results: Results demonstrated that perceived criticism is a significant predictor of suicidal ideation and attempts, above and beyond the role of mental illness. Further analyses demonstrated that the effect of perceived criticism on suicide ideation and attempts was fully mediated by the constructs of thwarted belongingness and perceived burdensomeness.
Discussion: These results demonstrate that elevated levels of perceived criticism, whether it comes from friends or parents, has a significant role in the development of suicidal ideation and even in suicidal attempts above and beyond the relationship between ideation and attempts. Additionally, these data support the IPTS model by demonstrating that perceived criticism's effect on suicide exists predominantly through its effect on feelings of thwarted belongingness and burdensomeness. As thwarted belongingness and perceived burdensomeness are somewhat broad concepts, better understanding of specific concerns that comprise and contribute to these broader factors can be helpful for future intervention research. These results should be replicated in a wider sample and should be investigated as a factor to address in public and individual mental health treatment to help reduce suicide ideation and attempts.

T46. DATING VIOLENCE VICTIMIZATION, NONSUICIDAL SELF-INJURY, AND THE MODERATING EFFECT OF BORDERLINE FEATURES IN ADOLESCENT INPATIENTS

Claire Hatkevich[1], William Mellick[2], Tyson Reuter[2], Jeff Temple[3], Carla Sharp[2]

[1]University of Houston, UT Health Harris County Psychiatric Center (HCPC), [2]University of Houston, [3]University of Texas Medical Branch

Background: Nonsuicidal self-injury (NSSI) is a prevalent, problematic behavior involving purposeful self-harm without intent to die (Nock, 2006). Previous work has examined numerous correlates and predictors of NSSI, including dating violence victimization (DVV) and Borderline Personality Disorder (BPD) features. Although links have been established between BPD with DVV (Stepp et al., 2012), DVV with NSSI (Rizzo et al., 2014), and BPD with NSSI (You et al., 2012), no studies have examined all three constructs together across any age group. Further, empirical studies have not investigated whether BPD features heighten a victimized individuals' risk for NSSI, such that, in the presence of greater borderline features, victimized individuals are more likely to turn to NSSI and do so at greater rates. The purpose of the current study was to investigate the moderating effect of BPD features in a particularly high-risk subset for NSSI: psychiatric adolescents.
Methods: The sample included 184 adolescent inpatients from a private, psychiatric facility (Mean age=15.37, SD=1.42; 66% female; 81% Caucasian). Using an established psychometric cutoff (Chang et al., 2011) on the Borderline Personality Features Scale for Children (BPFS-C; Crick et al., 2005), the full sample was divided into two groups: high BPD features (n=113),

low BPD features (n=71). Dating violence victimization and perpetration were assessed via a self-report, continuous measure of violent dating behaviors (Conflict in Adolescent Dating and Relationships Inventory, CADRI; Wolfe et al., 2001). BPD features were assessed with the BPFS-C and used to determine BPD group status (high, low). Lifetime NSSI frequency was assessed with a continuous self-report (Deliberate Self-Harm Inventory, DSHI; Gratz et al., 2001). All study measures were completed within two weeks following admission.
Results: The high BPD features group reported significantly more experiences with DVV ($t = -3.39$, $p = .001$) and dating violence perpetration ($t = -4.82$, $p < .001$), relative to the low BPD features group. Bivariate analyses revealed significant correlations between DVV, NSSI frequency, and BPD features group status. Hierarchical multiple regression analyses revealed a significant interaction between DVV, BPD features, and NSSI frequency, such that BPD features moderated the relation between DVV and NSSI. Interaction effects for BPD feature groups (low, high) were observed to be opposite of those expected. The low BPD features group escalated in NSSI frequency as levels of DVV increased, whereas no such effect was found among the high BPD features group, who endorsed elevated, stable rates of NSSI at all levels of DVV.
Discussion: This study provides initial evidence of a differential relation between DVV and NSSI in adolescent inpatients with varying levels of BPD features. Low BPD adolescents appear to self-injure at greater rates when faced with more severe DVV, potentially as a direct coping response. In high BPD adolescents, DVV appears neither necessary nor sufficient to predict NSSI—in other words, high BPD adolescents engage in similarly high NSSI rates regardless of escalating DVV. These unwavering NSSI rates may be partly attributed to the longstanding emotion dysregulation evident in BPD individuals (Tragesser et al., 2007), which may underlie NSSI behavior. Our findings also suggest that, consistent with extant work (Drapeau & Perry, 2009), high BPD individuals may respond to DVV by 'completing the circle' and perpetrating violence against their partner. Prominently, our results indicate that DVV may be a particularly important focal point for treating adolescents who self-injure and have been victimized by an intimate partner. As such, Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) may be a valuable treatment for victimized adolescents who self-injure.

T47. PROACTIVE SCREENING FOR SUICIDE PREVENTION

Newton Howard[1], Louis Jehel[2]

[1]University of Oxford, [2]Université des Antilles et de la Guyane

Background: Post Traumatic Stress Disorder (PTSD) is associated with suicidality, where comorbid major depression is a mediating factor (Panagioti, Gooding & Tarrier, in press). Recent studies show that vulnerability to stress and to PTSD has a clear neurological connection as it is grounded in the "amygdala's predisposition and hippocampal plasticity" (Admon et al. 2009). However, this neurological predisposition is not clinically useful for predicting suicide. Therefore, identifying early warning signs of suicide should instead rely on available behavioral cues of depression, PTSD and other risk factors. Despite the existence of warning signs, there are several problems hindering the diagnosis and treatment of PTSD (Hedenko et al. 2007. Therefore we propose a method that analyzes data from social media (primarily blogs and emails) to proactively screen for risk of suicide. Under the sponsorship of the Israeli Ministry of Defense our team developed a system called Pedesis that can proactively screen for signs of depression from textual data (Neuman et al. in press). Pedesis was able to differentiate between high and low depressive texts with an impressive level of accuracy.

Methods: The proposed Project aims to develop and test a tool to screen Suicide Early Warning Signals (SEWS). The tool is based on state-of-the-art knowledge, algorithms, and multimodal analysis involving natural language processing, machine learning, subliminal priming, and a biometric measure of typing rhythm.
Five hundred male military personnel will participate in the study. The subjects will be asked to use a secure, password protected email interface based on their own personal email accounts. A sample of the subjects' emails content will be analyzed through advanced natural language processing tools. In addition we will monitor their keystroke dynamics and their response to subliminal priming tasks which will be progressively introduced after the email correspondence phase. The priming tasks will be used to screen for PTSD symptoms associated with the potential stress that results from "sperm competition". The data will be fused with background information from the subjects' medical records provided by the army. High-risk individuals will be identified and the validity of the identification will be evaluated through the expert judgment of army psychologists/psychiatrists assessing depression and PTSD.

Results: Pestian et al. (2012) analyzed predictability of suicide notes to determine whether clinicians were able to differentiate between genuine and false. They performed a cross-sectional design to test how machine-learning algorithms can classify suicide notes. The results of machine-learning analysis of suicide notes confirmed that machines could do as equally well as humans with training. The machines accurately predicted accurate suicide notes about 78% of the time (Pesetian et al. 2012). The machine learning analysis was based on parts of speech Natural Language Processing (NLP), readability and suicidal emotions. Using machine learning as Pestian et al. (2012) acknowledged led to more beneficial results due to the inability of externals observers to understand experience. Machine Learning focuses on structure rather than the external observer focusing on content. Based on the results of Pestian et al. (2012) our similar approach would likely yield beneficial results as a screening method using NLP and machine learning. We expect our method to perform with more accuracy than Pestian et al. (2012) because of the natural language content we are analyzing, the combination of multimodal measures, and novel measures we will be using

Discussion: Based on recent findings of advanced natural language processing tools and keystroke dynamics, we propose machine learning as a method for detecting and screening suicidal behavior. In sum, the current project proposes to develop automatic and proactive tools for screening early suicide early warning signals. The tool validly will be measured against the judgment of human experts and established validated questionnaires. This methodology may provide an easy to use and economical tool for screening massive number of army personal and veterans and to identify among them those who are at risk and should be immediately diagnosed by mental health professionals. Natural Language processing and algorithms may better identify Suicide Early Warning Signals (SEWS) among a population of at-risk post-traumatic morbidity. The results of this study could also have additional implications in the field of mental health. Because there is often stigma against seeking mental health treatment, implementing a screening technique into regular care could yield significantly lower annual suicide rates.

T48. THE DEVELOPMENT, IMPLEMENTATION, AND EVALUATION OF A COMPREHENSIVE COURSE ON SUICIDE WITHIN A SOCIAL WORK CURRICULUM

Kimberly O'Brien[1], Joanna Almeida[2], Emma Gross[2], Christina Gironda[2]

[1]Simmons College, [2]Simmons School of Social Work

Background: Social workers provide clinical services in a variety of settings where persons at high risk of suicide-related ideation and behaviors are served (Center for Health Workforce Studies, 2006). Over 90% of practicing social workers will encounter a suicidal client during their professional career, 55% of social workers will work with a client who attempts suicide, and 31% will have a client die by suicide (Feldman & Freendenthal, 2006; Sanders, Jacobson, & Ting, 2008). In addition, many social workers will provide care to those who lost a loved one to suicide during their professional work. Moreover, one of social work students' biggest fears about clinical practice is the disclosure of suicide-related thoughts by a client (Sanders et al., 2008). Despite this, the majority of Masters of Social Work (MSW) programs do not offer comprehensive training in suicide prevention, intervention, or postvention in their curriculum, and most MSW students receive four or fewer hours of education on suicide (Feldman & Freendenthal, 2006; Sanders et al., 2008). The aim of this study was to develop, implement, and evaluate a course on suicide in a social work curriculum.

Methods: The course was developed by first requesting syllabi from other courses offered on suicide. We received sixteen different syllabi from faculty in multiple disciplines. We then compared all sixteen syllabi by topics and assigned readings. Based on these data, we chose weekly topics that were most relevant for MSW students. Readings were examined and selected based on frequency of assignment as well as date of publication. Lectures and class activities were developed, and whenever possible, utilized existing Power Point presentations to minimize duplication of effort, and to standardize information. The course was implemented in the spring semester of 2015 at a MSW school in the northeast United States. Change in student knowledge and confidence from the course was evaluated using a pre- post- survey administered to students on the first and last days of class. The 54-item survey assessed knowledge related to each class topic, as well as confidence in using clinical skills with suicidal clients. The survey utilized several forms of measurement, including multiple-choice, short-answer questions, and Likert-scale rating items.

Results: Knowledge about suicide topics as well as confidence in ability to use clinical skills with suicidal clients improved among the students from pre-course to post-course. In this predominately female (90%), heterosexual (86%), non-Hispanic/Latino (91%), white (68%) sample of MSW students, knowledge in suicide theory ("I can name and explain at least one suicide-specific theory") improved, as 68% reported "disagree" or "strongly disagree" pre-course and 86% reported "agree" or "strongly agree" post-course. Additionally, 45% pre-course reported "disagree" or "strongly disagree" to the statement "I am confident in my ability to apply theory to understanding suicide," and post-course 82% reported "agree" or "strongly agree." With respect to confidence, 64% pre-course reported "disagree" or "strongly disagree" to the statement "I can name at least one intervention for suicidal clients and feel confident I could implement it," and post-course 82% reported "agree" or "strongly agree." Additionally, 64% pre-course reported "disagree" or "strongly disagree" to the statement "I feel confident in my ability to develop effective treatment plans with suicidal clients," and post-course 86% reported "agree" or "strongly agree."

Discussion: One objective of the National Strategy for Suicide Prevention is to make suicide-related training of mental health providers an essential component of their professional education (U.S. Department of Health and Human Services, 2012). As front-line providers of clinical services and the fastest growing group of mental health professionals (Manderscheid & Berry, 2006), social workers are in a unique position to prevent suicide-related behaviors. The majority of professionals in the social work field will encounter suicidal clients and individuals affected by suicide. Given the prevalence of suicide-related thoughts and behaviors and the frequency with which social workers provide services for populations affected by suicide, it is critical that we focus on training future generations of social workers to effectively assess and treat suicidal clients and their families. Implementing courses on suicide in MSW

programs, such as the one developed and evaluated in this study, is one potential way to enhance training of social work clinicians. By creating a ready-to-use curriculum, including a fully structured syllabus with planned weekly agendas, class activities, and Power Point presentations, we anticipate reduced barriers to integration into MSW curricula. Providing a self-sustaining course that can be disseminated across MSW schools at the international level is one way in which the social work field can contribute to the amelioration of the public health problem of suicide.

T49. RECOVERY FROM SELF-HARM IN LOOKED-AFTER YOUNG PEOPLE: WHICH SUPPORTS AND CLINICAL SERVICES HELP?

Ellen Townsend[1], Ruth Wadman[1], David Clarke[1], Kapil Sayal[1], Panos Vostanis[2], Marie Armstrong[3], Caroline Harroe[4], Pallab Majumder[3], Chelsea Sawyer[1], Alex Berry[1]

[1]University of Nottingham, [2]University of Leicester, [3]Child and Adolescent Mental Health Services Nottingham City. [4]Harmless

Background: Self-harm (self-poisoning or self-injury regardless of suicidal intent) is a significant problem in looked-after young people (looked-after in care homes or by foster parents). Despite this there have been very few studies which have investigated self-harm in this vulnerable population. Moreover, self-harm is the strongest predictor of suicide with suicide being the second commonest cause of death in young people globally. Thus, it is vitally important to develop and provide clinical services that promote recovery from self-harm. We explored which clinical services and supports are viewed as helpful and those which are not helpful by looked-after young people who self-harm and a control group of young people who self-harm but who have never been in care.

Methods: Prospective Audio Computer Assisted Self-Interview (ACASI) completed at baseline and 6-month follow-up. Young people, (aged 11-21 years), recruited from clinical and social care settings, and from the community, who had self-harmed in the last six months took part in the ACASI. We asked participants to rate their experience of clinical services that had assessed or supported them after an episode of self-harm. Participants were asked to rank the top three most helpful, and the three least helpful services/supports received. They were also asked whether they felt other supports should be available that are not provided now. We also took measures of key psychological factors known to be associated with self-harm (eg. hopelessness, entrapment, burdensomeness, self-esteem, anxiety and depression).

Results: This paper presents preliminary findings from analysis of responses from 120 participants (60 looked-after vs 60 controls) collected at baseline. We will discuss which clinical supports and services are seen as most helpful and which are viewed as least helpful in young people who have been looked-after compared to those who have never been in care. Experience of services will also be examined in relation to key psychological risk factors.

Discussion: There is a limited evidence-base on 'what works' in promoting recovery from self-harm and reducing psychological distress associated with this behaviour. Differences in experiences in young people who have been in care will be discussed in relation to those who have never been in care. The implications for supporting looked-after young people who self-harm will be outlined especially the factors that clinical services can focus on to promote recovery from self-harm.

T50. A COMPARISON OF THE "LIVED EXPERIENCE" OF SELF-HARM IN YOUNG PEOPLE WITH AND WITHOUT EXPERIENCE OF FOSTER OR

RESIDENTIAL CARE: A SYNTHESIS OF QUALITATIVE INTERVIEWS WITH TWO GROUPS

Ruth Wadman[1], Marie Armstrong[2], David Clarke[3], Caroline Harroe[4], Pallab Majumder[2], Kapil Sayal[3], Panos Vostanis[5], Ellen Townsend[3]

[1]University of Nottingham, [2]Nottinghamshire Healthcare NHS Foundation Trust, [3]University of Nottingham, [4]Harmless, [5]University of Leicester

Background: Young people living in foster or residential care, "looked-after" young people, are at high risk of self-harm yet targeted research in this group is limited. Children in care are likely to have a number of risk factors, due to their past history (e.g. adverse childhood experiences such as abuse or family difficulties) and current circumstances (e.g. relationship breakdown or social isolation), that increase their vulnerability to self-harm or suicide. The aim is to explore young peoples' experience and perceptions of self-harm in order to improve our understanding of self-harm in this group and inform service provision.
Methods: Twenty-four young people with experience of foster and/or residential care took part in semi-structured qualitative interviews. A comparison group of 21 young people with no experience of being in care were also interviewed. Open-ended questions were guided by an interview schedule about experiences of self-harm initiation, maintenance and recovery. In addition, participants were asked about services and support that may be helpful. Interpretative Phenomenological Analysis (IPA) was used to identify key themes in the two separate groups. IPA is a qualitative method well-suited to exploring how individuals make sense of their experience with mental health difficulties.
Results: This paper presents a preliminary synthesis of the themes emerging from the two groups (experience of foster/residential care vs. no experience of care). Similarities in key themes are discussed and salient differences between the groups are highlighted. Questions that will be considered will include what do young people think are the key factors that led them to self-harm and maintain their self-harm? Do these pathways differ for young people who have lived in foster care or residential care placements? What factors influence recovery from self-harm and how might living situation play a role?
Discussion: This is the first targeted qualitative study on self-harm in looked-after young people and is part of the Department of Health's research initiative to support the implementation of the National Suicide Prevention Strategy in England. The discussion will cover implications for improving support for looked-after young people in community, health and social care settings. We will also consider the value of using qualitative approaches to increase understanding of self-harm in vulnerable groups.

