Program
And Abstracts

Academic Research Day

DEPARTMENT OF PSYCHIATRY

June 25th, 2015
8:00 a.m. to 4:00 p.m.

Parkwood Institute
Mental Health Care Building
550 Wellington Road,
London, Ontario, N6C 0A7
At the end of this Academic Research Day, participants will:

1. Have knowledge of research being carried out in the Department of Psychiatry at Western University related to the etiology and treatment of mental disorders.
2. Have knowledge of research being carried out in the Department of Psychiatry concerning mental health service delivery.
3. Have an appreciation of methodological approaches to, and challenges in, conducting research in psychiatry.

At the end of the Keynote Lecture, participants will be able to:

1. Articulate the role of culture in suicide.
2. Identify the reasons for the Inuit youth suicide epidemic in Canada.
3. Describe how community-based suicide prevention can be successful.

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University (6 hours.) Each participant should claim only those hours of credit that he/she actually spent participating in the educational program.

In accordance with the requirements for accreditation, 25% of the program will be devoted to audience participation.

This program has no commercial support.
PROGRAM

8:00 a.m.  Continental Breakfast & Poster Display
(Poster Abstracts begin on p. 13)

8:30 a.m.  Welcome and Opening Remarks
Dr. Paul Links, Chair/Chief, Department of Psychiatry, Western University

8:35 a.m.  Introduction
Dr. Marnin Heisel, Director of Research, Department of Psychiatry

ORAL PRESENTATIONS

Presentation Abstracts begin on p. 9.
*Presenting author

Morning Sessions

8:40am.  Are CTOs really necessary for patients on ACT teams?
Richard O'Reilly*, Deborah Corring, Julie Richard, Cathy Plyely, & Luli Pallaveshi

9:00am.  The Incidence of Psychotic Disorders among First-Generation Immigrants and Refugees to Ontario

9:20am.  Negative Future Self as a Mediator in the Relationship Between Insight and Depression in Psychotic Disorders
Arlene G. MacDougall*, Matthew R.J. Vandermeer, & Ross M.G. Norman

9:40am.  Identification of a Novel Molecular Pathway for Cannabidiol’s Antipsychotic Properties in the Mesolimbic Pathway: Role of mTOR/p70S6 Kinase Signaling
Justine Renard*, Michael Loureiro, Laura G. Rosen, Walter J. Rushlow, & Steven R. Laviolette

10:00 a.m.  Break and poster viewing (30 minutes)
**Mid-Morning Sessions**

10:40am. **Neural Circuitry Underlying Major Depresssion and Marijuana Use: An Emotion Regulation fMRI Task Shows Activation Differences Associated with Frequent Marijuana Use During Adolescence**

Jacob Penner*, Kristen Ford, Justin Arcaro, Michael Wammes, R. W. J. Neufeld, Derek Mitchell, Jean Théberge, Peter Williamson, & Elizabeth Osuch

11:00am. **Neurometabolic abnormalities observed with MR spectroscopy in the anterior cingulate cortex and thalamus of patients with schizophrenia and Major Depressive Disorder at 7T**

Reggie Taylor*, Betsy Schaefer, Nagalingam Rajakumar, Elizabeth A. Osuch, Richard W. J. Neufeld, Jean Théberge, & Peter C. Williamson

11:20am. **Intrinsic Connectivity Networks in post-traumatic stress disorder during sub- and supraliminal processing of threat-related stimuli**

Daniela Rabellino*, Mischa Tursich, Paul A. Frewen, Judith K. Daniels, Maria Densmore, Jean Théberge, & Ruth A. Lanius

11:40am. **Unique Anterior, Mid, and Posterior Insula Resting-State Functional Connectivity in Posttraumatic Stress Disorder**

Andrew Nicholson*, Iman Sapru, Maria Densmore, Paul Frewen, Richard Neufeld, Jean Theberge, Margaret McKinnon, & Ruth Lanius

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**12:00. Lunch (60 minutes)**

Posters will remain on display for viewing

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**Early Afternoon Session**

1:00pm **Measurement of endogenous brain serine using In vivo 1H-MRS spectroscopy**