T51. FREQUENCY OF SUICIDE ATTEMPTS AMONG FEMALE PATIENTS ADMITTED FOR SUICIDAL BEHAVIOR: THE INFLUENCE OF FAMILY HISTORY OF SUICIDAL BEHAVIOR

Sasha Rojas[1], Demian Rodante[2], Courtney Dutton[1], Matthew Feldner[3], Federico Rebok[4], German Tetí[5], Agustina Fógola[5], Federico Daray[6]

[1]University of Arkansas, [2]Third Department of Pharmacology, School of Medicine, University of Buenos Aires, [3]University of Arkansas; Laureate Institute of Brain Research, [4]Third Department of Pharmacology,School of Medicine, University of Buenos Aires; Servicio de Guarda, Hospital, "Dr. Braulio A. Moyano" Neuropsychiatric Hospital, [5]Third Department of Pharmacology,School of Medicine, University of Buenos Aires, [6]Third Department of

Pharmacology,School of Medicine, University of Buenos Aires; Consejo Nacional de Investigaciones Cientificas y Técnicas

Background: Individuals with a family history of suicidal behavior are at increased risk for suicide and suicidal behavior (Mann, Waternaux, Haas, & Malone, 1999). Independent to history of family psychopathology, familial transmission of suicidal behavior is still a risk factor for offspring suicidal behavior (Brent, & Mann, 2005; Kim et al., 2005; Rajalin, Hirvikoski, & Jokinen, 2012). Differential influence of family history of suicide verse family history of suicide attempts remains unclear. The current study examined associations between number of suicide attempts among female inpatients admitted for recent suicidal behavior and their family histories of suicide attempts, suicide, and no suicidal behavior.
Methods: Participants included 169 female patients between the ages of 18 and 63 years (M = 37.38, SD = 11.91). All patients were admitted at the Dr. Braulio A. Moyano Emergency Department, a women neuropsychiatric hospital serving a large urban catchment area in Buenos Aires, Argentina, for severe suicidal ideation or a recent suicide attempt in the last 72 hours. Patients included in the study were fully informed and provided written consent prior to participation. The local ethics committee approved all study procedures. A Univariate Analysis of Variance was conducted to examine the associations between family histories of suicidal behavior (i.e., suicide attempts, completion, no suicide behavior) and history of suicide attempts among female patients admitted for recent suicidal behavior.
Results: After controlling for patient age and family history of psychopathology, there was a significant difference in history of patient suicide attempts as a function of family history of suicidal behavior [$F(2, 164) = 5.62$, $p = .004$, $n2 = .064$]. Pairwise comparisons indicated patients with a family history of suicide attempts (N = 46) reported a greater number of previous suicide attempts (M = 6.24, SD = 9.79) as compared to patients with no family history of suicidal behavior (N = 79; M = 2.91, SD = 4.57; p = .017) and as compared to patients with a family history of suicide (N = 46; M = 2.16, SD = 2.25; p = .007). There was no significant difference in patients' history of suicide attempts between patients with family history of suicide as compared to patients with a family history of no suicidal behavior.
Discussion: Results suggest that family history of suicide attempts marks an elevated risk for frequency of suicide attempts among suicidal patients as compared to patients with family members who have died by suicide or those with no family history of suicidal behavior. This is an important observation given the increased risk of suicide among individuals reporting a greater frequency of suicide attempts.

T52. LIFETIME SUICIDAL IDEATION, PERCEIVED PARENTAL LOVE AND FAMILY STRUCTURE IN CHILDHOOD: A CROSS-SECTIONAL STUDY IN THE NATIONAL COMORBIDITY SURVEY REPLICATION

Ryoko Susukida[1,2], Holly Wilcox[3], Tamar Mendelson[4]

[1]Johns Hopkins Bloomberg School of Public Health, [2]Johns Hopkins Bloomberg School of Public Health, [3]Johns Hopkins School of Medicine, [4]Johns Hopkins School of Public Health

Background: While perceived support from caregivers in the early stages of life is an aspect of family environment that is increasingly recognized as important for understanding lifetime suicidal behaviors, it is not well understood whether the relationship between perceived support from caregivers during childhood and lifetime suicidal behaviors holds regardless of family structure. This study examined the association between perceived love from caregivers in

childhood and lifetime suicidal ideation among a nationally representative sample of adults in the United States.
Methods: Cross-sectional data (N=5,692, 2001-2003) from the National Comorbidity Survey Replication were analyzed. Multivariable logistic regression analyses were conducted to examine the association between lifetime suicidal ideation and retrospectively ascertained data on perceived love from caregivers during childhood as well as lifetime psychiatric disorders and sociodemographic characteristics of study participants. Regression analyses were stratified by family structure, whether study participants lived with two biological parents during childhood.
Results: Those who perceived 'a lot of' or 'some' love from caregivers during childhood were significantly less likely to have reported lifetime suicidal ideation as compared to those who perceived 'a little' or no love from their parents, regardless of family structure. Whether living with two biological parents during childhood, those who perceived love from caregivers during childhood had significantly 42-43% lower odds of lifetime suicide ideation as compared with those who did not perceive love from caregivers.
Discussion: Results suggest that perceived support from caregivers during childhood is an important correlate of lifetime suicidal ideation, regardless of family structure.

Wednesday, October 14, 2015

10:45 AM - 12:45 PM

Poster Session III with Lunch

W1. SUICIDE IN THE OLDEST OLD: AN OBSERVATIONAL STUDY AND CLUSTER ANALYSIS

Mark Sinyor[1], Lynnette Pei Lin Tan[2], Ayal Schaffer[3], Damien Gallagher[3], Kenneth Shulman[3]

[1]Sunnybrook, University of Toronto, [2]Tan Tock Seng Hospital, [3]Sunnybrook Health Sciences Centre

Background: Per-capita rates of suicide are highest among the elderly population in most countries, particularly in the oldest-old. Numerous contributing factors have been identified, some of which are similar to younger suicide victims, such as male sex, being widowed or divorced, the presence of psychiatric illness or stressful life events. Other factors differentiate suicide deaths in old age from those in early life. For example, although psychiatric illness is a common factor in suicide in all age groups, mood disorders predominate in elderly suicide victims, while substance use, psychotic and personality disorders are more commonly seen in non-elderly suicide victims. Most people dying from suicide in late life also have no known prior suicide attempts and, despite the fact that 50-85% of older adults see their general physician shortly before dying of suicide, elderly suicide victims are less likely to express suicidal ideation to a physician or family member. This study sought to learn more about the characteristics of suicide in the oldest-old and to use a cluster analysis to determine if oldest-old suicide victims assort into clinically meaningful subgroups that might benefit from targeted interventions for suicide prevention.

Methods: Coroner's chart review of suicide victims in Toronto from 1998-2011. Demographic, clinical and suicide specific data were collected from coroner's charts for all deaths. We compared two age groups (65-79 year olds, n = 335 and 80+ year olds, n = 191) and then conducted a hierarchical agglomerative cluster analysis using Ward's method to identify distinct clusters in the 80+ group. Given evidence of different patterns of demographic, clinical and stress-related factors in elderly who die from suicide, we input the following variables into the cluster analysis: sex, marital status, living circumstance (alone, with family, nursing home/retirement residence etc.), depression, dementia, other mental illness, the presence of a recent medical health stressor, bereavement within the past year, past suicide attempts and whether the deceased had been recently assessed by a psychiatrist or an emergency department. Details of the suicide were compared between groups but were not included in the establishment of clusters in keeping with the goal of the study to determine whether distinct groups emerge that could be identified prior to the suicide act. We also descriptively characterize the oldest suicide victims aged 90+ (n=25).
Results: The younger and older age groups differed according to marital status, living circumstances and pattern of stressors. The cluster analysis identified 3 distinct clusters in the 80+ group. Cluster 1 was the largest (n=124) and included people who were either married or widowed who had somewhat higher rates of medical health stressors and depressed mood. Cluster 2 (n=50) was comprised of people who were almost all single, with the majority living alone and it had the lowest rate of mental illness. Cluster 3 (n=17) was the smallest. Most were single; all lived in a retirement residence or nursing home and this group had the highest combined rates of depression, dementia and other mental illness as well as past suicide attempts. There were no differences between clusters in suicide methods. Of the 25 suicide victims aged 90+, fifteen (60%) were male, six were married and 10 were widowed. Fourteen were depressed and 12 had a recent medical health stressor in the previous year. Of those 12, 9 specifically were noted to have been bothered by diminishing health or loss of independence. Fewer than 5 had dementia, or past suicide attempts. None had recently made contact with a psychiatrist or emergency room.
Discussion: This is the first study to use the cluster analysis technique to identify meaningful subgroups among suicide victims in the oldest-old. The results reveal different patterns of suicide in the elderly that may be relevant for clinical care. Although a number of demographic, clinical and stressor-related variables were input into the analysis, marital status, living situation as well as presence and type of mental illness emerged as the key features that distinguished the clusters. The findings here should also introduce an important note of caution for those physicians who might assume that people in this age group do not have suicidal ideation if they have no clear psychiatric history. While we detected relatively few cases of dementia, a future study retrospectively comparing measures of cognitive function in suicide attempters and/or victims in their 90s to age-matched controls would be informative regarding the possible role of mild cognitive impairment. Overall, our results point to the need for improved efforts to encourage social connectivity in community dwelling elderly, to screen for suicidality in at-risk patients in long-term care and for improved primary care surveillance of depression and suicidal ideation in the elderly.

W2. ONE YEAR FOLLOW-UP OF PATIENTS ADMITTED AT THE EMERGENCY ROOM FOR SUICIDAL ATTEMPTS

Carles Masip[1], M. Paz Flores[1], Carme Masferrer[1], Jordi Coletas[1], Victor Perez- Sola[1]

[1]INAD - Parc de Salut Mar

Background: In 2013 we attended a total of 179 patients for suicidal attempts at the emergency room of Hospital del Mar, and 479 more for suicidal ideation
Methods: We called the patients just one year after the admission to the hospital, to ascertain if they were receiving any treatment, and asked the CGI-I scale and the suicide items for both the Hamilton Rating Scale for Depression and the Beck Depression inventory.
Results: 3 of the patients had died, 2 for suicide, and a third one for medical reasons. About 35 % of the patients were still in treatment, 22 % were already discharged.
Most of the patients had no more suicidal thoughts and felt improved according to the 3 scales.

Discussion: We consider 2 out of 73 a high rate of suicide consummation in a year follow-up, compared to only 4 other suicide attempts. Also, we need to improve the entailment to treatment to prevent further episodes.

W3. IS TRANSITION TO PERMANENT WORK DISABILITY IN YOUNG PEOPLE ASSOCIATED WITH CHANGES IN RISK OF ATTEMPTED SUICIDE?

Ellenor Mittendorfer-Rutz[1], Kristina Alexanderson[1], Hugo Westerlund[2], Theis Lande[3]

[1]Karolinska Institutet, [2]Stockholm University, [3]Copenhagen University

Background: Mental disorders have a strong impact on occupational functioning and therefore comprise today the main reason for exclusion from the labour market in OECD countries. Exclusion from the labour market can be measured in different terms, e.g. long-term unemployment and permanent work disability (in several European countries labeled disability pension). Mental disorders represent the main diagnostic groups of young individuals with disability pension. Still, there is hardly any knowledge whether mental health improves or worsens after granting disability pension in young age. The aim of the present study was to investigate trajectories of suicide attempt risks before and after granting of disability pension in young people. A further aim was to analyse if trajectories differ by sex, diagnoses and year of granting disability pension related to considerable changes in the social insurance regulations.
Methods: The analytic sample consisted of all persons 16–30 years old and living in Sweden who were granted a disability pension in the years 1995–1997; 2000–2002 as well as 2005–2006 (n=26624). Crude risks and adjusted odds ratios for suicide attempt were computed for the 9-year window around the year of disability pension receipt by repeated measures logistic regressions.
Results: The risk of suicide attempt was found to increase continuously up to the year preceding the granting of disability pension in young people, after which the risk declined. These trajectories were similar for young women and men and for disability pension due to mental and somatic diagnoses. Still, the multivariate odds ratios for suicide attempts for women and for disability pension due to mental disorders were 2.5- and 3.8-fold increase compared with the odds ratios for men and disability pension due to somatic disorders, respectively. Trajectories of suicide attempts differed for young individuals granted a disability pension during 2005–2006 compared with those granted during 1995–1997 and 2000–2002.
Discussion: We found an increasing risk of suicide attempt up until the granting of a disability pension in young individuals, after which the risk decreased. It is of clinical importance to monitor suicide attempt risk among young people waiting for the granting of a disability pension.

W4. SUICIDE IN BOSNIA AND HERZEGOVINA AND THE CITY OF SARAJEVO WITH SPECIAL REFERENCE TO ETHNICITY

Emina Music[1], Lars Jacobsson[2], Ellinor Salander Renberg[3]

[1]Umeå University,Sweden, [2]Department of Clinical Sciences, Division of Psychiatry, Umeå University, Sweden, [3]Department of Clinical Sciences, Division of Psychiatry, Umeå University,Sweden

Background: Besides the war experience (1992–1995), Bosnia and Herzegovina (BiH) constitutes an interesting area for studies on suicidal behavior from an ethnic and religious perspective with its mixed ethnic population of Bosniaks, Serbs, and Croats. Aims: The study investigates suicide in BiH and the capital city of Sarajevo before (1985–1991) and after the war (1998–2006), with special reference to gender and ethnicity.
Methods: Official suicide data were gathered for the two periods with regard to gender, ethnicity, and suicide methods used.
Results: No differences in suicide rates were found in BiH and Sarajevo before and after the war. The male-to-female suicide rate ratio in BiH was significantly higher after the war than before the war, with an opposite tendency seen in Sarajevo. Before and after the war, the highest and stable suicide rates were among Serbs in BiH. In Sarajevo the highest suicide rates were found among Croats after the war. Hanging was the most common suicide method used, both before and after the war, while firearms were more commonly used after the war. Poisoning was a rarely used method in both periods.
Discussion: The stable suicide rates in BiH over the pre- and postwar periods indicate no evident influence of the Bosnian war on the postwar level of suicide rates, except for women in Sarajevo. Beside this exception, the findings indicate a long-established underlying pattern in suicide rates that was not immediately changed, even by war. The study supports earlier findings that the accessibility of means influences the choice of suicide method used.

W5. SUICIDAL GESTURES IN ADOLESCENTS AND YOUNG ADULTS: EVIDENCE FROM CLINICAL AND COMMUNITY SAMPLES

Paul Plener[1], Rebecca Groschwitz[1]

[1]University of Ulm

Background: Suicidal gestures are defined as behaviors, which are performed without suicidal intent to lead others to believe that there is an intent to die from this behavior. In comparison to suicidal ideation and suicide attempts, this area is under-represented in research so far. We aimed to describe lifetime prevalence, methods and motives for suicidal gestures in adolescents and young adults.
Methods: Using standardized questionnaires and semi-structured interviews (Self Harm Behavior Questionnaire and Self Injurious Thoughts and Behavior Interview – German) we assessed three different cohorts: 1. a community sample (n= 1.116; mean age=14,8; SD=0,6), 2. a clinical sample of child and adolescent psychiatric inpatients (n=139; mean age=15.4; SD=1.7) and 3. a sample of former child and adolescent psychiatric inpatients who were now in their young adulthood (n=52; mean age=21.5; SD=2.6).
Results: Lifetime prevalence of suicidal gestures was higher in the clinical samples: 1.: 12,2%, 2.: 18,7% and 3.: 16%. The age of first suicide gestures in the clinical cohorts was M=14.05 SD=1.7 (sample 2) and M=15,00, SD=4.5 (sample 3), respectively. In comparison to motives

for suicide attempts, motivation for suicide gestures as a mean to influence social situations was significantly higher ($p<.001$).

Discussion: We found a rather high rate of suicide gestures in adolescents both from a community and a clinical background. However, suicide gestures are often under-reported, probably due to feelings of shame and the fear of being viewed as manipulative. Viewing suicidal gestures as dysfunctional method of social signaling to communicate distress may be helpful for adolescents for disclosing their suicide gestures.

W6. CONVERSION OF QUALITATIVE CASE NOTES INTO QUANTITATIVE DATA IN SUICIDE SURVEILLANCE

Beth Poitras[1], Christine Glasheen[2], Dr. Christopher Rennix[2]

[1]Navy & Marine Corps Public Health Center, [2]EpiData Center Department, NMCPHC

Background: Multiple electronic data sources are used by the EpiData Center Department (EDC), Navy and Marine Corps Public Health Center (NMCPHC) for suicide surveillance. Current analysis includes quantitative review of demographics, diagnosis codes, and deployment health assessments. Although these data are useful, they do not provide information on provider and patient interactions. The Armed Forces Health Longitudinal Technology Application (AHLTA) contains electronic medical records for care provided in outpatient settings at fixed military medical treatment facilities and includes clinical provider notes, laboratory and radiology results, Veteran's Administration data, and notes from outside providers. The qualitative data found in AHLTA provides a more comprehensive picture of each service member's care. However, using the information extracted from AHLTA in an epidemiological analysis is difficult because the data are not easily quantified. The EDC has developed a tool for use when conducting record reviews to convert qualitative AHLTA notes, rich with documentation, into a quantitative format to conduct statistical analyses and evaluate trends among service members with suicidal behaviors.

Methods: Key proximal and distal stressors in the suicidal pathway were identified from current scientific literature. A qualitative AHLTA record review for each service member who attempted or died by suicide was conducted; the presence or absences of specific risk factor variables were evaluated. All records, regardless of diagnosis, were reviewed by trained epidemiologists to establish the presence of possible chronic and acute suicidal risk factors. Clinical notes and notation in the record were evaluated following a procedure outlined in a standard operating procedure (SOP). Numerical values were assigned to each risk factor. Multiple risk categories may have been indicated in a single encounter; risk categories were not mutually exclusive. Provider notes were included in a 'Comments' field. Individual and aggregate statistical analyses were conducted to identify trends.