Homa Javadzadeh* & Jean Théberge

1:20pm. **Gender Profiles and Presenting Concerns of Individuals Seeking Treatment at an Outpatient Mood and Anxiety Program for Youth**

Michael Wammes, Justin Arcaro*, & Elizabeth Osuch

1:40pm. **Testing the Interpersonal Theory of Suicide among Community-Residing Older Adults**

Dorian Murariu*, Marnin J. Heisel, Paul S. Links, & Gordon L. Flett

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2:00pm. Break and poster viewing (30 minutes)
2:30 pm

INVITED KEYNOTE SPEAKER:
DR. MICHAEL KRAL, PH.D., C.PSYCH

“Culture and Suicide: The Case of Inuit in Nunavut”

Learning Objectives:

By the end of this presentation, attendees will be able to:

1. Articulate the role of culture in suicide.
2. Identify the reasons for the Inuit youth suicide epidemic in Canada.
3. Describe how community-based suicide prevention can be successful.

Dr. Michael Kral is a clinical-community psychologist and medical anthropologist, and an Associate Professor in the School of Social Work at Wayne State University in Detroit. He has taught at the universities of Manitoba, Windsor, Yale, and Illinois at Urbana-Champaign. Michael has been conducting community-based participatory action research with Inuit in Nunavut for the past 21 years, investigating suicide and suicide prevention, culture change, kinship, and youth resilience. He has co-edited three books, including Suicide in Canada (U Toronto Press), and is currently co-editing the book Critical Suicidology: Transforming Suicide Research and Prevention for the 21st Century (UBC Press). He is writing the book The Return of the Sun: Suicide and Reclamation among Inuit in Arctic Canada (Oxford U Press).

3:50 pm. Awards presentation and concluding remarks (Dr. Heisel)
Completion of evaluation forms (All participants)
POSTER PRESENTATIONS

Board #1. Cannabinoid transmission in the basolateral amygdala bi-directionally controls the motivational properties of opiates via functional excitatory inputs to the nucleus accumbens shell.
Ahmad, T.* & Laviolette, S.R

Board #2 Chronic Opiate Exposure alters Dopamine D3 receptor signaling within the Basolateral Amygdala.
Rosen, L.G.*, Rushlow, W.J. & Laviolette, S.R.

Board #3 Cognitive Performance is Associated with Gray Matter Decline in First-Episode Psychosis.
Dempster, K.*, Norman, R., Théberge, J., Densmore, M., Schaefer, B., & Williamson, P.

Board #4 “Blindsight” and subjective awareness of fearful faces: Inversion reverses the deficits in fear perception associated with core psychopathic traits.
Oliver, L.D.*, Mao, A., & Mitchell, D.G.

Board #5 An fMRI Study of Facial Expression Processing in Individuals at-risk for Developing Frontotemporal Dementia
Tavares, T.*, Mitchell, D., & Finger, E.

Board #6 Suicide Contagion among Older Adults: A Systematic Review.
Bhullar, G.* & Heisel, M.J.

Board #7 The Development of the Brief Adolescent Suicide Ideation Scale (BASIS).

Board #8 Examining the roles of life satisfaction, meaning in life, and daily hassles in predicting suicide ideation among community residing older adults
Gyorgy, O.*, Heisel, M.J., Links, P.S.,& Flett, G.L.

Board #9 Enhancing Suicide Risk Assessment Skills Through Simulations in a Virtual Environment.
Subramanian, P.*, Varaprasan, S., Rybak, I., Burhan, A. Pallaveshi, L., & Chan, E.

Board #10 Criminal History and Outcome of Opiate Substitution Treatment in Canadian Methadone and Suboxone Patients.
Sadek, G., Cernovsky, Z.Z.*, Chiu, S., & Bureau, Y.
Board #11  Sleep Quality and Pain in Methadone and in Suboxone Patients.  
Sadek, G., Cernovsky, Z.Z.*, Chiu, S., Bureau, Y., & Mekhaiel, S.

Board #12  Pilot study of the correlates of Cardio-vascular Risks, Insulin resistance and Neurocognition in Neuroleptic-induced Parkinsonism in Schizophrenia: post-hoc analysis of RCT study  
Varghese, J.*, Raheb, H., Chiu, S., Cernovsky, Z., Bureau, Y., Campbell, R., Dua, D., Singh, A., & Prakash, A.

Board #13  Posttraumatic Substance Use Disorders (PTSUD): Perceived Causal Relations between Trauma-related Symptoms and Substance Use.  
Boughner, E.*, & Frewen, P.

Board #14  Further Development and Validation of the Childhood Attachment and Relational Trauma Screen (CARTS) in Internet Samples: Extension to Witnessing Violence and Intersibling Abuse.  
Brown, M.*, Frewen, P., DePierro, J., D'Andrea, W., & Schore, A.

Board #15  Trauma-related Dissociation and Subtyping PTSD: Altered States of Consciousness and the 4-D Model.  
Brown, M.*, Lanius, R., & Frewen, P.

Board #16  Latent profile analysis and principal axis factoring of the DSM-5 dissociative subtype of PTSD.  
Brown, M.*, Steuwe, C., Lanius, R., & Frewen, P.

Board #17  The Dissociative Subtype of Posttraumatic Stress Disorder: Unique Basolateral and Centromedial Resting State Connectivity.  

Board #18  Posttraumatic Eating Disorders (PTED): Perceived Causal Relations Between Trauma-related Symptoms and Eating Disorders  
Thornley, E.*, & Frewen, P.

Board #19  Meditation Breath Attention Scores (MBAS) and other Meditative Experiences across Different Meditation Practices.  
Hargraves, H.*, & Frewen, P.

Board #20  Trait Mindfulness correlates with Individual Differences in Multisensory Imagery Vividness.  
Kharlas, D.*, & Frewen, P.
Board #21  The Efficacy of Mindfulness Meditation and the Mediating Role of Neurofeedback in Psychological Well-Being: A Randomized Controlled Pilot Study
Van Oss, N.* & Frewen, P.

Board #22  Mindfulness Group Intervention for Early Psychosis: A pilot study of the Mindfulness Ambassador Council
MacDougall, A., Carr, J., Vandermeer, M.*, Lloyd, C., Sethi, R., Anderson, K., & Norman, R.

Board #23  Promoting Recovery from Serious Mental Illness in Low-Income Contexts: The CREATE model

Board #24  Work-Related Stress Among Canadian Resident Trainees.
Sharma, P.*, Gautam, M., & Amanullah, S.

Board #25  Social Inclusion as Freedom: A thematic qualitative analysis
Montgomery, P., Wuest, A.*, Smith-Carrier, T., Jeng, M., & Forchuk, C.
Are CTOs really necessary for patients on ACT teams?
Richard O'Reilly, Deborah Corring, Julie Richard, Cathy Plyely, & Luli Pallaveshi

Opponents of community treatment orders (CTOs) suggest that they would be unnecessary if mental health services were adequately resourced. Assertive community treatment (ACT) teams are the most resource rich community service. If adequate resources are sufficient to ensure appropriate mental health care, patients on ACT teams should not require CTOs. The London region has developed a comprehensive database of all patients who have been placed on a CTO since their introduction in 2000. Between 2000 and 2013, 190 individuals were on a CTO while receiving service from one of London’s five ACT teams. In December 2013, 17% of patients served by these teams had an active CTO. Using chart review, questionnaires competed by physicians who initiated the CTOs, and focus groups (for CTO subjects, their relatives and non-psychiatrist clinicians), we studied why these patients were placed on CTOs and assessed whether CTO use was justified. ACT alone had been used for 57% of patients before a CTO was introduced. Physicians cited adamant refusal of treatment and unavailability for follow-up as the primary reasons why ACT alone was insufficient. A smaller group of patients were placed on a CTO when identified as at high risk for violence. Patients were ambivalent about CTOs: reporting that they are coercive while simultaneous noting various benefits. Family members and non-psychiatric clinicians were more unambiguously positive about the use of CTOs. The exclusion of most potential patient subjects from being approached to participate calls into question the representativeness of patient opinions reported here.

The Incidence of Psychotic Disorders among First-Generation Immigrants and Refugees to Ontario

Objectives: Evidence from international studies suggests that migrant groups have an increased risk of psychotic disorders, and the level of risk varies by country of origin and host country. Current information on the incidence of psychotic disorders among migrants in Canada is lacking. We sought to examine the incidence of schizophrenia and schizoaffective disorder for first-generation immigrants and refugees in Ontario, relative to the general population.