Results: The AHLTA tool presented a comprehensive overview of each AHLTA encounter including past and present mental health concerns; history of childhood abuse (physical, sexual, and verbal); history of legal and financial difficulties; relationship or marital problems; substance use and abuse; and history of prior and current suicidal behaviors. The tool provided a reliable process for conversion of qualitative patient documented comments and provider case notes into a quantitative format for statistical analyses. Acute and chronic suicidal risk factors were identified and evaluated on an individual and aggregate basis. The tool also provided the means to evaluate temporal trends along the suicidal pathway.

Discussion: This presentation will discuss the AHLTA case review tool and how this information provided a comprehensive picture of suicidal behaviors and risk factors in a military population. The discussion will focus on the methods behind the development of the

tool; description of the key variables; lessons learned in the development and application of the tool; and future impact for statistical analyses and modeling of suicidal behaviors in a military population. Evaluation and statistical analyses of data provided from this tool may be used in the development of additional suicide prevention programs in the Department of the Navy.

W7. WHO RECEIVES A DIAGNOSIS OF SUICIDE ATTEMPT IN CLINICS? – AN INVESTIGATION OF THE NATIONAL PATIENT DATA FROM NORWAY

Ping Qin[1], Lars Mehlum[1]

[1]University of Oslo, National Center for Suicide Research and Prevention

Background: Knowledge on intention for self-harm is crucial for treatment and follow-up care of the self-harmed patients and also for report and research on this health problem. In clinics, however, assessment of suicidal intention for patients who come for urgent treatment because of poisonings or injuries is usually not of clinical priorities, resulting in a severe under-report of suicide attempt in the population. In this study, we want to use the national data from Norway to examine how often suicide attempt is given as a supplemental diagnosis for patients treated for self-harm and to examine how patients' social and clinical factors differentiate the diagnosis.
Methods: We obtained all records of patient contacts to somatic hospitals and emergency centers because of injuries or poisonings from the year 2008 through 2013. For each episode, we retrieved clinical data on the primary and secondary diagnoses, urgency of contact, type of treatment, place of discharge alongside with other personal general information.
Results: We identified more than 100 000 incidents of self-injury and poisoning during the study period. Of these incidents, only 8% received a supplemental diagnosis of suicide attempt, coded as 'X6n'. This diagnosis was present in 57% of injuries by asphyxiation, 38% of poisonings with medications, 13% of poisonings with other substances, but only 1.6% of injuries with open wound on forearm and less than 0.1% of injuries with open wound on wrist and hand. While a diagnosis of suicide attempt was most commonly associated with self-poisoning, it was significantly associated with the presence of psychiatric comorbidity, female gender and young age. It is evident that patients with repeated episodes of self-injury were more often receiving this supplemental diagnosis, but still a large proportion of possible suicide attempts went underdiagnosed.
Discussion: The overall results indicate that assessment for suicide intention of patients with self-harm is generally insufficient in relevant clinical wards, implying the need for improvement on self-harm assessment and reporting in hospital clinics.

W8. PREDICTORS OF SUICIDE CLASSIFICATION AMONG DRUG-INTOXICATION DEATHS: A STATE-LEVEL ANALYSIS

Ian Rockett[1,2], Gerald Hobbs[3], Dan Wu[4], Haomiao Jia[5], Kurt Nolte[6], Gordon Smith[7], Sandra Putnam[8], Eric Caine[9]

[1]West Virginia University, [2]Department of Epidemiology and Injury Control Research Center, West Virginia University, [3]Department of Statistics, West Virginia University, [4]Department of Social Medicine, Zhejiang University, [5]Department of Biostatistics, Mailman School of Public Health and School of Nursing, Columbia University, [6]Office of the Medical Investigator – Department of Pathology, University of New Mexico School of Medicine, [7]Department of Epidemiology and Public Health, University of Maryland, Baltimore, [8]Social Solutions

International, [9]Injury Control Research Center for Suicide Prevention and Department of Psychiatry, University of Rochester Medical Center

Background: The 21st-century epidemic of US pharmaceutical and other drug-intoxication deaths has likely precipitated an increase in misclassified, undercounted suicides. Drug-intoxication suicides are highly prone to be misclassified as accident or undetermined, inhibiting suicide surveillance, etiologic understanding, prevention, and clinical and public health policy formation and practice. This study evaluated the probability of determining whether a drug-intoxication death is classified as suicide, versus accident or undetermined, accounting for selected forensic and contextual sociodemographic characteristics.
Methods: The study was a national, state-based, observational study of 111,583 drug-intoxication fatalities, whose manner of death was suicide, accident, or undetermined. The proportion of (nonhomicide) drug-intoxication deaths classified as suicide were analyzed relative to type of state death investigation system and proportion of death certificates with one or more specific drugs cited. Our model included selected sociodemographic covariates. Data covered the period 2008-2010, and derived from NCHS's Multiple Cause-of-Death public use files.
Results: Across states, the proportion of drug-intoxication suicides ranged from 0.058 to 0.286 and the rate from 1 to 4 per 100,000 population (Louisiana and South Dakota). There was a low correlation between combined accident and undetermined drug-intoxication death rates and corresponding suicide rates (Spearman's rho = 0.38; $p<0.01$). Citation of 1 or more specific drugs on the death certificate was positively associated with the relative odds of a state classifying a nonhomicide drug-intoxication death as suicide rather than accident or undetermined, adjusting for region and type of state death investigation system (odds ratio, 1.062; 95% CI,1.016-1.110). Region was also a significant predictor. Relative to the South, a 10% increase in drug citation was associated with 43% (95% CI,11%-83%), 41% (95% CI,7%-85%), and 33% (95% CI,1%-76%) higher odds of a suicide classification in the West, Midwest, and Northeast, respectively.
Discussion: Large interstate variation in the relative magnitude of suicides among nonhomicide drug-intoxication deaths appears partially to be an artifact of regional heterogeneity and degree of toxicological assessment in the case ascertainment process. Etiologic understanding and prevention first require rigorous and accurate standardization of concepts, definitions, and case ascertainment.

W9. OPEN BOARD

W10. METHODS OF NON-SUICIDAL SELF-INJURY: THEIR FUNCTIONS AND RELATIONSHIP TO SUICIDE

Magdalen Schluter[1], Sarah Victor[1], David Klonsky[1]

[1]University of British Columbia

Background: Non-suicidal self-injury (NSSI) is the intentional and direct destruction of one's own body tissue without suicidal intent (Klonsky, 2009). NSSI is common in both community and psychiatric populations, with a prevalence of 13% among young adults (Swannell et al., 2014) and up to 80% among adolescent psychiatric patients (Adrian et al., 2013). Additionally,

it has a strong relationship to suicide ideation and attempts (Nock, Joiner, Lloyd-Richrdson, & Prinstein, 2006). Recent research suggests that NSSI may be more strongly related to suicidality than many other well-known risk factors, such as depression and hopelessness (Andover & Gibb, 2010; Klonsky et al., 2013). The most frequently reported methods of NSSI involve cutting or carving the skin banging, burning, and severe scratching (Manca 2012; Nock 2010; Walsh, 2006), but individuals often use multiple methods and the use of a greater number of methods is associated with suicide attempts (Victor & Klonsky, 2014). Additionally, self-injury can serve several intrapersonal and intrapersonal functions (Nock, 2009). However, it is not yet clear how specific methods of NSSI might differ in their function, or how different methods relate to suicidality.

Methods: The present study examined how methods of self-injury vary with regard to the functions they serve in an undergraduate sample of 187 self-injurers. Participants completed the Inventory of Statements about Self-Injury (ISAS; Klonsky & Glenn, 2009), which assesses the lifetime frequency of 12 NSSI methods, and also reported on six possible functions for each method. The Youth Risk Behavior Survey (YBRS; Brener et al., 2002) was used to assess participants' history of suicide ideation and attempts. ANOVA was used to compare function by methods of NSSI. Pearson's correlation coefficients were calculated to examine the relationship between methods of NSSI, number of methods endorsed, and history of suicidal ideation and attempts.

Results: There were significant differences in the degree to which individuals reported functions of affect regulation, pressure release, anti-numbness, self-punishment, avoidance, and attention for different methods of NSSI. Of particular interest was interfering with wound healing, which differed significantly from most other methods on all functions. Significantly fewer participants reported that interfering with wound healing served any given function compared to other methods of NSSI. While individuals who endorsed interfering with wound healing did not differ significantly in the reported frequency of engaging in self-injury, they trended towards using more methods of NSSI than those who did not interfere with wound healing. When compared to other methods, interfering with wound healing showed a weaker correlation to a history of suicide ideation and history of having a plan to attempt suicide. The number of NSSI methods among individuals who endorsed interfering with wound healing was also less correlated with a history of suicidal ideation compared to other methods, such as cutting.

Discussion: Together these results suggest that there are important differences between methods of NSSI, the functions they serve, and their relationship to suicide. Importantly, these results suggest that interfering with wound healing may serve some function that is not adequately captured by current measures. Further, it may be important to distinguish between the self-injury methods when considering the role of NSSI in suicide. These results suggest that while NSSI itself is a strong predictor of suicide ideation and attempts, some methods may present with weaker associations to suicidality than others. This may have important implications in clinical assessments of an individual's risk for suicide.

W11. A CRITICAL REVIEW OF THE USE OF ADMINISTRATIVE DATA TO STUDY SUICIDE BEREAVEMENT HEALTH OUTCOMES

Rae Spiwak[1], Brenda Elias[1], James Bolton[1], Mariette Chartier[1], Jitender Sareen[1]

[1]University of Manitoba

Background: Although research has investigated the consequences of suicide bereavement, these findings have been mixed, with some studies supporting the hypothesis that individuals

bereaved by suicide (suicide survivors) have worse mental and physical health outcomes as compared to individuals bereaved by other causes of death, and other studies finding a lack of differences. These studies have been largely explorative and limited by quality of data and study methodology. Population based studies utilizing large samples represent tremendous potential and advancement in this field of research. Administrative data, or data that are comprised of routinely collected information from large populations for non-research purposes, provides tremendous advantages in the study of suicide bereavement outcomes, however the choice and use of heath indicators derived from this data has inherent strengths and weaknesses.
Methods: The following paper discusses the strengths and weaknesses of using administrative data derived indicators to study the consequences of suicide bereavement, as well as the importance of choice of control group for health outcome comparisons. How health indicator and methodological limitations affect statistical choices in the study of suicide bereavement health outcomes, as well as directions for future research are also discussed.
Results: Using administrative data to study health related outcomes among suicide survivors have many advantages including linkage of multiple data sources, thereby strengthening data validity and reliability. Other strengths include the ability to study complex phenomena over long periods of time, the ability to consider and measure social factors and determinants of health, as well as examine health data based on health care provider diagnoses. Several health indicator and methodological limitations are identified and discussed including 1) Suicide as a rare event, 2) repeated measures and correlated data, 3) Data coding, 4) Loss to follow up, and 5) Lack of randomization.
Discussion: Although limitations are present, the use of administrative data will tremendously add to the body of research in its ability to identify individuals bereaved by suicide without the limitations of sampling plagued by other studies, as well as link longitudinal health and social data, including clinical diagnoses, to analyze the course of bereavement. Although the use of administrative data in studying suicide bereavement has much strength, these strengths are largely dependent on the choice and quality of health indicator used to measure health outcomes.

W12. CAREER PREVALENCE AND CORRELATES OF SUICIDAL THOUGHTS AND BEHAVIORS AMONG FIREFIGHTERS: RESULTS FROM A NATIONAL SURVEY

Ian Stanley[1], Melanie Hom[1], Christopher Hagan[1], Thomas Joiner[1]

[1]Florida State University

Background: Firefighters experience high-risk occupational hazards that may confer increased risk for suicide; however, prevalence rates of suicidal thoughts and behaviors among firefighters are unknown. The purpose of this study is to describe the career prevalence of suicide ideation, plans, attempts, and non-suicidal self-injury among firefighters, in addition to sociodemographic, physical health, and occupational correlates.
Methods: Data were obtained from a cross-sectional convenience sample of 1,027 current and retired firefighters who completed a nationwide web-based survey on mental health (mean age=38.49, SD=11.70; 91.2% male; 87.3% White). Sociodemographic, physical health, and occupational correlates were assessed via a structured questionnaire. Suicidal thoughts and behaviors were assessed using a modified version of the Self-Injurious Thoughts and Behaviors Interview—Short Form (SITBI-SF).
Results: The career prevalence estimates of suicide ideation, plans, attempts, and non-suicidal self-injury were found to be 46.8%, 19.2%, 15.5%, and 16.4%, respectively. Key factors

associated with increased risk for reporting suicidal thoughts and behaviors included lower firefighter rank, fewer years of firefighter service, membership in an all-volunteer department, a history of professionally responding to a suicide attempt or death, and active duty military status.
Discussion: Firefighters report an alarmingly high career prevalence of suicidal thoughts and behaviors. Increased prevention and treatment efforts are needed among firefighters to decrease suicide risk.

W13. OPEN BOARD

W14. INCREASE IN SUICIDE RATES BY HANGING IN MEXICAN POPULATION, 2003-2012

Carlos Alfonso Tovilla Zárate[1], Alicia González-Ramón[2], Isela Júarez-Rojop[3], Crystell Guzman[3], Lilia López-Naravez[4], Sherezada Pool-Garcia[5], Teresa Ramón Frías[2], Deysi Bermudez-Ocaña[2], Ariadna Pérez-Dagdug[6], Mariana Tosca Iglesias Tosca Iglesias[6]

[1]Universidad Juárez Autónoma de Tabasco, [2]División Académica Multidisciplinaria de Comalcalco, Universidad Juárez Autónoma de Tabasco, [3]División Académica de Ciencias de la Salud, Universidad Juárez Autónoma de Tabasco, [4]Hospital General de Yajalon, Yajalon, Chiapas, [5]Hospital General de Comalcalco, Comalcalco, Tabasco., [6]Secretaria de Salud, Gobierno del Estado de Tabasco.

Background: This study aims to examine changes in the rates of completed suicide in the population of Tabasco, Mexico, from 2003-2012. We also want to analyze the changes in suicide rates according to: i) the method of completed suicide and ii) age group.
Methods: We used data from the Secretary of Health of the state of Tabasco, Mexico. The rate of completed suicides was calculated based on the information available from the Population and Housing Census conducted by the Institute of Demography (INEGI, initials in Spanish). We analyzed the changes in suicide rate by method of suicide and by age group.
Results: The main method chosen in completed suicides was hanging (86.8% in 2012). a sub-analysis of completed suicide by age showed that the groups between 25-34 years and 55-64 years showed the major increases in suicides rates of 33.63% and 186.66%, respectively.
Discussion: Suicide by hanging is a common choice of suicide method in the Tabasco State population. The main increases were observed in age groups 25-34 years and 55-64 years. Strategies for prevention and intervention should be developed for the Mexican population considering suicide rates by age group.

W15. BEHAVIORAL INHIBITION AS A RISK FACTOR FOR LIFETIME SUICIDE ATTEMPT. FINDINGS FROM A REPRESENTATIVE COMMUNITY SAMPLE OF ADOLESCENTS AND YOUNG ADULTS

Catharina Voss[1,2], Eva Asselmann[3], Hans-Ulrich Wittchen[4], Roselind Lieb[5], Beesdo-Baum Katja[3]

[1]Technische Universität Dresden, [2]Institute of Clinical Psychology and Psychotherapy, Technische Universität Dresden, Germany & Behavioral Epidemiology, Technische Universität Dresden, Germany, [3]Institute of Clinical Psychology and Psychotherapy, Technische Universität Dresden, Germany & Behavioral Epidemiology, Technische

Universität Dresden, Germany, [4]Institute of Clinical Psychology and Psychotherapy, Technische Universität Dresden, Germany & Max Planck Institute of Psychiatry, Munich, Germany, [5]Max Planck Institute of Psychiatry, Munich, Germany & Department of Psychology, Division of Clinical Psychology and Epidemiology, University of Basel, Switzerland

Background: Behavioral inhibition (BI) describes a trait-like pattern for reactions to unfamiliar events including social and non-social situations. This pattern is characterized by shyness and fear as well as a higher sensitivity to unfamiliar situations and the tendency to avoid such situations and people.
Presumably, suicidal behavior (SB) and BI share patterns of neurobiological correlates such as abnormal stress responses on the hypothalamic-pituitary-adrenal axis (HPAA). This exaggerated HPAA activity results in a stronger reactivity to social cues. Considering current theories of SB (O'Connor, 2011; Joiner, 2005) and the overlapping neurobiological and psychological correlates, BI might be a risk factor for SB including suicidal ideation, plan and attempt.

Using data from a representative community-based sample in Germany, the aims of the current study are 1) to examine the association between BI and lifetime suicide attempt; and 2) to describe the relation between BI and the selected method of suicide attempt.

Methods: A representative community-based sample of adolescents and young adults from Germany (N=3,021, aged 14-24 years at baseline) was prospectively followed up in 4 assessment waves (T0-T3) over 10 years (Early Developmental Stages of Psychopathology, EDSP). Diagnoses of mental disorders were assessed at each wave using the Munich Composite International Diagnostic Interview (M-CIDI). At T2 and T3 participants were asked about their lifetime suicide attempts including frequency and selected methods. Aggregated lifetime data from T2 and T3 are reported herein. Participants with previous suicide attempts were divided into three groups with regard to the selected method: non-violent methods (i.e., poisoning by medication, drug or alcohol), violent methods (i.e., cutting, hanging, jumping) and a combination of both method types. Behavioral Inhibition was assessed at baseline with the Retrospective Self Report of Inhibition (RSRI; Reznick et al., 1992) referring to the time span between age 5 and 16.
Results: Overall, N=2709 participants answered the question about lifetime suicide attempts at T2 and/or T3 (49.3% women; age at last assessment: M=27.1 years, SD=3.9). Of these, n=133 reported a lifetime suicide attempt (4.9%; 5.1% in women; 4.1% in men). The mean number of suicide attempts was M=1.7 (SD=1.2; range: 1-6).
Using a logistic regression analysis, BI significantly increased the risk (OR=2.5; 95% CI 1.4 - 4.4) for a lifetime suicide attempt in adolescents and young adults; even after controlling for the occurrence of lifetime mental disorders (unipolar depressive disorder, anxiety disorder, any substance use disorders, eating disorder), sex and age.