Methods: We constructed a retrospective cohort that included people between 14 and 40 years of age residing in Ontario as of April 1, 1999. Population-based administrative data from physician billings and hospitalizations were linked to data from Citizenship and Immigration Canada. We used Poisson regression models to calculate age- and gender-adjusted incidence rate ratios (IRR) and 95% confidence intervals (CI) for immigrant and refugee groups over a ten-year period.

Results: We found higher rates of psychotic disorders among immigrants from the Caribbean and Bermuda (IRR=1.60, 95% CI=1.29-1.98). We found lower rates of psychotic disorders among immigrants from Northern Europe (IRR=0.50, 95% CI=0.28-0.91), Southern Europe (IRR=0.60, 95% CI=0.41-0.90), and Eastern Asia (IRR=0.56, 95% CI=0.41-0.78). Refugee status was an independent predictor of risk among all migrants (IRR=1.27, 95% CI=1.04-1.56), and higher rates were found specifically for refugees from East Africa (IRR=1.95, 95% CI=1.44-2.65) and South Asia (IRR=1.51, 95% CI=1.08-2.12).

Interpretation: The differential pattern of risk across ethnic subgroups suggests that psychosocial and cultural factors associated with migration and living in Ontario may contribute to the risk of psychotic disorders. Particular immigrant and refugee groups may be at highest risk, whereas others are protected.

Negative Future Self as a Mediator in the Relationship Between Insight and Depression in Psychotic Disorders
Arlene G. MacDougall, Matthew R.J. Vandermeer, & Ross M.G. Norman

Awareness of illness in psychotic disorders is associated with better clinical outcomes, but also poorer psychological well-being (Lincoln et al., 2007; Norman et al., 2011). This has become known as “The Insight Paradox” (Lysaker et al., 2007). Efforts to understand the paradox have largely focused on the role of self-stigma (Cavelti et al., 2012). There is evidence that possible future self, the cognitive representation of one’s future potential, can have an impact on psychological well-being in psychotic illness (Norman et al, 2014). Objectives: To investigate whether possible future self mediates the observed relationship between insight into having a psychotic illness and depression, independently of stigma. Methods: Multiple mediation analysis was performed on a cross-section of 102 patients (72 males; mean (SD) age of 27 (7.4) years) from the Prevention and Early Intervention Program for Psychoses (PEPP). Results: Stereotype awareness, self-esteem decrement, negative symptoms and negative possible self correlated with both insight and depressed mood, whereas other variables (e.g., demographic, positive symptoms, positive possible self, stereotype agreement and self-concurrence) did not and thus were excluded. Bootstrap analysis found that the full model, including negative possible self, stereotype awareness, and self-esteem decrement as mediators, accounted for a significant proportion of the insight-depression relationship (point estimate = .096, 95% CI [.042, .169]). Of those mediators tested, only possible negative self was a significant mediator of the insight-depression relationship. Future research should assess the impact of interventions designed to change personal narratives of the future and instill hope of a positive future self.
Identification of a Novel Molecular Pathway for Cannabidiol’s Antipsychotic Properties in the Mesolimbic Pathway: Role of mTOR/p70S6 Kinase Signaling
Justine Renard, Michael Loureiro, Laura G. Rosen, Walter J. Rushlow, & Steven R. Laviolette

Objectives: Schizophrenia-related psychosis is associated with disturbances in mesolimbic dopamine (DA) transmission. Currently, the only clinically effective treatment for schizophrenia involves the use of antipsychotic medications that block DA receptor transmission. However, these medications produce serious side-effects leading to poor compliance and treatment outcomes. Emerging evidence points to the involvement of a specific phytochemical component of marijuana called cannabidiol (CBD) which possesses promising therapeutic properties for the treatment of schizophrenia-related psychoses. However, the neuronal and molecular mechanisms through which CBD may exert these effects are entirely unknown.