A non-violent method was reported by n=44 participants (33.5%), a violent method by n=43 participants (31.6%) and both methods by n=33 participants (24.8%). Furthermore, n=13 participants (10.1%) did not report a specific method. Using multinomial logistic regression analysis, BI was negatively associated with violent method use compared to non-violent method use but not to the group using both, non-violent and violent methods.

Discussion: The present study demonstrated that behavioral inhibition during childhood and adolescence is a risk factor for a suicidal attempt independent of the occurrence of lifetime mental disorders.
Furthermore, BI was associated with the selected method to attempt suicide indicating that inhibited adolescents and young adults use less often violent methods compared to non-violent methods or both method types.

These results may be explained by known characteristics of BI and their overlap with well-known risk factors for SB. Future research is needed to examine whether overlapping constructs (i.e., stronger reactivity to social cues and attentional biases) mediate or moderate the association between BI and SB.

The results have to be interpreted with caution because of the retrospective assessment of BI and suicidal attempt. Still, inhibited adolescents and young adults seem to be at increased risk for suicidal behavior, which calls for specific prevention strategies for this risk group.

W16. TRAJECTORIES OF WORK DISABILITY PRIOR TO SUICIDE

Mo Wang[1], Björkenstam Charlotte[1], Alexanderson Kristina[1], Runeson Bo[1], Tinghög Petter[1], Mittendorfer-Rutz Ellenor[1]

[1]Karolinska Institutet

Background: Mental disorders have a strong impact on occupational functioning and therefore comprise today the main reason for exclusion from the labour market in OECD countries. Common mental disorders, often associated with an increased suicide risk represent the main diagnostic groups in individuals granted benefits due to work disability based on medical grounds (WD). Still, there is hardly any knowledge to date on patterns of WD prior to suicide. The aim was to identify trajectories of WD prior to suicide and to describe associations of socio-demographic and clinical characteristics with such WD trajectories.
Methods: This is a population-based cohort study of the 4 209 individuals aged 22-65 years who committed suicide during 2007-2010 in Sweden. WD was measured as mean annual number of months with benefits due to WD. We analyzed annual trajectories of WD during each of the five years prior to suicide by a group-based trajectory method. Associations between socio-demographic and clinical factors with different groups of trajectories were estimated by chi2-test and multinomial logistic regression.
Results: Five different WD trajectory groups were identified prior to suicide. One group had constant low levels of WD (46%), while 30% had constant high levels of WD. Two groups (16%) showed increasing number of WD months. The remaining 7% showed decreasing number of WD months before the suicide. Sex, age, educational level, family situation, and diagnosis-specific healthcare were significantly associated with different trajectory groups (Likelihood ratio X2 tests <0.05). The distribution of these characteristics was particularly different in the group with constant low as opposed to constant high levels. The results showed that younger men and individuals with higher education, who were adolescents living with their parents, as well as those who had neither mental nor somatic inpatient care nor previous suicide attempt were overrepresented in the group with constant low levels of WD. In contrast, the group with constant high levels of WD predominantly comprised older women, individuals with lower education and those with frequent specialised health care consumption and previous suicide attempts.

Discussion: This study identified five different groups of WD trajectories before suicide. These differences were partly explained by the variations in socio-demographic and clinical characteristics as well as health care consumption during the five years before suicide. The study provides possibilities to disentangle patterns of functional impairment prior to suicide.

W17. A QUALITATIVE INQUIRY INTO YOUNG PEOPLE'S VIEWS ON SUICIDE AND ON CONNECTEDNESS TO THE COMMUNITY IN AN AREA OF NORTHERN IRELAND: CREATIVE ENDEAVOURS AND CHALLENGES

Trisha Forbes[1]
[1]Queen's University Belfast

Background: Recent research has highlighted the impact of the Northern Ireland 'Troubles' on mental ill health and suicide in Northern Ireland (Tomlinson, 2012; O'Neill et al., 2015). Before starting my PhD I worked for two years in Queen's University Belfast on a project which explored the phenomenon of youth suicide clusters, and one of the case study areas that we were looking at during this time was the Colin area. Suicide clusters largely refer to a group of suicides that occur closer together in time and space than would normally be expected in a given community (CDC, 1988). Throughout this project, lots of people I was speaking to were making assumptions about how YP regarded suicide, and how it had become almost a normalised behaviour in certain subcultures. Previous research had also suggested a link between lack of connectedness within a community and high suicide rates. A recent report on the intergenerational impact of the Troubles has proposed that heightened levels of suicidal behaviour may be due to a sense of disconnectedness to community life and living with conflict-related mental disorders (O'Neill et al., 2015). This research investigates the issue around lack of community identity in this area.

Methods: When designing the study great ethical care was taken when inviting the young people (YP) to think about the highly sensitive issue of suicide, and capturing how they perceive suicide. It was vitally important to ensure from the outset that participants were fully aware of the nature of the research and that care was taken to discuss their participation in view of its potential benefits and harms in detail to allow the YP to make an informed decision about whether or not they wanted to participate. I used creative, arts-based methods, to encourage five groups of YP (40 participants; 14-25 years-old) to think reflexively about the subject matter, and as a way of breaking the silence that often surrounds the subject of suicide. Barone and Eisner (1997) describe how creating visual art has the potential to: 'evoke meanings that elude linguistic description and help people to articulate the unsayable.' I also conducted interviews with 10 adult stakeholders who worked closely with young people in these communities. This aspect of the research added depth and provided another perspective on how YP living in the area might perceive suicide and feel connected to their community for the YP to subset.

Results: Considering the connectedness element of the data, YP who participated in the study generally felt that they were connected to the community, and that they belonged. The majority of young people who participated in the study, related this sense of belonging to the other people living in the area, whether it was their family or friends, or just generally that it was 'the people who made the place.' There was a sense that this community was where the YP called 'home', and it was where they grew up, therefore they have a strong sense of belonging to it. The YP however, did find fault in their community and complained that there was a distinct lack of facilities for them in the community, and a general complaint that they had 'nothing to do'. In terms of the potential relationship between a lack of connectedness and the high suicide rates in the area, there was a feeling from the YP that while a sense of belonging to the community might contribute to an individual's sense of well-being, they didn't generally think

that if someone felt a lack of connection to the community that it would lead them to take their own lives. Others felt that it might be a contributory factor and that the community should somehow try to engage with YP.

Discussion: There have been interesting findings emerging from my data analysis around the identification of factors which might contribute to the high rate of youth suicide in this community, for example, their reluctance to seek help. The majority of YP felt that 'it is seen as a weakness to need help.' There were two strands of this theme emerging, where some of the comments were around the YP's perceptions that the available services in place are ineffective, or even unavailable, while others are more concerned about the stigma around help-seeking behaviour. Despite many resources being available in the community, the YP's attitudes towards help-seeking mean that these resources are not going to be accessed. Other themes emerged around the difficulties in this community regarding a lack of parental discipline and the language around suicide. There were some concerns about how the language around suicide had become commonplace in this community, and it had gone from being a taboo subject to being talked about maybe too much or too openly. Another theme emerged around the notion that YP would like to be able to see who attends their funeral. One of the YP said: "I wish I could die for a day so I could see who goes to my funeral." Around half of the YP that I worked with seemed to share this curiosity about who would attend their funeral and what it would be like. Other YP said that they wouldn't want to see their friends and family suffering, or that this thought just wouldn't occur to them. The YP living in this area will have witnessed the huge gatherings and outpourings of grief following the suicides of other YP in the community, and there's a danger that these deaths have been glamorised, perhaps in the media or through social media, and that other vulnerable YP might subsequently crave this kind of attention. A chapter of my thesis is dedicated to addressing creative challenges and methodological obstacles that I endeavoured to overcome during the research process.

W18. OPEN BOARD

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W20. MEANINGFUL INVOLVEMENT OF YOUNG PEOPLE WITH LIVED EXPERIENCE OF SELF-HARM IN RESEARCH: ETHICAL AND METHODOLOGICAL IMPLICATIONS

Ellen Townsend[1], Ruth Wadman[1], David Clarke[1], Kapil Sayal[1], Panos Vostanis[2], Marie Armstrong[3], Caroline Harroe[4], Pallab Majumder[3], Chelsea Sawyer[1], Alex Berry[1]

[1]University of Nottingham, [2]University of Leicester, [3]Child and Adolescent Mental Health Services Nottingham City, [4]Harmless

Background: In recent years the involvement of 'service users' or those with lived experience in research has grown. However, involvement in research is too often tokenistic and piecemeal. We argue that meaningful involvement of those with lived experience in the whole research process (from establishing research questions to disseminating the results of a project) is beneficial to both researchers and service users. Here we describe our experience of involving an advisory group of young people in a project investigating self-harm in looked-after young people in England. We want to ensure that the voices of young people are central to this research to ensure that it is appropriate and meaningful to their experience of self-harm.

Methods: In order to recruit young people to the advisory group we worked closely with Harmless (an award winning user-led support service). One of the Directors of Harmless acted as the chair/facilitator of advisory group meetings. The group consists of up to six young people who have first-hand experience of self-harm (we have three who attend consistently) and meets with the research team regularly throughout the research project. We cover travel expenses and provide compensation for their time taking part in the study and emotional support where needed is provided by Harmless

Results: The advisory group has benefitted the research immensely: helping us design the studies and being involved in choosing the questions/variables to be included. The group also designed the project logo and leaflets/posters. The group has also given extremely useful input to methodological and ethical issues throughout the project. For example, they have advised us on alternative recruitment strategies when faced with barriers recruiting participants via social care. We were also able to reassure ethics committees on certain issues since our advisory group had told us they were content with the approach we had developed with them. The group will help us prioritize which of our findings should be highlighted to policy makers and service providers, and will work with us to evaluate and disseminate the results. The members of the advisory group report that they really enjoy being involved in the research and are excited that their participation is making a difference in shaping the work ongoing. The group has been expertly facilitated by Harmless who have also supported the group members emotionally when needed.

Discussion: Meaningful involvement of people with lived experience of self-harm in research is crucial to ensure that the research we conduct is both appropriate and relevant to their experience. We will discuss some barriers we faced in forming the group and highlight the need for service-user involvement in research to be adequately resourced financially and supported in their involvement emotionally.

W21. OPEN BOARD

W22. SUICIDE RISK AND EATING DISORDERS: YOUTH IN PRIMARY CARE

Jody Russon[1], Janell Mensinger[2], Guy Diamond[1], Suzanne Levy[1], Tita Atte[1]

[1]Center for Family Intervention Science, Drexel University, [2]Drexel University College of Nursing & Health Professions

Background: Eating disorders (EDs) are associated with increased levels of suicide and non-suicidal self-injurious behaviors (Kostro, Lerman & Attia, 2014). Anorexia Nervosa (AN) has a mortality rate as high as 17% (Keel et al., 2003), the highest rate out of all psychiatric disorders. Researchers have found that the majority of these deaths were associated with suicide (Fedorowicz, et al., 2007). Recent estimates indicate that approximately 50% of EDs remain unidentified by primary care providers (Becker, Eddy & Perloe, 2009). Given the alarming rates of suicide in this population, it is crucial that mental health and medical professionals evaluate patients for eating disorder symptomology and suicide risk on a regular basis. The aim of this poster is to present findings examining the associations between ED symptoms and suicidal ideation from a sample of 5,562 adolescents and young adults in primary care.

Methods: The sample ranged in age from 14 to 24 with a mean of 16.78 years (SD 2.58). Of the participants, 66% were female, 33.6% male, 10 identified as transgender, and six skipped the question. Participants were primarily Caucasian (66.1%). Slightly over six percent

identified as Black/African American, 2.5% as Asian, 1.3% as Native Hawaiian/other Pacific Islander, 0.7% as American Indian/Alaska Native, 10.8% marked "more than one race", and 12.2% indicated that they did not know their race. Less than 0.5% left the race question blank. The data was collected as part of a screening program in primary care. Ten primary care and emergency department sites, spanning rural to semi-urban areas in the northeastern part of Pennsylvania, participated. At participating sites, the screening tool - Behavioral Health Screen (BHS; Jenkins, Singer, Conner, Calhoun, & Diamond, 2014) - was administered prior to examinations. The BHS was designed to screen for behavioral health problems using questions derived from the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR) criteria. Extensive psychometric validation has confirmed the validity and reliability of the scales (Diamond et al., 2010).

Results: Results demonstrated 16% of the sample was at high risk for suicide and 3.8% had clinically significant rates of ED symptoms. Of those with ED risk, 58.7% were also at high risk for suicide (OR = 8.54, 95% CI = 6.44-11.34). Accordingly, the association between scoring at high risk levels for an ED and being at high risk for suicide, was significant ($\chi 2=208.74$; $p<.001$). After controlling for traumatic distress, anxiety, depression, and substance abuse, a multiple regression analysis revealed that disordered eating symptom scores significantly contributed to the variance in suicide lifetime scores ($\beta=.111$; $t=8.49$; $p<001$). We further tested if gender was a moderator of the disordered eating effect on suicide score and found a statistically significant interaction ($\beta=-.04$; $t=-2.72$; $p=008$). Subgroup analyses indicated that while the effect held true for both genders, the effect was significantly stronger for females ($\beta=.127$; $t=7.83$; $p<001$) versus males ($\beta=-.058$; $t=2.672$; $p=008$).

Discussion: In light of the increased odds of suicide risk for the ED population, screening assessments must occur early and regularly. As approximately 70% of adolescents see a primary care provider at least once per year (Diamond et al, 2011), the primary care setting is an important place for conducting risk assessments. Because of the emergence of EDs in adolescence and the severity of associated suicidal thoughts and behaviors, structured and intensive screening for adolescents is necessary and may increase both referrals for treatment and provide opportunities for prevention. The American Academy of Pediatrics (AAP) emphasizes the critical position of primary care providers to detect and prevent progression of EDs and disordered eating symptoms. The AAP calls for screening adolescent patients during primary care visits, not only by determining weight, height and BMI regularly, but also by asking screening questions about eating habits and body satisfaction, two known risk factors for EDs. Furthermore, those patients who endorse clinically significant levels of ED symptoms, should automatically be screened for suicide risk.

W23. OPEN BOARD

W24. ATTITUDE OF PSYCHOTHERAPISTS TOWARD SUICIDE PREVENTION: EFFECT OF TRAINING FOR SUICIDE PREVENTION

Shizuka Kawamoto[1], Daisuke Kawashima[2], Keisuke Shiraga[3], Kenji Kawano[1]

[1]Center for Suicide Prevention, [2]Chukyo University, [3]Joetsu University of Education

Background: Number of suicides in Japan occur approximately 30,000 cases annually. Suicide prevention is urgent issue, and it is especially important to support suicide attempters in order to prevent subsequent suicidal behaviors. However, the supporters often become anxious about how they should support the suicide attempters in Japan (Yamada, Natori and Kawanishi, 2008). This study aimed to investigate the effect of training for suicide prevention

on the psychotherapist's attitude toward suicide prevention. Training for suicide prevention was held by Center for Suicide Prevention, National Institute of Mental Health, National Center of Neurology and Psychiatry. This training was consisted of assessment of suicide, basic support, diagnosis of mental disorders, knowledge of medical treatment and social support for suicide prevention.

Methods: The participants of the present study included 177 psychotherapists who participated in the training for suicide prevention between 2012 and 2014. Participants completed Japanese version of the Attitude to Suicide Prevention (ASP-J) scale (Kawashima, Kawano, & Shiraga, 2013) and questionnaire about demographic. ASP-J scale was carried out before and after the training.

Results: We compared pre and post ASP-J scores by using t-test. In result, it was significantly different between pre and post ASP-J scores in each year (2012; $t(45) = 4.08$, $p < .01$, 2013; $t(37) = 2.76$, $p < .01$, 2014; $t(32) = 3.79$, $p < .01$). No significant differences between attitudes before training each three years.

Discussion: We founded that psychotherapists' negative attitudes toward suicide prevention were improved by training for suicide prevention. It is suggested that this training is effective for suicide prevention in Japan. Further research aimed at the duration of the training effect may be needed.

W25. DEVELOPMENT A SCALE FOR EVALUATION OF SUICIDE PREVENTION EDUCATION

Kenji Kawano[1], Shizuka Kawamoto[2], Daisuke Kawashima[3], Sachiko Syojima[4], Keisuke Shiraga[5], Yotaro Katsumata[6]

[1]Center for Suicide Prevention, NIMH, NCNP, [2]Center for suicide prevention, NIMH, NCNP, [3]Chukyo University, [4]Teikyo heisei university, [5]Jyoetsu University of education, [6]University of Niigata prefecture

Background: Suicide prevention education in schools is an important suicide prevention strategy in Japan. To practice suicide prevention education programs, it is needed to define the goal of the program and to evaluate it. After a theoretical study, we assumed that there is a need of the following four goals for the establishment of assistance to students who having serious difficulties in classroom; understanding of feelings, transmission of emotions, understanding and learning of coping behavior, and understanding and experience of consultation. The purpose of this study was to develop a scale for evaluating the suicide prevention education including four stages goals above.

Methods: 202 middle school students have responded to the following scales; suicide prevention program step-by-step achievement scale, academic stressors, friend relationship stressors, destructive expression scale.

Results: The suicide prevention program step-by-step achievement scale have shown high reliability (alpha=0.83). From the results of multiple regression analysis, the program achievement have shown a direct / indirect buffering effect on destructive expression.

Discussion: As results, the reliability and validity of the scale was confirmed. These findings will make a contribution for more effective practice of suicide prevention in Japanese school. We have developed a suicide prevention education program GRIP (Gradual approach, Resilience, In a school setting, and Prepare scaffoldings) corresponding to the above-mentioned goals.

W26. MENTAL HEALTH IN HIGHER EDUCATION. PREVENTION OF SUICIDAL BEHAVIORS

José Santos[1], John Cutcliffe[2], Cândida Loureiro[1], Carlos Dias[1], Rosa Simões[3], Sónia Cunha Leal[3], Joana Pinto[1], Rita Ferreira[1], Carla Pacheco[1]

[1]Nursing School of Coimbra, [2]Wright State University, College of Nursing and Health, Dayton, Ohio, USA, [3]CHUC

Background: Young people entering higher education are faced with the need to, on the one hand, solve specific tasks inherent to the development phase that they are experiencing (namely, the construction of their identity, integrity, autonomy, self-concept, interpersonal relationships, and emotional management), and, on the other hand, respond to contextual changes and demands (Stocker & Faria, 2008).
The degree programs in health sciences, such as the Nursing undergraduate degree, deserve special attention as they imply direct contact with psychological distress (Pereira, 2009).

The Clinical Practice in Nursing (CPN) can have a significant impact on students, emerging as a demanding stage in their training path (Custódio, 2010). The results obtained before at the Nursing School of Coimbra with 776 students, for anxiety, stress, and psychological pain showed that females had the highest mean values in these dimensions, although boys also had high scores in the psychological pain dimension. In terms of years of study, 4th-year students had the highest levels of depression (Pereira, 2013). 5.22% of students had already suicidal behaviors, this being 4 times more frequent in girls than boys (Leal, 2014)

Methods: The project will include selective, indicated, and universal prevention measures. First we will train gatekeepers among students and staff in order to identify and support the students with psychological pain. After that we start in the 1st year, with a particular focus on female students and 2nd- and 4th-year students. The following universal prevention measures will be used: mental health promotion sessions to fight the stigma in mental health, problem-solving strategies, stress management, self-esteem promotion, and strengthening of social support.
With regard to selective prevention measures, the organized activities will focus primarily on female. The project will include selective, indicated, and universal prevention measures. First, gatekeepers (students and staff members) will receive training in order to be able to identify and support students with psychological pain. Then, in the 1st year of the study, the primary focus will be on female students and 2nd- and 4th-year students. The following universal prevention measures will be used: mental health students and 2nd and 4th-year students.

With respect to indicated preventive measures, an office for screening and follow-up and/or referral of crisis situations will be created.

Results: During this first phase, 50 volunteers (mainly females in the 3rd and 4th years) were selected as gatekeepers. All of them had completed an 8-hour training course. Other 12 gatekeepers who were part of the school staff also received a 4-hour training course.
The impact of training was assessed using a qualitative interview. It was found that all of them had improved literacy about mental health and suicidal behaviors and agreed with the importance of this training. They identified themselves with the issue of the prevention of mental health problems and suicidal behaviors.

Discussion: The project is in its initial stage, but the first initiatives with students and staff were very interesting and gatekeepers are very enthusiastic about the project. We hope that we can improve mental health and prevent suicidal behaviors among nursing students.

W27. IMPACT OF WEBSITES ON SUICIDE PREVENTION ON USERS' SUICIDAL IDEATION AND THEIR KNOWLEDGE ABOUT SUICIDE

Benedikt Till[1], Ulrich S. Tran[2], Thomas Niederkrotenthaler[3]

[1]Medical University of Vienna, Center for Public Health, Institute of Social Medicine, Suicide Research Unit, [2]Suicide Research Unit, Institute of Social Medicine, Center for Public Health, Medical University of Vienna, [3]Department of Basic Psychological Research and Research Methods, School of Psychology, University of Vienna, Austria

Background: There is a scarcity of research on the impact of educative websites dedicated to suicide prevention.
Methods: 150 adults were randomly assigned to four groups of a laboratory experiment. Groups 1-3 were exposed to one of three German-speaking websites on suicide prevention (i.e., www.youth-life-line.de, www.u25-freiburg.de, www.frnd.de). Group 4 was exposed to a website not related to suicide. Data on the audience's suicidal ideation and knowledge about suicide was collected with questionnaires before and immediately after exposure and one week thereafter. The sample was split into two groups by the median of suicidality at baseline.
Results: Knowledge about suicide increased significantly after exposure to any of the prevention websites compared to the control group. Furthermore, individuals with higher suicidality experienced a decrease in suicidal ideation after exposure to the prevention websites. All effects were similar across intervention groups.
Discussion: Educative websites on suicide increase users' knowledge on suicide and decrease suicidal ideation among individuals with higher suicidality and these effects are maintained over time. This study was funded by the Austrian Science Fund (grant number P-23659-B11).

W28. SUICIDAL IDEATION AND INTENT AMONG YOUNG ASIAN-AMERICAN WOMEN USING COLUMBIA-SUICIDE SEVERITY RATING SCALE (C-SSRS)

Hyeouk Hahm[1], Julie Petersen[2], Min Kim[3], Elaine Choe[4]

[1]Boston University School of Social Work, [2]DM STAT, [3]Boston University, [4]Boston University

Background: Suicide rates differ by gender and ethnicity. Asian American women ages 15-24 have the highest suicide rate of any ethnic group of women. Between 2004 and 2009, this rate increased the most rapidly among Asian American women compared to all other ethnic groups in the US. Therefore, an evidence-based study to assess the presence of suicidal ideation and intent among young Asian American women is critical.
Methods: We collected data from Asian American women between 18 to 35 years old who completed the clinical screening for the first cohort of the Asian Women's Action for Resilience and Empowerment (AWARE) clinical trial using a computerized survey and a clinician-administered PTSD scale interview between September 2013 and August 2014 in Boston, MA. Total of 107 Asian-American women completed clinical screening (46%) for the

clinical trial of AWARE intervention (www.bu.edu/awship). Columbia-Suicide Severity Rating Scale (C-SSRS) was used to assess suicide related questions.
Results: The mean age was 24. Ninety-four percent of women were in college or graduated from college. 30% reported that they were not exclusively heterosexual. A total of 62% (n =66) reported lifetime suicide ideation, with 10% of women (n=11) reporting the highest category ("Active ideation with specific plan and intent during their lifetime"). Of the 66 with some degree of lifetime ideation, 16% (n =17) reported suicide ideation in the past month. One woman reported a suicide attempt in the past 3 months.
Discussion: The study participants who were screened for the clinical trial reported remarkably high lifetime suicide ideation and suicide intent. Identification of suicidal Asian-American women is an urgent task needed to provide appropriate interventions and thus reduce suicide rates in this group.

W29. PREVENTING SUICIDE IN SCHOOLS: AN EVALUATION OF THE SAFETALK PROGRAM IN THE NORTHERN TERRITORY

Jo Robinson[1], Karen Reval[2], Eleanor Bailey[3], Alex Parker[3], Matt Spittal[4], Jane Pirkis[4], Madelyn Gould[5], Alan Woodward[6]

[1]Orygen, [2]Lifeline Central Australia, [3]Orygen the National Centre of Excellence in Youth Mental Health, [4]The University of Melbourne, [5]Columbia University, [6]Lifeline Foundation

Background: Suicide-related behaviour is common among Australian youth, yet limited evidence exists regarding the safety and efficacy of suicide prevention interventions, including in schools. The provision of suicide awareness training to students can improve knowledge, confidence and likelihood of seeking help. Whilst one study has shown that a program targeting non-suicidal self-injury had no iatrogenic effects, to the best of our knowledge no studies have tested the safety of specific suicide prevention workshops with young people, and none of the existing research is Australian-based. safeTALK is a training package designed for people aged 15+. It seeks to help participants better identify people at risk of suicide and improve help-seeking and is currently being delivered in schools in Alice Springs.
Aims are to examine whether or not delivering the safeTALK program can:

- Increase knowledge of suicide and suicide warning signs;
- Improve confidence in discussing issues relating to suicide;
- Improve knowledge of appropriate sources of help;
- Improve the likelihood of help-seeking.
- In addition the study is examining whether or not the safeTALK program is acceptable; causes distress; or induces suicidal ideation.

Methods: The study was supported by the Lifeline Foundation and represents a partnership between researchers at Orygen, the University of Melbourne, the Lifeline Foundation and Lifeline Central Australia.
A pre-test/post-test study with a 4-week follow-up period is underway in high schools in Central Australia. Students completed a series of questionnaires immediately before and after the training and are they are currently completing the 4-week follow up questionnaires. Pre/post data collection is complete and the follow-ups will be finished by the end of May 2015.

Results: Eighty-four students from two of the four high schools in Alice Springs participated in the evaluation.
Data analysis is still in progress but preliminary inspection of the data suggests that participants' knowledge, confidence, and willingness to seek help all increased as a result of the training. Further, participants' current level of suicidal ideation did not increase at the post-training level; rather, we actually observed a small decrease in the overall level of suicidal ideation.

In terms of participants' views of the training itself, 72% said they did not find the training upsetting at all, 67% said they were very well prepared to help their friends after this training, and 70% said that the training was 'very worthwhile'. Ninety-seven percent of students indicated that they would recommend the training to others.

An additional finding was that, as a result of completing the evaluation questionnaires 22 students were identified as being potentially at risk and were referred for additional support, many of whom were not previously known to school staff as being at risk. The complete set of findings will be presented.

Discussion: This study is the first internationally to examine both the safety and efficacy of delivering suicide prevention training directly to young people. Early findings suggest that participation in the workshops had benefits in terms of knowledge, confidence and the potential for help seeking. Importantly it was found to be acceptable and no iatrogenic effects were evident.
Concerns exits across the suicide prevention sector that delivering suicide prevention workshops directly to young people may have harmful effects. For this reason these types of universal school-based interventions have not been widely taken up in many countries, and efforts have largely focused upon the development and evaluation of gatekeeper training programs for school staff. Although a small and uncontrolled study these findings suggest that delivering these types of program may indeed be safe and worthwhile. Additional benefits include the early identification of young people at risk who may not otherwise come forward to seek help. A larger controlled study would be a useful next step.

W30. INSOMNIA DIAGNOSTIC SUBTYPES AS A PREDICTOR OF SUICIDAL SYMPTOM SEVERITY, DEPRESSIVE SYMPTOMS, AND INSOMNIA SEVERITY

Amanda Moskowitz[1], Naomi Iwata[2], Joanne Kim[2], Rebecca Bernert[2]

[1]Stanford University School of Medicine, Department of Psychiatry, [2]Stanford University School of Medicine

Background: Suicide is a widely prevalent public health problem and global disease burden. A growing body of evidence suggests that sleep disturbances confers risk for suicidal ideation and behaviors. Few investigations have examined insomnia at the diagnostic as opposed to the symptom level in association with suicidal symptoms. To address this gap, the current study aimed to descriptively assess insomnia subtypes and their association with insomnia symptom severity, depressive symptoms, and suicidal ideation severity among a high suicide risk sample recruited for a suicide prevention trial.
Methods: Participants were recruited for inclusion in two suicide prevention trials based on standardized suicide risk assessments and diagnostic sleep assessment tools. Data were

collected in the pretreatment period of a suicide prevention trial, upfront of insomnia treatment. Participants were assessed using symptom instruments: Beck Scale for Suicide (BSS), Beck Depression Inventory (BDI), and the Insomnia Severity Index (ISI). A semi-structured, clinician-administered diagnostic interview was used to assess insomnia diagnosis, (Disorder of Initiating or Maintaining Sleep): The Duke Structured Interview for Sleep Disorders (DSISD). Insomnia subtypes were defined as Early, Middle, or Late Insomnia. An analysis of variance (ANOVA) framework was used to examine the prevalence of insomnia subtypes, and whether such subtypes were differentially predictive of insomnia severity, depressive symptoms, and suicidal symptom severity.

Results: Data were collected among N=47 participants (26.5% female, M Age=41.9), who endorsed BSS symptoms of moderate severity (M=7.8, SD=6.6), and moderate to severe levels of insomnia, according to the ISI (M=19.6, SD=3.8). Participants endorsed depressive symptoms in the moderate symptom range (BDI M=23.8, SD=11.8). Concerning insomnia subtypes, 17% of participants reported Early Insomnia, 23.4% reported Middle Insomnia, 29.8% reported Late Insomnia, and 57.4% reported experiencing all three subtypes. ANOVA results indicated significant mean differences in Early Insomnia subtypes, with greater mean BSS symptoms among those with early-onset insomnia endorsed [$F(1,45)=6.23$, $p<.05$]. Middle insomnia was not associated with mean symptom differences, whereas Late Insomnia subtype was associated with higher mean BDI scores [$F(1, 45)=19.8$, $p<.001$].

Discussion: Analyses revealed significant mean differences between specific insomnia subtypes, with early-onset and late insomnia sleep disturbances predicting greater severity of depressive symptoms and suicidal ideation symptom severity. These findings suggest that the type and temporal distribution of insomnia disturbance may possess clinical utility that warrants addition focus in suicide prevention and insomnia treatment. Further research is needed to evaluate how such diagnostic subtypes may predict and moderate treatment outcome.

W31. DIFFERENCES IN PARENTING BEHAVIORS FOR MOTHERS OF SUICIDAL VERSUS NONSUICIDAL ADOLESCENTS

Megan Puzia[1], Erin Kauffman[1], Sheila Crowell[1]

[1]University of Utah

Background: A lifespan approach to understanding suicide risk argues for the prominence of the developmental context in the emergence of suicidal behavior. It is not surprising, then, to learn that the quality of the family environment is an important predictor of suicidality among adolescents (King & Merchant, 2008). Unfortunately, much of the previous research relatively nonspecific with regards to specific aspects of the family environment that are associated with suicide risk. Transactional models of the development of self-inflicted injury (Crowell et al., 2008) propose that for biologically vulnerable adolescents, certain patterns of familial interactions may inadvertently reinforce self-injurious behavior. For instance, if emotional invalidation results in escalating displays of negative emotions, it may reinforce suicidal behavior— particularly if it intermittently serves as an escape from conflict. Therefore, we hypothesized that ineffective parenting practices in conflict situations would be associated with adolescent self-injury. Specifically, we proposed that the parents of adolescents engaged in self-injury would report less consistency in their responses to adolescents' problem behavior.

Methods: Families of adolescents (ages 14-17) who had recently attempted suicide (n=30) and families of nonsuicidal adolescents (n=30) were recruited for the study. Suicidal adolescents reported a self-injurious act of moderate lethality and nonzero intent to die occurring within the two months to participation. Nonsuicidal controls reported no history of suicidal behavior

or psychiatric diagnosis. Families were eligible if adolescents met the inclusion criteria for either group, and if the adolescents' mother was willing to participate. When possible, fathers and a sibling (ages 12-19) were also invited for participation.
Information about adolescents' engagement in suicidal and nonsuicidal self-injury was collected using the Lifetime Suicide Attempt Self-Injury Interview (L-SASII; Linehan & Comtois, 1996). Additionally, participating parents completed the Parenting Scale (PS; Arnold et al., 1993), reporting separately on parenting behaviors for each child enrolled in the study. The PS measures skills deficits in parents' disciplinary practices depending on their representativeness of parent-child interactions, rather than how frequently conflict interactions occur—thus, responses are relatively independent of a child's behavior.

Results: Univariate analyses of variance (ANOVAs) were used to test the hypothesis that parents of suicidal adolescents would differ from parents of nonsuicidal controls in their overall use of dysfunctional disciplinary practices. Results provide support for this hypothesis in mothers ($F([,57]=5.23$, $p=.03$, partial $\eta 2=.08$), but not in fathers ($F[1,36]=1.34$, $p=.25$, partial $\eta 2=.04$). To better understand these differences, a multivariate analysis of variance (MANOVA) assessed mothers' reports of specific parenting practices using the three PS subscales, Laxness, Overreactivity, and Verbosity. Results indicated that mothers of suicidal adolescents scored significantly higher on the Laxness scale ($F[1,57]=5.69$, $p=.02$, partial $\eta 2=.09$) than mothers of nonsuicidal controls. Differences in Overreactivity and Verbosity scores were not significant. Finally, repeated-measures ANOVAs were used to explore for differences in parenting practices that mothers used with suicidal adolescents compared to their nonsuicidal siblings. No significant differences emerged across total PS scores or for any PS subscale.
Discussion: Results are consistent with transactional models of the development of self-inflicted injury. Mothers of suicidal adolescents tended to report higher scores on the PS Laxness dimension compared to mothers of nonsuicidal controls. The Laxness subscale captures how consistently parents employ or follow through on consequences (e.g., "When I give fair threat or warning… I often don't carry it out.") Mothers' reports of behaving similarly with suicidal and nonsuicidal siblings is consistent with theories proposing that similar environments may operate differently for different individuals, perhaps depending on underlying vulnerabilities.
These findings should be interpreted in light of their limitations. Specifically, this study was cross-sectional and cannot directly speak to the development of suicidal behaviors. Also, because only a portion of participating families included fathers and siblings, these analyses may lack power to detect effects. Despite these limitations, this study provides an understanding of parents' insight into their own parenting practices. This information can provide an important complement to adolescent reports, and may be crucial if the family context is to be considered as a point of intervention.