Methods: We use amphetamine (AMPH)-induced sensitization, a classical animal model of schizophrenia-related psychosis, combined with in vivo neuronal electrophysiology, and molecular analyses to characterize the actions of CBD directly in the nucleus accumbens shell (NASH), a brain region that is the current target of most effective antipsychotics.

Results: We demonstrate that intra-NASH CBD powerfully blocks (AMPH)—induced sensitization, both in terms of DAergic neuronal activity measured in the ventral tegmental area (VTA) and psychotomimetic behaviours. We further report that CBD acutely inhibits DA neuron activity and functionally controls downstream phosphorylation of mTOR/p70S6 kinase signaling directly within the NASH.

Conclusions: These findings demonstrate antipsychotic properties of CBD in the mesolimbic circuitry and identify for the first time a novel molecular signaling pathway through which CBD functionally reduces schizophrenia-like neuropsychopathology.

Neural Circuitry Underlying Major Depression and Marijuana Use: An Emotion Regulation fMRI Task Shows Activation Differences Associated with Frequent Marijuana Use During Adolescence
Jacob Penner, Kristen Ford, Justin Arcaro, Michael Wamnes, R. W. J. Neufeld, Derek Mitchell, Jean Théberge, Peter Williamson, & Elizabeth Osuch

Study Objectives: The long-term effects of frequent marijuana (MJ) use during adolescence is poorly understood, but early age of onset is thought to increase risk, as is the presence of mental illnesses such as Major Depressive Disorder (MDD). We predicted that an emotion regulation fMRI task would detect brain activation anomalies attributed to earlier onset of MJ use in emotion- and reward-processing regions.

Methods: 71 participants (19 controls, 18 MDD, 16 MDD+MJ), age 18-23, completed an emotion-regulation fMRI task involving viewing emotional scenes (Research Ethic Board approval). All subjects were sorted into those who had started MJ use before their 17th birthdays and those who had not. Pre-processing steps were performed and a factorial design determined the effects of group and task condition.

Results: All results were FamilyWise Error corrected (p < 0.01). We detected a main effect of group but not of condition and no group-by-condition interaction. Early users had greater activation in bilateral dorsolateral prefrontal cortex (dLPFC); right medial PFC; right temporal pole; and left precuneus, ventral striatum, and insula.

Conclusions: As hypothesized, earlier onset of MJ use during adolescence was associated with functional abnormalities in regions involved in emotion regulation (dLPFC), emotion recognition (dLPFC), and reward processing (ventral striatum). We also found differences in regions associated with executive functions (mPFC), semantic memory (temporal pole), episodic memory (precuneus), and consciousness and reflection (precuneus and Insula). These findings suggest long-term abnormalities of early-onset MJ use regardless of the presence of MDD or current frequent use.

Neurometabolic abnormalities observed with MR spectroscopy in the anterior cingulate cortex and thalamus of patients with schizophrenia and Major Depressive Disorder at 7T
Reggie Taylor, Betsy Schaefer, Nagalingam Rajakumar, Elizabeth A. Osuch, Richard W. J. Neufeld, Jean Théberge, & Peter C. Williamson

Study Objectives: Current treatments for schizophrenia are insufficient to treat all the symptoms people with schizophrenia experience. It has been postulated that abnormalities in glutamatergic neurotransmission in certain brain areas, including the anterior cingulate cortex (ACC) and thalamus, may be responsible for the symptoms of schizophrenia. Glutamate, glutamine, and glycine all contribute to glutamatergic neurotransmission and can be detected with magnetic resonance spectroscopy (MRS).

Methods: Volunteers with schizophrenia (n=16), unipolar mood disorder (MDD; n=17; psychiatric control), and healthy controls (n=18) all gave informed written consent with approval from the Research Ethics Board. Sixty-four water suppressed MRS spectra were acquired from 8cm3 voxels in the left ACC and thalamus of each participant using a 7-Tesla MRI. Student t-tests were employed to test significance between groups (p<0.05, two-tailed).

Results: Significantly increased glutamine was measured in the thalamus of patients with schizophrenia relative to healthy controls and significantly decreased glycine was measured relative to both healthy controls and MDD. In both the ACC and the thalamus, the MDD group had significantly lower myo-inositol, than both the schizophrenic group and healthy controls.