W32. MOTIVATORS AND INFLUENCES ON AMERICAN INDIAN ADOLESCENT ALCOHOL USE: A QUALITATIVE CASE CONTROL STUDY

Lauren Tingey[1], Mary Cwik[2], Novalene Goklish[2], Francene Larzelere-Hinton[2], Angelita Lee[2], Rosemarie Suttle[2], Rachel Chambers[2], Allison Barlow[2]

[1]Johns Hopkins University, [2]Johns Hopkins Center for American Indian Health

Background: Despite high rates of abstinence, American Indians (AI) also have the highest rates of alcohol consumption and related morbidity and mortality of all U.S. groups, particularly adolescents. American Indian adolescents initiate alcohol use earlier, more frequently binge, and meet criteria for abuse and dependence at younger ages than other racial/ethnic groups. Study aims were to learn what motivates some AI adolescents to use alcohol and specifically to engage in binge use behavior, and what factors are protective and promote abstinence among youth in the same community. We explored the four-class drinking motives model (i.e., enhancement, social, coping and conformity), within the context of peer and family influence on adolescents' alcohol use, with a goal to advance culturally salient prevention strategies targeting Native populations.
Methods: We used a mixed-methods cross-sectional case control study design with a sample of n=38 male and female AI adolescents (mean age 16), in a southwestern reservation setting. Data collection consisted of a one-time qualitative in-depth interview. Analysis included research team data coding, triangulation through multiple researcher perspectives, cultural auditing, and research team consensual analysis.
Results: Results suggest a three-class model (coping, conformity and enhancement) more accurately capture adolescent drinking motives, similar to that found with another indigenous adolescent sample. All participants described deep, multi-layered family relationships, with female providers playing primary care-giving roles with illustrative quotes suggesting family and parental influence may be more important than peer influence on AI adolescent alcohol use. Case participants failed to connect the impact of their involvement with and performance at school on long-term goals whereas controls were strongly committed to school and regularly engaged in extracurricular activities.
Discussion: Family-based intervention is an important platform to strengthen in AI communities with a focus on fostering parent-child warmth and monitoring, communication and conflict resolution. Peer-based intervention may also be effective at changing group-based norms and attitudes around alcohol use in salient social networks. Youth illuminated culturally relevant prevention approaches that incorporate coping and alcohol refusal skill-building, Native traditions, and promoting connection to community, school, and structured activities, which may hold promise for preventing alcohol use initiation in early adolescence and progression to binge behavior.

W33. FAMILY-BASED PSYCHOSOCIAL TREATMENT FOR SUICIDE PREVENTION IN PEDIATRIC BIPOLAR DISORDER (PBD)

Sally Weinstein[1], Rick Cruz[2], Amy West[3]

[1]University of Illinois at Chicago, [2]Utah State, [3]University of Illinois-Chicago

Background: Children with pediatric bipolar disorder (PBD) are at extremely high risk for suicide, with greatest risk for and mortality due to suicide of any childhood psychiatric disorder (Jolin, Weller, & Weller, 2007). Although increasing research has focused on risk factors for suicidality among this high-risk population, little is known about treatment for suicidality in youth with PBD. Existing interventions that aim to address the identified family, cognitive, and affective risk factors for suicide in youth mood disorders (e.g., family stress; poor coping and self-esteem; affective instability; Goldstein, 2009) may hold promise for suicide prevention. The current study explored whether an evidence-based manualized psychotherapy for PBD (Child- and Family-Focused Cognitive Behavioral Therapy, CFF-CBT) may reduce suicidal ideation, as compared to a control treatment-as-usual (TAU). Although CFF-CBT was not designed to target suicidality, the core treatment components target family functioning,

cognitive vulnerability, and mood regulation, and thus may generalize to the treatment of suicidality in these youth.
Methods: Data come from a randomized trial examining the psychosocial treatment of PBD. Participants were 71 youth aged 7-13 (M = 9.19, SD = 1.61) with bipolar I, II, or NOS and a parent/caregiver recruited through the Pediatric Mood Disorders Clinic at the University of Illinois-Chicago. Families were randomized to receive 12 weekly and 6 monthly booster sessions of CFF-CBT (n=35) or an unstructured child/family therapy TAU (n=36). CFF-CBT is a manualized adjunctive treatment grounded in the evidence on affective circuitry and psychosocial impairment associated with PBD. CFF-CBT integrates psychoeducation and CBT with techniques from mindfulness-based and positive psychology interventions. Diagnosis was made via the WASH-U-KSADS (Geller et al., 1996). Youth were assessed at baseline, post-treatment (12 weeks), and 6-month (39 weeks) follow-up. Suicidal ideation was measured via the Columbia Suicide Severity Rating Scale (Posner et al., 2007); items assess presence and intensity of ideation (Ideation Intensity Index). Additional measures included a parent Treatment Satisfaction scale (West et al., 2015), Child Mania Rating Scale (CMRS; Pavuluri et al., 2006), and Children's Depression Rating Scale-Revised (CDRS-R; Poznanski et al., 1994).
Results: Feasibility of CFF-CBT was examined via treatment adherence, consumer satisfaction, and treatment fidelity. CFF-CBT participants attended an average of 11.34 (SD=2.39) of the 12 core sessions, versus 6.91 (SD=5.37) of 12 TAU sessions, $p<.0001$. However, attrition by the follow-up wave did not differ by treatment condition. Caregivers were significantly more satisfied with CFF-CBT (Treatment Satisfaction score M=2.95, SD=0.22, range 2-3) than TAU (M=2.67, SD=0.49); p=.03. Fidelity to the CFF-CBT manual was high (93% of content delivered), and there was minimal overlap with TAU (4% of CFF-CBT contents were delivered in TAU sessions). Suicidality at baseline was prevalent: 41% (n=29) of youth endorsed any current ideation, and 31% (n=22) endorsed active forms of ideation (i.e., with method and/or intent). Mixed-effects regression (growth curve) models (MRMs) examined treatment response for youth suicidal ideation intensity outcomes. Preliminary findings on the sample to date indicated that all youth improved in suicidality across treatment, with greater reduction in ideation intensity for youth in CFF-CBT versus TAU that approached significance: Treatment x Time Estimate = 0.70, SD = 0.38, t(104) = 1.86, p=.066.
Discussion: High rates of ideation within this young sample underscore the importance of assessing and addressing suicidality in PBD. Although limited by the small sample size and attrition by follow-up, findings hold promise for the utility of CFF-CBT for suicide prevention among youth with PBD. Potential treatment mechanisms may include symptom reduction and improvement in the child and family risk factors for suicide, including affect regulation, hopelessness, self-esteem, and family functioning. Adaptations to further optimize CFF-CBT for suicide prevention will be presented.

W34. INTERPERSONAL SENSITIVITY AS A MEDIATOR OF THE ASSOCIATION BETWEEN PEER VICTIMIZATION AND SUICIDAL IDEATION

Caitlin Williams[1], James Doorley[1], Christianne Esposito-Smythers[1]

[1]George Mason University

Background: Previous research has shown a link between peer victimization (PV) and suicide-related outcomes. PV is associated concurrently (Klomek et al., 2010; Kaminski & Fang, 2009; Gini & Espelage, 2014) and longitudinally (Bannick et al., 2014; Klomek et al., 2013) with

suicidal ideation (SI). Few studies have examined possible mediators of this association. A potential mediator that has not yet been examined is interpersonal sensitivity (IS). IS refers to the accuracy and/or appropriateness of perceptions, judgments, and reactions we have with respect to one another. Those with heightened IS may perceive more criticism or judgment in social interactions. They may also be more timid socially and have more fragile self-esteem. Experiencing PV could lead to heightened IS, and subsequent social withdrawal, a known risk factor for SI (Prinstein et al., 2000; Wolff et al., 2014; Heilbron & Prinstein, 2010). Heightened IS could also lead to perceptions of thwarted belongingness, which, according the Interpersonal-Psychological Theory of Suicide (Joiner et al., 2005), could increase SI and the risk for a later suicide attempt. The present study examined whether IS mediates the association between PV and SI in a clinical sample of adolescents.

Methods: Participants: Participants (N = 80) represent a subsample from a larger study that included 186 adolescents psychiatrically hospitalized on an inpatient unit in the northeastern U.S. Participants ranged in age from 13-18 and were predominantly female (66.3%) and White (82.7%).

Measures: The Revised Peer Experiences Questionnaire (RPEQ; Vernberg, 1999) was used to assess degree of peer victimization. The Suicidal Ideation Questionnaire (SIQ; Reynolds, 1985) assessed suicidal ideation over the past month. The Interpersonal Sensitivity Measure (IPSM; Boyce & Parker, 1989) was used to assess degree of interpersonal sensitivity.

Procedure: Adolescents and their parents were recruited and consented to participate during the adolescent's stay on the inpatient unit. Self-report assessments and diagnostic interviews were administered to adolescents and a parent separately. All procedures were approved by IRBs.

Results: The mediating effect of interpersonal sensitivity on the association between peer victimization and suicidal ideation was tested using 1000 bootstrapped resamples with bias-corrected 95% confidence intervals (Preacher & Hayes, 2004, 2008). To provide a conservative test of this association, mood disorder diagnosis and gender were entered as covariates in all of the analyses.

Preliminary results showed a significant positive association between peer victimization and SI (DE = 22.92, t (78) = 2.82, p < .006), peer victimization and interpersonal sensitivity (B = 14.15, t (78) = 5.10, p = .000), and interpersonal sensitivity and SI (B = .82, t (78) = 2.53, p = .01). Results of the mediation analysis indicated that interpersonal sensitivity was a significant mediator of the association between peer victimization and SI (IDE = 11.63, CI = 3.65 to 26.97). The association between peer victimization and SI became non-significant after including interpersonal sensitivity as the mediator (B = 11.29, t (78) = 1.24, p = .22), suggesting full mediation. In addition, results indicated that increases in interpersonal sensitivity accounted for 51% of the association between peer victimization and SI.

Discussion: While extensive research has documented a clear association between peer victimization and suicidal ideation, few studies have examined mediators of this association. This study is the first, to our knowledge, to show that interpersonal sensitivity mediates the association between peer victimization and suicidal ideation. Consistent with the Interpersonal-Psychological Theory of Suicide (Joiner et al., 2005), these results suggest that socially-based cognitions, or those that entail perceptions of "fitting in" or social acceptance, may precipitate SI post-victimization. Heightened SI, in turn, may increase adolescents' risk for engaging in suicidal behavior.

Study results highlight the importance of exploring the mechanisms through which adolescents who are victimized by peers develop suicidal ideation and behavior. Identification of such

mechanisms may help to inform suicide prevention and intervention strategies with victimized youth.

W35. TESTING THE FEASIBILITY, USABILITY, AND ACCEPTABILITY OF A SMARTPHONE APPLICATION INTERVENTION FOR SUICIDAL ADOLESCENTS

Kimberly O'Brien[1], Mary LeCloux[1], Christina Gironda[1], Abigail Ross[2], Elizabeth Wharff[3]

[1]Simmons College, [2]Boston University/Boston Children's Hospital, [3]Boston Children's Hospital

Background: Interconnectedness through technology is a fact of life for today's adolescents. The new digital metropolis presents both challenges and opportunities for clinical engagement and intervention with adolescents with mental health problems. Many clinicians interact with suicidal adolescents and their families in their daily practice. There is a critical need to reach suicidal adolescents at their time of highest acuity and vulnerability, and to do so using the mechanisms of communication with which they are most familiar. A recent and continuing increase in smartphone ownership by adolescents across race, ethnicity, and income (Lenhart, 2012) suggests the potential for smartphone applications as intervention approaches with suicidal adolescents. The aim of this study was to test the feasibility, usability, and acceptability of a web-based prototype of a smartphone application intervention for suicidal adolescents and their parents/guardians.

Methods: Crisis Care (O'Brien, Kahn, & Wharff, 2013) is a smartphone application intervention developed specifically for suicidal adolescents and their parents/guardians. There is an adolescent mode and a parent/guardian mode designed to be used in tandem when the adolescent is experiencing a suicidal crisis. The primary function of Crisis Care is to give adolescents and parents/guardians an immediate connection to help. Additionally, the adolescent can access a set of personalized skills and the parent/guardian can access tips on effective listening and skill coaching. A web-based prototype of Crisis Care was developed and pilot tested with 28 participants recruited from an outpatient psychiatry department in the northeastern United States. Participants in this study included 14 adolescents (71% female; Mean age = 15.8; 86% history of psychiatric hospitalization) who endorsed suicidal thoughts in the past year and their 14 parents/guardians (79% female; Mean age = 49.9). The System Usability Scale (SUS), a 23 item questionnaire, was used to assess feasibility, usability, and acceptability of the smartphone application intervention.

Results: With respect to feasibility, 86% of adolescents and 93% of parents/guardians reported they owned a smartphone. In our assessment of usability and acceptability, all 28 participants answered "Agree" or "Strongly Agree" to the statement "I thought the app was easy to use," and the majority answered "Agree" or "Strongly Agree" to the following statements: "I think most people could learn to use the app quickly" (27 of 28), "I think I would use the app" (27 of 28), "I think most people would be able to use the app in a crisis situation" (25 of 28), and "I think the app could stop people from acting on their suicidal thoughts" (21 of 28). Specific to usability, 27 of 28 participants were able to find and access what was asked of them by the interviewer in two or fewer clicks.

Discussion: Crisis Care is a promising technological intervention for suicidal adolescents and their parents/guardians in the context of a suicidal crisis. The limited use of smartphone applications in mental health care represents a missed opportunity, as they have the potential to extend and supplement traditional therapies (Erhardt & Dorian, 2013). Clinicians may be skeptical about integrating technological innovations into mental health care because of the

fear of taking away from the client-centeredness of the profession and diminishing face to face practice interaction. However, smartphone application interventions have the ability to personalize content (Erhardt & Dorian, 2013) and make care more accessible, efficient, and interactive (Luxton et al., 2011). They have the potential to engage adolescents in their individual, familial, and social worlds, and to do so in a way that is uniquely personalizable. By establishing a custom-made connection to a support system, smartphone applications have the opportunity to enhance safety planning procedures, interventions, and treatment with suicidal adolescents.

W36. ANXIETY MODERATION OF SSRI VERSUS BUPROPION EFFECTS ON SUICIDAL DEPRESSION: EXPLORATORY ANALYSIS OF AN 8-WEEK CLINICAL TRIAL

Sadia Chaudhury[1], Julia Marver[1], Steven Ellis[1], Ainsley Burke[1], Maria Oquendo[1], J. John Mann[1], Michael Grunebaum[1]

[1]New York State Psychiatric Institute/Columbia University

Background: Anxiety has been implicated as a risk factor for suicidal behavior, though not all studies agree. Because of their known efficacy for many anxiety disorders, selective serotonin reuptake inhibitors (SSRIs) are commonly used to treat anxious depression. Bupropion has received less attention for the management of anxious depression, possibly because it is not approved by the FDA, as SSRIs are, for the treatment of anxiety disorders. Nonetheless, previous trials of SSRIs versus bupropion have yielded equivocal results with respect to effects on overall depression or anxiety symptoms.

Since suicidal behavior is thought to involve serotonin system hypofunction, SSRIs may be more effective at treating suicidal tendencies in depressed patients. Our randomized clinical trial of SSRI versus bupropion for depressed suicide ideators and attempters found that subjects with greater baseline suicidal ideation who were randomized to SSRI exhibited greater reduction in suicidal thoughts. The aim of this post hoc exploratory analysis of the trial data was to test our hypothesis that baseline anxiety would moderate the effect of antidepressant treatment on reduction of suicidal ideation (SI).

Methods: Patients (n=74) in this 8-week randomized, double-blind clinical trial had a current DSM-IV Major Depressive Episode and a past suicide attempt (SA), current SI, or both. Minimum SI for eligibility was a score of 2 or greater on the Hamilton Depression Rating Scale (HDRS) suicide item ("Wishes to be dead or has any thoughts of possible death to self"). Participants were randomized 1:1 to treatment with controlled-release oral paroxetine (n=36) or extended-release bupropion (n=38). Randomization was stratified on inpatient status and history of SA at baseline. Participants met with a research psychiatrist for psychopharmacological management and a psychologist for ratings. The Scale for Suicidal Ideation was assessed weekly to measure severity of SI. Since the trial did not include a specific anxiety scale, an anxiety symptom cluster was extracted through factor analysis of baseline HDRS data.

We performed limited, hypothesis-based exploratory model selection testing main and interaction effects, using generalized least squares regression to model SI during the trial. We measured model fit using Bayes Information Criterion (BIC), with lower values indicating better fit.

Results: We first tested a model with main effects of treatment, natural log of time, baseline inpatient status, history of SA at baseline, baseline SI, and baseline anxiety. Baseline SI

(p<.0001) and time (p=.002) were significant, with a trend for baseline anxiety (p=.062), and the BIC=3042.6. The second model excluded baseline SA and inpatient status, and showed baseline anxiety to be significant (p=.047), along with baseline SI (p<.0001) and time (p=.002), with BIC=3047.3. The third model included main effects of treatment, Ln(time), baseline SI, baseline anxiety, and the interaction of baseline anxiety with treatment. The interaction variable was significant (Estimate=-0.95); p=.032), with BIC=3042.6. The final model included main effects of the original model and the interaction term. In this model, the interaction effect of baseline anxiety with treatment was more significant (Estimate=-1.13, p=.018), and BIC=3036.6, indicating the best fit. Suicidal ideation was on average a point lower during follow-up for every point higher in baseline anxiety if a subject was randomized to SSRI. In other terms, for every 1 SD increase in baseline anxiety, SSRI therapy resulted in 2.4 points lower SI during treatment.

Discussion: Best practices for psychopharmacological management of suicidal behavior in anxious depression are unclear. The aim of this study was to explore our hypothesis that baseline anxiety moderates the effect of antidepressant treatment on SI in a randomized clinical trial of an SSRI versus bupropion in depressed suicide ideators and attempters. Our findings demonstrate a significant interaction effect between baseline anxiety and treatment: participants high in baseline anxiety randomized to SSRI reported significantly lower levels of SI during treatment compared to their high anxiety counterparts randomized to bupropion. For each increase in baseline anxiety score by one standard deviation, participants in the SSRI group showed a 2.4 point decrease in SI during 8-week acute treatment. This is a modest but likely clinically meaningful effect, especially given the potentially serious consequences of suicidal ideation. Our results require replication and further, mechanism-focused research. However, the findings suggest that SSRI therapy may be advantageous for the acute management of suicidal behavior in anxious depressed patients.