Conclusions: The significant reduction in glycine, an agonist for the glutamate N-methyl-D-aspartate receptors that are commonly implicated in schizophrenia, along with glutamine increases in the thalamus provides strong support for dysfunction of glutamatergic neurotransmission in schizophrenia. In particular, glycine presents a potential target for pharmacological intervention. Reduced myo-inositol in the MDD group could be an indication of glial cell integrity, or possibly due to medication, but should be further investigated.
**Intrinsic Connectivity Networks in post-traumatic stress disorder during sub- and supraliminal processing of threat-related stimuli**

Daniela Rabellino, Mischa Tursich, Paul A. Frewen, Judith K. Daniels, Maria Densmore, Jean Théberge, & Ruth A. Lanius

**Study objectives:** To investigate the functional connectivity of large-scale intrinsic connectivity networks (ICNs) in post-traumatic stress disorder (PTSD) at different levels of conscious awareness of threat-related stimuli.

**Methods:** Group Independent Component Analysis was utilized to study functional connectivity within the ICNs most correlated with the Default Mode Network (DMN), Salience Network (SN), and Central Executive Network (CEN) in PTSD participants (n=26) as compared to healthy controls (n=20) during sub- and supraliminal processing of fearful faces and individualized trauma words. Approval was obtained by the Research Ethics Board of Western University, Canada.

**Results:** Comparing PTSD to healthy participants, prefrontal and anterior cingulate cortex involved in top-down regulation showed increased integration during subliminal threat processing within the CEN and SN and during supraliminal threat processing within the DMN. The right amygdala showed increased connectivity with the DMN during subliminal processing in PTSD as compared to controls. Brain regions associated with self-awareness and consciousness exhibited decreased connectivity during subliminal threat processing in PTSD as compared to controls: the claustrum within the SN and the precuneus within the DMN.

**Conclusions:** Key nodes of the ICNs showed altered functional connectivity in PTSD as compared to controls, and differential results characterized sub- and supraliminal processing of threat-related stimuli. These findings contribute to enhance our understanding of ICNs underlying PTSD at different levels of conscious threat perception. In particular, the altered connectivity patterns found in the subliminal condition imply aberrant alerting mechanisms and regulation processes in PTSD even in the absence of conscious perception of the threat.

**Unique Anterior, Mid, and Posterior Insula Resting-State Functional Connectivity in Posttraumatic Stress Disorder**

Andrew Nicholson, Iman Sapru, Maria Densmore, Paul Frewen, Richard Neufeld, Jean Théberge, Margaret McKinnon, & Ruth Lanius

Understanding the neural connectivity of emotion dysregulation related to interoception and bodily awareness is pivotal to elucidating the underlying mechanisms of posttraumatic stress disorder (PTSD). Involved with these functions is the insula, which has been shown to be hyperactive in a significant proportion of PTSD patients and correlated to PTSD symptoms. Critically, insula subregion connectivity has not yet been examined in PTSD patients. Based on PTSD symptoms related to undermodulation of emotions, such as hypervigilance and vivid re-experiencing of traumatic experiences, we predicted altered connectivity to regions previously identified in the emotional salience network (anterior cingulate cortex, frontal cortex and temporoparietal cortex) and sensorimotor integration network (middle-posterior cingulate cortices, motor and temporal cortices). Non-dissociative subtype PTSD patients (n = 40) and age-matched healthy controls (n = 40) underwent resting-state fMRI. Bilateral anterior, mid, and posterior insula connectivity patterns were compared using a seed-based approach via PickAtlas and SPM8. Among patients with PTSD, we observed unique increased functional connectivity across the three insula subregions to areas involved in emotion regulation (cerebellum, frontal cortex), and autobiographical memory (hippocampus), in addition to regions previously identified in the emotional salience and sensorimotor integration networks (cingulate cortex, frontal, temporal and parietal cortices). Avoidance/numbing symptoms were the strongest predictor of functional connectivity across all insula subregions, which may be related to interoception. The current study is an important first step in elucidating the functional connectivity of insular subregions in PTSD. Further characterization of these pathways may aid to further characterize PTSD symptoms, pathogenesis, maintenance, and treatment of this disorder.
Early Afternoon Session