W37. THE EFFECTIVENESS OF PSYCHOTROPIC MEDICATIONS ON SUICIDAL IDEATION IN SCHIZOPHRENIA PATIENTS

Vincenzo De Luca[1], Ahmed Hassan[1]

[1]CAMH

Background: The aim of this naturalistic cohort study is to evaluate if any particular type or class of antipsychotics are actually effective in managing suicidal ideation in schizophrenia patients. Three comparisons were conducted: clozapine and non-clozapine antipsychotics, intramuscular and oral antipsychotics and between atypical and typical antipsychotics.

Methods: We recruited 103 participants diagnosed with schizophrenia spectrum disorders from CAMH. Participants were followed over time. Beck Scale for suicidal ideation (BSS) was used to assess the severity of suicidal ideation at each visit. All participants were prevalent users of antipsychotics confirmed by chart review. We performed multiple linear regression models controlling for BSS score at baseline and other confounding variables to predict the change in the BSS score between the two visits.

Results: Overall, there are 28 subjects on clozapine (27.2%), 53 subjects (51.5%) on other oral antipsychotics and 21 subjects on intramuscular antipsychotics (20.4%). 30% of our sample had suicidal ideation at baseline (n=30). The interval between the first and last visit was 17.4 ± 7.4 months. For all antipsychotics, there was a statistical significant decrease in suicidal ideation in the second visit compared to baseline -0.767 (95% CI: -1.5, -0.024, p=0.0432). However, there was no significant difference between any of the comparison groups in reducing suicidal ideation.

Discussion: Our preliminarily analysis implies that antipsychotics are effective in reducing suicidal ideation in schizophrenia patients but no difference was found between different antipsychotics classes or types. Pragmatic clinical trials are needed.

W38. LONG-TERM ANTIPSYCHOTICS USE IN DELUSIONAL DISORDER WITH SUICIDAL IDEATION. CASE REPORT

Carlos Rodriguez Gomez-Carreño[1]

[1]Hospital General Universitario de Ciudad Real

Background: Delusional disorder is often associated with suicidal ideation. In many cases, adherence treatment problems cause exacerbation of mental state and may be associated with an increased risk of suicide. The drugs have significant adverse effects, and given the refusal of a person to continue taking them, we evaluate the possibility of long-term antipsychotics use to prevent relapse caused by stopping treatment. We present a patient who was admitted to the Acute Psychiatric Unit after making a suicide attempt (neck-cut with a knife).

Methods: CASE REPORT. Male patient, 46 years old, with no psychiatric history until 6 months to admission. History of alcohol abuse since adolescence. Not evidences other relevant medical illness.

Begins as adjustment disorder with depressive symptoms associated with marital difficulties, infidelity belief without objective evidence. The patient reported that the people talk about him, mocking its relations to his wife, he is convinced that the father of her child is another one. Expounds his theory to his wife, made a discussion and two days after, the patient tries to cut his throat, located unconscious by his nephew at home. After medical and emergency stabilization, admitted in Acute Hospitalization Unit of Psychiatry.

Results: During admission, working about alcohol abuse and delusional elements, associating aripiprazole-antidepressant drug treatment. Positive and progressive developments in the unit, performing critical elements of delirious and starting to work with the family psychotherapeutic approach.

After the first hospitalization, two more admissions for stopping the medication and exacerbation of clinical delusional and suicidal ideation (income by precipitation from window and another by suicidal thoughts). At that time, we propose use of long-term antipsychotic (Abilify Maintena 400mg). After 3 months follow-up, no relapse or exacerbation. Maintaining good daily activity and attending appointments with psychiatry.

Discussion: The delusional state led to a state of hopelessness that led to the suicide attempt. In our case, the association antidepressants (venlafaxine) and long-term antipsychotics (aripiprazole), worked and improved the patient's life.

W39. OPEN BOARD

W40. PREDICTING SUICIDE ATTEMPTS AMONG YOUNG ADULTS WITH SUICIDAL IDEATION: THE ROLES OF HOPELESSNESS AND PSYCHOTIC EXPERIENCES

Jordan DeVylder[1], Matthew Hilimire[2]

[1]University of Maryland, Baltimore, [2]The College of William & Mary

Background: There are many known predictors of suicidal ideation including depression, anxiety, substance use, impulsivity, trauma history, and others. However, known predictors are very poor at distinguishing individuals with ideation who do not make attempts from those with ideation who do go on to make attempts. It is, therefore, very difficult to predict who is at greatest need for further intervention among individuals with suicidal ideation, leaving a substantial gap in clinical knowledge that has greatly impeded suicide prevention efforts. Two factors that have been shown to distinguish those who make attempts from those who do not are hopelessness and sub-threshold psychotic experiences (i.e., fleeting perceptual abnormalities or unusual thoughts that do not meet DSM-5 psychosis criteria). The purpose of this study is to test whether hopelessness screens and psychotic experience screens independently distinguish people with ideation with attempts from those without attempts at baseline and after a three-month follow-up period.
Methods: Participants were drawn from a research pool of undergraduate college students (N=678). Each respondent completed a survey that included measures of psychotic experiences (five dichotomous items indicating presence or absence of hallucination- and delusion-like experiences), hopelessness (two items with 5-point Likert responses), and suicidal behavior (dichotomous items indicating ideation and attempts). Logistic regression analyses tested for associations between suicide attempts (outcome) and psychotic experiences and hopelessness. Baseline analyses were first run with the entire sample to examine predictors of attempts overall, and then within the subset endorsing suicidal ideation to test whether these factors distinguished isolated ideation from ideation with attempts. Respondents reporting suicidal ideation at baseline were followed for three months and were then assessed for suicidal behavior using a self-report version of the Columbia Suicide Severity Rating Scale. Associations between baseline predictors and suicide-related outcomes at follow-up were tested using generalized estimating equation models. All analyses were a priori adjusted for sex and race/ethnicity, and were considered significant at two-tailed alpha=0.05.
Results: Within this sample, 36% of respondents endorsed lifetime suicidal ideation and 2.7% reported suicide attempts at baseline. At least one lifetime psychotic experience was endorsed by 27.1% of respondents. Approximately half of the sample endorsed at least some hopelessness. Within the entire sample, psychotic experiences (Wald = 6.13, p=0.013) and hopelessness (Wald =17.17, p<0.001) each independently predicted suicide attempts in the fully adjusted model (χ^2df=4=30.28, p<0.001)). Results were similar when the sample was limited to respondents with a history of suicidal ideation (n=244). Specifically, both psychotic experiences (Wald=4.46, p=0.035) and hopelessness (Wald=10.37, p=0.001) were associated with suicide attempts among respondents with ideation in the fully adjusted model (χ^2 df=4=18.46, p=0.001). Preliminary analyses of follow-up data are consistent with baseline results.
Discussion: The main finding is that both psychotic experiences and hopelessness independently distinguish individuals with suicidal ideation alone from those with ideation and attempts. This distinction is highly clinically relevant given the difficulty in predicting which individuals will go on to make suicide attempts among those that report suicidal thoughts. Hopelessness and psychotic experiences can both be assessed through brief screening tools that can be easily incorporated into existing suicide prevention efforts. Future clinical studies are needed to determine whether implementation of psychosis and hopelessness screens is efficacious for reducing suicidal behavior in real-world settings.

W41. MEASURING CHANGE IN SUICIDAL IDEATION DURING AN EMA STUDY IN BORDERLINE PERSONALITY DISORDER PATIENTS

Hanga Galfalvy[1], Sadia Chaudhury[2], Barbara Stanley[2]

[1]Columbia University, [2]Department of Psychiatry, Columbia University

Background: Suicidal ideation (SI) is a state measure that is subject to temporal fluctuations based on many factors, including an individual's depression severity and response to external stressors. For many suicide attempters, especially individuals with Borderline Personality Disorder (BPD), the time spent planning suicide attempts can be very brief. Developing and validating techniques for measuring and predicting short-term change in suicidal ideation within patients at risk is an important step in the prevention of these impulsive attempts. Ecological Momentary Assessment (EMA) allows for real-time data collection of a subject's thoughts, feelings, and behaviors as they occur in their natural settings. We propose to develop and compare statistical models for SI change measured in an EMA study of BPD patients.
Methods: The sample consisted of 84 participants (mean age 29.3 ± 9.4 years, 92% female 57% Caucasian) who met DSM-IV-TR criteria for Borderline Personality Disorder. Most participants had a current diagnosis of Major Depressive Disorder (68%, n=57). Participants were asked to respond to a series of prompts six times daily for one week via a handheld computer device to collect EMA data. The prompts collected information on the occurrence of several daily stressors, as well as momentary measures of affect and SI. Momentary SI was measured as the total on a 9-item scale, and information on self-injurious behavior was collected in 9 categories. Change in SI was measured two ways: a) as the absolute difference between two consecutive measures, and b) by the (log-transformed) percent change from one observation to the next. Mixed effect regression with random subject-specific effects and an AR(1) correlation structure was used to model the effect of time-varying predictors like stressors and baseline traits like impulsive aggression on the two kinds of change measures for SI and self-injurious behavior. The effect of temporal fluctuations (time-of-day, day-of-week etc.) was also tested using the same type of models.
Results: Subjects displayed significant and selective increase in SI in response to temporally fluctuating stressors, and while the choice of the measure of change had some effect on the significance levels, the majority of the results remained consistent regardless of the measure used. Instances of self-harm were associated with significant increases of SI, measured by either method. The two measures of change in SI were highly correlated ($r=0.95$), as were the individual-level aggregate estimates of the ideation variability, defined as the average of the absolute change measures over the whole week ($r=0.86$, $p<0.0001$). Also, while the absolute value of the momentary SI was subject to significant time-of-day fluctuations, neither of the ideation change measures showed a significant dependence on the time of day or any other temporal variables.
Discussion: Short-term changes in SI can be reliably measured in an EMA study using either of the two measures described. While models of SI should include some adjustment for periodic temporal fluctuations, change in SI for short periods of time can be modeled directly without such adjustment.

W42. IS THERE A RELATIONSHIP BETWEEN SUICIDAL INTENT AND LETHALITY IN DELIBERATE SELF-POISONING?

Bergljot Gjelsvik[1], Fridtjof Heyerdahl[2], Daniel Lunn[3], Jane Holmes[4], Keith Keith[5]

[1]University of Oxford, [2]Oslo University Hospital, Norway, [3]Department of Statistics, University of Oxford, UK, [4]Centre for Statistics in Medicine, University of Oxford, UK, [5]Department of Psychiatry, University of Oxford, UK

Background: The relationship between suicidal intent (SI) and lethality of deliberate self-poisoning (DSP) episodes and their associations with suicide have yielded contradictory findings. The aim of this study was to investigate possible associations between patients' SI and lethality of DSP episodes, and whether patients' rating of danger becomes more aligned with toxicological risk assessment over time.
Methods: Eighty-nine DSP patients were investigated longitudinally. Self-reported suicidal intent was measured using three items of the Beck Suicidal Intent Scale, at the time of the index episode (t1) and three (t2) and twelve months (t3) later. Lethality was assessed by three clinical toxicologists based on likely outcome if the overdose had not been treated.
Results: Lethality was significantly associated with whether patients considered the episode to be a suicide attempt at t1 ($p = 0.05$) but not at t2 and t3. Lethality was significantly associated with patient's ratings of likelihood of dying at t1 ($p = 0.003$) and t2 ($p = 0.03$), but not at t3. No associations were found between lethality and wish to die at t1, t2 or t3. The available sample was too small to establish association between lethality and subsequent death by suicide.
Discussion: An important clinical implication of our findings is that clinicians cannot infer suicidal intent from apparent lethality, and vice versa. Our findings show that patients' re-appraisal of suicidal intent associated with the index episode do not become more aligned with expert ratings over time.

W43. SCREENING FOR SUICIDE RISK IN ADULT MEDICAL INPATIENTS

Lisa Horowitz[1]
[1]National Institute of Mental Health

Background: Hospital-based suicides are rare but devastating events. According to the US Joint Commission (JC), there have been more than 1300 US hospital suicides since 1995. In 2010, the JC issued a Sentinel Event Alert which recommended screening patients at elevated risk on medical/surgical units for suicide risk. In the medical setting, non-psychiatric clinicians are on the frontlines of this international public health threat and require instruments designed specifically to detect suicide risk in an adult medical inpatient population. Prior to implementation of universal suicide risk screening, it is important to assess feasibility of screening and acceptability to medical patients. This presentation will describe a pilot suicide risk screening quality improvement project (QIP) and subsequent research study that investigates the feasibility of suicide risk screening in the medical setting at the National Institutes of Health Clinical Center (NIH CC). Feasibility was assessed in four domains: 1) Acceptability to patients 2) Prevalence of suicide risk on an inpatient medical unit 3) Practicality of managing positive screens 4) Patient opinion about screening.
Methods: A study team at the National Institute of Mental Health conducted a QIP called asQ`em (Ask Suicide-Screening Questions to Everyone in Medical Settings) using the plan-do-study-act method at the NIH CC and approved by the NIH Office of Human Subjects Research. A convenience sample of adult medical / surgical inpatients was screened for suicide risk by nurses, using a brief, 2-item screen during the initial nursing assessment. Feedback surveys were administered to patients to gather data about their experience. This QIP became the foundation for an instrument development study. In the subsequent research study, participants completed several questionnaires including: 1) the Patient Health Questionnaire (PHQ-9), 2) the Adult Suicidal Ideation Questionnaire (ASIQ), 3) a list of 20 candidate suicide risk screening items, and 4) a demographics questionnaire. Prevalence was calculated using positive screens on the ASIQ. Participants who screened positive for depression or suicide risk received follow-up mental health evaluations.

Results: QIP results: A total of 331 patients were screened during the two month data collection period; 13 (4%) patients screened positive for suicide risk and received further evaluation. 87% of patients reported feeling comfortable with screening; 81% of patients supported universal suicide risk screening in the hospital. asQ`em study results: 169 eligible patients were approached for study enrollment; 142 patients (84%) agreed to participate. Of those 142, 4.2% (6) of patients screened positive for suicide risk on the ASIQ and required follow-up mental health evaluations. Less than one third of participants reported having been previously asked about suicide in a medical setting; nearly 80% stated that all medical patients should be asked about suicide.
Discussion: Results from both the asQ`em QIP and the sub-analysis from the subsequent instrument development study demonstrate that screening for suicide risk in the adult medical inpatient unit is feasible. Prevalence of suicide risk was found to be high enough to warrant screening but low enough not to overburden a medical inpatient unit or hospital mental health resources. Most patients and clinicians were in favor of universal suicide risk screening, including participants who were found to be at risk for suicide and required a follow-up mental health evaluation.

W44. THE INTERACTIVE EFFECTS OF MAJOR DEPRESSIVE EPISODES AND THE ACQUIRED CAPABILITY FOR SUICIDE ON SUICIDAL BEHAVIOR IN A MILITARY SAMPLE

Christopher Hagan[1], Carol Chu[1], Matthew Podlogar[1], Jennifer Buchman[1], Caroline Silva[1], Bruno Chiurliza[1], Jennifer Hames[1], Ian Stanley[1], Thomas Joiner[1]

[1]Florida State University

Background: Major Depressive Episodes (MDE) are a key risk factor for suicide related behaviors, however the presence of a MDE alone is a poor indicator of suicide risk because few people who experience a MDE will go on to die by suicide, although many people who die by suicide experienced at least one MDE (Nock, Hwang, Sampson, & Kessler, 2010). Viewing suicide risk within the framework of a validated theoretical framework such as the Interpersonal Psychological Theory of Suicide (IPTS) can help researchers and clinicians to better use information regarding low specificity risk factors for suicide such as a MDE to assess risk for suicidal behaviors (Van Orden, et al., 2010). One insight from the IPTS relevant to the experience of MDEs is that those who experience more MDEs may be at greater risk for suicidal behavior, only if they also possess high levels of capability to make a suicide attempt. As mood disorders and suicide are both notable concerns for members of the American military, and as military members have above average levels of capability to attempt suicide, military service members are an ideal population in which to evaluate this question (Gadermann, et al., 2012; Nock et al., 2013; Bryan, Cukrowicz, West, & Morrow, 2010).
Methods: In this study, 3,428 participants were recruited from among United States (U.S.) Army soldiers attending the Army Recruiting Course at an Army installation recruiting and retention school in the Southeastern U.S. The participants completed a variety of self-report and mental health evaluation measures as part of a large orientation survey.
Results: Consistent with hypotheses, results from hierarchical multiple regression analyses demonstrated that soldiers with more MDEs had also made more suicide attempts, specifically for soldiers with high levels of capability to attempt suicide, compared to soldiers with low levels of capability. These findings remained significant even while controlling for other key covariates of suicidal behaviors including suicidal desire, insomnia, agitation, thwarted belongingness, and perceived burdensomeness.

Discussion: As many risk factors including the isolated knowledge of MDEs are unable to differentiate between individuals who think about suicide from those who will engage in suicidal behaviors, these results are important for both researchers and clinicians (Klonsky & May, 2013). Our results demonstrate that in a population at elevated risk for suicide (Nock et al., 2013), suicide risk increases with the number of MDEs an individual experiences, only if he or she also has an elevated level of capability to make a suicide attempt. These results suggest that suicide risk assessments should include both MDE history and assessment of suicidal capability. Furthermore, the treatment and prevention of future MDEs is a critical tool in suicide prevention.

W45. SUICIDAL IDEATION AND INTENT, EPISODIC LIFE STRESS, AND BORDERLINE FEATURES IN ADOLESCENT INPATIENTS WITH MAJOR DEPRESSION AND COMORBID BORDERLINE PERSONALITY DISORDER

Claire Hatkevich[1], William Mellick[2], Victor Wasserman[3], Amanda Venta[2], Carla Sharp[2], Iram Kazimi[4]

[1]University of Houston, UT Health Harris County Psychiatric Center (HCPC), [2]University of Houston, [3]Boston University, [4]University of Texas Harris County Psychiatric Center

Background: Adolescent suicide rates have substantially increased over recent decades, reaching epidemic proportions (Galaif et al., 2007). Suicidal ideation (i.e., thoughts about suicide) and behavior (e.g., intent, planning) are known predictors of suicide-related death. Major Depressive Disorder (MDD) and Borderline Personality Disorder (BPD), which often emerge in adolescence, are two psychopathologies in which suicidal thoughts and behaviors are most common. Given the high degree of MDD/BPD comorbidity (60%; Zanarini et al., 2004), research has begun to explore the impact of comorbid MDD/BPD on suicide-related outcomes. Extant adult work (Kelly et al., 2000; Brodsky et al., 2006) suggests that MDD/BPD confers additional suicide-related risk, above and beyond stand-alone MDD or BPD diagnoses. Despite this work, we are unaware of any investigation of adolescents with comorbid MDD/BPD (MDD/BPD) and suicide-related outcomes. Against this background, the present study will be the first known investigation of MDD/BPD vs. MDD and suicidal thoughts and behaviors in adolescent inpatients, and attempters specifically. We likewise seek to investigate the role of episodic stressful life events (SLEs) on suicide ideation through BPD features.
Methods: A sample of N=178 adolescent inpatients were recruited from a public psychiatric facility in a large metropolitan area. The full sample was 63.5% female, racially diverse (44% Hispanic, 25% African-American, 23% Caucasian), with a mean age of 14.78 years (SD=1.40). Three groups comprised the total sample: MDD/BPD (n = 43), MDD (n = 78), and psychiatric controls (PCs, n = 57). Adolescents completed study measures at inpatient admission. BPD diagnosis was determined with a semi-structured interview (Childhood Interview for DSM-IV Borderline Personality Disorder, CI-BPD; Zanarini et al., 2003) and BPD features were captured continuously (Borderline Personality Features Scale for Children, BPFS-C; Crick, Murray-Close, & Woods, 2005). Depression was captured with the Youth Self-Report (YSR; Achenbach & Rescorla, 2001), a 112-item self-report. Suicide ideation was captured with a structured interview (Modified Scale for Suicide Ideation, MSSI; Miller, Norman, Bishop, & Dowen, 1986). Suicide intent (lethality, planning) was assessed with a continuous self-report (Suicide Intent Scale, SIS; Beck, Schuyler, & Herman, 1974). The Life Stress Interview (Hammen et al., 1989) was used to capture episodic (i.e., prior 3 months) SLEs.
Results: Across full sample diagnostic groups, group-based differences were evident for MSSI total suicide ideation, such that MDD/BPD reported significantly greater ideation than the

MDD group, who reported more than the PCs. Significant group differences were also revealed for episodic SLEs, such that MDD/BPD reported a greater number than PCs. When groups were limited to adolescents admitted for a suicide attempt, MDD/BPD reported significantly greater suicide ideation than MDD and PCs. No differences were evident on the SIS (lethality, planning) for attempting groups. Bivariate analyses revealed MSSI total was significantly correlated with SLEs, BPD features, and gender. Using Preacher and Hayes test of the Indirect Effect (2008), two mediation models were tested and supported. The first model, proposing that BPD features mediate the relation between total number of SLEs and MSSI total, demonstrated significant model fit, with a mean of the indirect effect estimated at .502 (CI: .136-.997). The second model, proposing that BPD features mediate the relation between subjective episodic stress and MSSI total, demonstrated significant model fit, with a mean of the indirect effect estimated at -0.127 (CI: .029-.258).

Discussion: This study is one of few investigations that examined MDD/BPD in relation to suicidal thoughts/behaviors and SLEs, the first of which to be conducted in adolescents. As hypothesized, MDD/BPD was associated with significantly greater suicidal ideation (Suicidal Desire/Ideation), as compared to other diagnostic groups. We attribute this effect largely to the addition of BPD to MDD. One reason may be that in comorbid MDD/BPD, the combined negative mood of BPD and MDD is particularly strong and dysregulating. Second, borderline features were found to mediate the relation between frequency of episodic SLEs (and the associated distress) and suicidal ideation. This finding was expected given that BPD is associated with heightened reactivity to life stressors, affective instability, and intense rumination (Watkins, 2009). In summary, the present study extended existing research by comparing adolescents assigned to MDD/BPD and MDD diagnostic groups, and considering the role of SLEs and personality pathology.

W46. DOES DEPRESSION SCREENING IDENTIFY ADULT MEDICAL INPATIENTS AT RISK FOR SUICIDE?

Daniel Powell[1], Lisa Horowitz[2], Maryland Pao[2], Deborah Snyder[2], Elizabeth Ballard[2], Jeff Bridge[3], Edwin Boudreaux[4]

[1]National Institute of Mental Health, [2]NIMH, [3]Nationwide Children's Hospital, [4]University of Massachusetts Medical School

Background: Medically ill patients are at increased risk for suicide. Suicide is consistently one of the top five Sentinel Events reported to the Joint Commission (JC). Roughly 25% of inpatient suicides occur in non-behavioral health units (e.g., oncology, general med/surgical, ED). In 2010 the JC issued a Sentinel Event Alert recommending suicide risk screening for medical patients at increased risk on medical/surgical units.

Although recommended, suicide risk screening is not yet routine in most hospitals. One common alternative in some medical settings is to screen for depression in lieu of a formal suicide risk assessment. The Patient Health Questionnaire (PHQ-9) is a commonly utilized depression screen that includes an item that is purported to measure suicidal ideation and self-harm (Item #9). However, recent studies have shown that depression screening alone may not be adequate to identify medical patients at risk for suicide. This sub-analysis describes the relationship between screening positive for depression and suicide risk in adult medical inpatients.

Methods: As part of a larger suicide screening instrument development study, a convenience sample of adult medical inpatients admitted to a research hospital completed the following self-report questionnaires: 1) the PHQ-9 depression screen, 2) the Adult Suicidal Ideation Questionnaire (ASIQ), 3) 20 candidate items being considered for development of a new screening instrument, and 4) a demographics questionnaire. Participants screened positive for depression with a PHQ-9 score of 10 or greater. Participants screened positive for suicide risk with an ASIQ score of 31 or greater, or a positive response to any of the candidate items designated as "trigger" items that require follow-up. Univariate and multivariate statistics were calculated to examine the relationship between screening positive for depression and screening positive for suicide risk.
Results: One hundred thirty two inpatients participated. 16 participants (12%) screened positive for depression only, 6 (4.5%) screened positive for suicide risk only, and 10 (7.6%) screened positive for depression and suicide risk. Of the 6 patients that screened positive for solely "suicide risk," only 3 endorsed Item #9 on the PHQ-9. Participants with positive depression screens were more likely to also screen positive for suicide risk, $\chi 2$ (1, N=132) = 21.1, p<.001.
Discussion: If solely depression screening was utilized on this pilot sample, approximately one third (6/16) of the patients at risk for suicide may not have been identified as "at risk." Although there is a clear overlap between depression and suicide risk, some medical patients at risk for suicide may be under-detected if depression screening is used as a proxy for identifying suicide risk. Reasons for patients screening positive for suicide risk and not depression are unclear and warrant further investigation. Possible explanations may include advanced stage disease prompting end of life thoughts. Additionally, depression screening is not designed to examine previous suicide attempt history, which is a potent risk factor for future suicidal behavior. Asking directly about suicide may identify more patients at risk.

W47. SOMATIC INPATIENT CARE PRECEDING ADMISSION FOR DELIBERATE SELF-HARM AMONG YOUNG PEOPLE

Hans Idenfors[1], Lotta Strömsten[2], Ellinor Salander Renberg[2]

[1]Umeå University, [2]Department of Clinical Sciences, Division of Psychiatry, Umeå University

Background: Deliberate self-harm (DSH) is the most evident single risk factor for suicide. It primarily involves young people in the age group 15-24 and is an increasing problem in most Western countries. Most people who hurt themselves intentionally have been in contact with health services before they self-harm, but young people having suicidal thoughts often seek care for non-suicidal or non-psychiatric causes.
The aim of the present study was to investigate young people's contact with inpatient care the year before an episode of DSH. We focused on somatic care contacts, where studies so far are largely lacking.

Methods: The study is of case-control design. We used data from the Swedish national inpatient register, which contains ICD-10 diagnoses for all hospitalizations in the country. Persons selected were in the age group 16-24 who during the period 1999-2009 had been hospitalized because of DSH (i.e. diagnosis codes in ICD-10; X60-X84). To specifically investigate inpatient somatic care prior to the first hospitalization due to DSH, persons with earlier DSH-admissions were excluded. Inpatient diagnoses for the year preceding the first DSH hospitalization were recorded. For each case, two controls matched for age, sex and place of residence, were randomly selected from the population register.

Student's t-test was used to compare cases and controls regarding number of admissions for psychiatric or somatic reasons during the study period.

Results: In total 48 705 individuals were included in the study (16 235 cases and 32 470 controls). About two thirds (68.5%) were women. The mean number of hospitalizations was higher for cases than controls, DSH-hospitalizations not included (cases 0.66, controls 0.07). The same was true for hospitalizations with a main diagnosis that was; somatic (chapters I-IV, VI-XIV and XVII in ICD-10) – cases 0.09, controls 0.03, psychiatric – cases 0.37, controls 0.01, diagnoses included in chapter XXI in ICD-10 (Factors influencing health status and contact with health services) – cases 0.02, controls 0.00, and for diagnoses in chapter XVIII (Symptoms, signs and abnormal clinical and laboratory findings) – cases 0.06, controls 0.01. The two most common diagnoses in chapter XXI was "Observation for suspected toxic effect from ingested substance" and "Observation for suspected mental and behavioral disorders". The most common diagnosis in chapter XVII was abdominal pain, mainly unspecified abdominal pain. Other common diagnoses were syncope and collapse and unspecified convulsions. All differences above were significant ($p<0.001$), corrected for multiple comparisons.

Discussion: This study suggests that people who are hospitalized for DSH have more previous hospitalizations for somatic causes than controls. The present study is in line with earlier research regarding the association of certain somatic illnesses with increased risk for DSH. However, the present study included a wide variety of somatic diagnoses not studied earlier. Interestingly, there was a clear difference between cases and controls regarding ICD-10-chapter XVIII which contains symptomatic diagnoses where no certain disease has been found. The higher rate of hospitalizations of cases in this group might be attributed to symptoms related to psychological disorders, such as chest pain caused by panic disorder. Such symptoms can be misinterpreted as primarily physical and delay a suicide risk assessment. These findings merit attention in clinical practice and warrant further research.

W48. PARENTAL GRIEF AFTER OFFSPRING SUICIDE AND ADAPTATION TO THE LOSS: WHAT CAN REDUCE DISTRESS?

Daisuke Kawashima[1], Shizuka Kawamoto[2], Kenji Kawano[2]

[1]Chukyo University, School of Psychology, [2]Center for Suicide Prevention, NIHM, NCNP

Background: Suicide is a critical public health issue in modern society. It has been reported that each suicide impacts more than six people. In Japan, more than 25,000 deaths by suicide have occurred annually since 1998. However, there have been few studies in Japan on the support available for suicide survivors. In addition, several reports have indicated that parents who have lost offspring by suicide show higher distress than those with other relationships to the deceased (e.g., children, partner). However, the number of studies investigating the experience of parental bereavement by suicide is limited and further research is needed. The present study aims to shed light on the differences in mental health and grief processes between bereaved parents and those with other relationships to the deceased, and explore a statistical model of adaptation to the loss, including the factors related to their distress.

Methods: A total of 105 suicide survivors completed a questionnaire comprising items on grief reaction, mental health (the K6 scale), meaning reconstruction (sense-making, benefit-finding), social context (social support, secondary wounding), and demographic variables such as participants' age and gender, and information about how many months ago the death occurred. First, we considered differences between parents and others for variables including grief reaction, mental health status (K6 scores), meaning reconstruction and social context, using t-

tests (and the Bonferoni correction for items on grief reaction). Second, we conducted path analysis on the basis of Structural Equation Modeling (SEM) to identify the statistical model that best explained the mental health and related factors of parents bereaved by suicide.
Results: Parents scored higher grief reactions in several items, and scored lower in sense-making than did those with other relationships to the deceased. However, no significant differences were found in other variables such as K6 scores and social context. In addition, path analysis showed that sense-making activity acted as an intermediate for the experience of loss of offspring and the grief reaction.
Discussion: Bereaved parents showed higher levels of distress, particularly in grief reaction and sense-making activity than other participants. This is consistent with the findings of previous reports. There were no significant differences in K6 scores, suggesting that mental health may not always be affected by the relationship to the deceased. In addition, we found that sense-making activities played an important role in parental adaptation to loss after offspring's suicide.

W49. ETHNIC DIFFERENCES IN COGNITIVE CORRELATES OF SUICIDAL IDEATION AMONG SOUTH ASIAN AMERICAN EMERGING ADULTS

Robert Lane[1], Soumia Cheref[2], Regina Miranda[3]

[1]St. John's University, [2]University of Houston, [3]Hunter College (CUNY)

Background: South Asian-American individuals are a growing ethnic group within the US population (Hoeffel, Rastogi, Kim, & Hasan, 2012). Indian-American individuals are the third largest Asian-American ethnicity (Hoeffel et al., 2012). Other smaller South Asian-American ethnicities such as Bangladeshi- and Pakistani-American individuals have grown in size by 203% and 133%, respectively, between 2000 and 2010 (Hoeffel et al., 2012). Prior studies from outside the US among South Asian individuals residing outside their countries of heritage have found higher suicide rates among individuals of Indian descent compared to their peers of South Asian lineage (Ineichen, 1998; Khan, 2002; Lester, 2000; McKenzie, Serfaty, & Crawford, 2003; Raleigh, 1996).
We explored whether these trends generalize to South Asian-American emerging adults and examined cultural influences on cognitive correlates of suicidal ideation among these individuals. Given prior research, we hypothesized Indian-American ethnic status would be positively associated with suicidal ideation and would interact with specific cognitive correlates of suicidal ideation to predict greater levels of suicidal ideation among Indian-American individuals than among South Asian-American peers.

Methods: First- and second-year college undergraduate emerging adults (N = 202; 67% female), ages 18 to 24 (M = 18.50, SD = 0.91) were recruited from NYC metropolitan area colleges to participate for fulfillment of a research requirement in an Introduction to Psychology course or for monetary compensation ($25). The sample's ethnic composition was 47% (n = 95) Bangladeshi-, 33% (n = 67) Indian-, and 20% (n = 40) Pakistani-American. Participants completed a self-report questionnaire that queried race/ethnicity, age, gender, sexual orientation, country of origin, and parents' countries of origin. Ethnic groups (Bangladeshi-, Pakistani-, or Indian-American) were assigned based on self-reported ethnicity and parental countries of origin. Participants also completed the Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991), the Beck Hopelessness Scale (BHS; Beck & Steer, 1988), the Beck Depression Inventory (BDI-II; Beck, Brown, & Steer, 1996), and the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1993). Those reporting suicidal ideation with

a plan (as assessed by the BSS) were evaluated by a licensed clinical psychologist or a licensed clinical social worker and referred to a student-counseling center as needed.

Results: A bootstrapped moderated regression analysis revealed depressive symptoms ($b = 0.09$, $p = .006$), Indian-American ethnicity ($b = 0.83$, $p = .028$), and the interaction between Indian-American ethnicity and hopelessness ($b = 0.41$, $p = .005$) were significantly and positively associated with suicidal ideation. The model accounted for substantial variability in suicidal ideation, adjusted, $R2 = .40$, $F(9, 192) = 15.98$, $p < .001$, and exerted a large effect upon it, $f 2= .67$ (Cohen, 1988).

We probed the significant two-way interaction between Indian-American ethnicity and hopelessness with PROCESS model 1 (Hayes, 2013) utilizing the Johnson-Neyman technique. For Indian-American individuals, hopelessness was a significant moderator at a hopelessness score of 3.70 (64th percentile in the present sample), $b = 0.61$, $SE = 0.31$, $p = .05$, 95% CI [0.00, 1.22], such that hopelessness scores above this threshold were associated with greater levels of suicidal ideation for Indian-American students than among South Asian-American peers.

Discussion: Our findings suggest that Indian-American emerging adults have higher levels of suicidal ideation than their South Asian-American peers, and that hopelessness may be particularly deleterious in conferring vulnerability to suicidal thoughts among Indian-American individuals relative to their South Asian-American peers. Thus, treatment with Indian-American emerging adults to reduce suicidal ideation may need to focus on decreasing hopelessness, whereas a focus on decreasing hopelessness may be less critical among Bangladeshi- and Pakistani-American emerging adults to accomplish the same goal. Our findings should not be interpreted to overemphasize the risk for suicidality among Indian American individuals, as suicidality among them occurs at a lower rate than among Asian individuals of non-South Asian origin (Wong et al., 2014). However, given the burgeoning presence of Indian individuals within the US population along with their peers of South Asian descent (Hoeffel et al., 2012), cultural awareness of unique ethnocultural factors that influence suicidality and the cognitive correlates of suicidality among South Asian-American individuals may be essential to providing the best standard of prevention, intervention, and care.