Measurement of endogenous brain serine using In vivo 1H-MRS spectroscopy
Homa Javadzadeh & Jean Théberge

Serine is a naturally occurring amino acid acting as a co-modulator of the NMDA glutamate receptor. D-serine supplements alleviate some of the most debilitating features of schizophrenia, negative and cognitive symptoms, believed to be associated with glutamatergic abnormalities. Detection of endogenous serine is impossible using standard proton Magnetic Resonance Spectroscopy (1H-MRS). Recent advanced 1H-MRS techniques using high field (4.0T and 7.0T) scanners have measured human brain serine. In this work, the reproducibility of a novel 1H-MRS sequence (DANTE-PRESS) to assess human brain serine is evaluated on a clinical 3.0T MRI scanner. Reproducibility is demonstrated in serine phantoms with "in vivo" concentration (0.732 mM) and "double in vivo" concentration (1.464 mM) repeated one week apart. Ten scans were obtained at baseline followed by ten scans a week later. Average serine concentrations were: 0.83 ± 0.08 mM (CV == 10.0%), and 0.88 ± 0.06 mM (CV == 7.3%) for the in vivo concentration and 1.73 ± 0.09 mM (CV == 5.3%), and 1.7 ± 0.1 mM (CV == 6.4%) for the double in vivo concentration. The intra-class correlation coefficient was high for both the in vivo (ICC =0.912) and double in vivo (ICC=0.929) measurements, indicating excellent repeatability. We conclude that reproducibility and precision of serine measurements on a 3.0T scanner is sufficient for human brain measurements. Future work will measure reproducibility of human brain serine in healthy participants with an outlook for application in participants with schizophrenia with and without D-serine supplementation.

Gender Profiles and Presenting Concerns of Individuals Seeking Treatment at an Outpatient Mood and Anxiety Program for Youth
Michael Wammes, Justin Arcaro, & Elizabeth Osuch

Introduction: The First Episode Mood and Anxiety Program (FEMAP) employs a unique model of service delivery to treat patients between the ages of 16-25 seeking treatment for mood or anxiety concerns. The picture of the help-seeking adolescent has heretofore not been entirely clear, and understanding differences between genders will be helpful in this pursuit.

Methods: 548 individuals (62% female) presented to FEMAP and were asked to complete a battery of questionnaires assessing demographic information, mental health symptomatology, substance use and daily functioning. Participants were also asked to list their top three life concerns in their own words. These data were analyzed for emerging themes and differences between genders.

Results: Statistical analyses revealed that 28% of participants initiated first contact with the program without the assistance of any other party, medical professional or otherwise. Males did not seek mental health treatment until they were significantly older than their female counterparts. Females presented with significantly higher levels of both depression and anxiety than males, but there were no significant differences between genders in how often they had considered suicide in the last year. The three most commonly reported life concerns across both genders were: Relationships and Social Life; Academics; and Mental Health. Additional concerns mentioned included what the future would hold, loneliness, suicidal thoughts and behavior, finances, and career prospects.

Conclusions: Understanding the reasons that individuals seek support for mental health issues can allow for the design and implementation of more effective outreach and community engagement models for programs like FEMAP elsewhere.

Testing the Interpersonal Theory of Suicide Among Community-Residing Older Adults
Dorian Murariu, Marnin J. Heisel, Paul S. Links, & Gordon L. Flett

Study Objectives: Older adults have high rates of suicide, yet, until recently, relatively little theory-driven research has been conducted in the field of late-life suicide prevention. We tested hypotheses of Joiner’s (2005) Interpersonal Theory of Suicide (IPTS; Van Orden et al., 2010) in the present study using a sample of community-residing older adults, investigating associations among suicide ideation and perceptions of burdening others (“Perceived Burdensomeness”-PB) and of social disconnection (“Thwarted Belongingness”-TB).

Methods: We recruited 173 community-residing older adults into a longitudinal study investigating risk and resiliency to the onset/exacerbation of suicide ideation. Participants completed measures of suicide ideation, depressive symptom severity, PB, TB, and social hopelessness at 6-22 month and 1-2 year post-baseline assessments. We employed multiple linear regression to test hypotheses that PB and TB would be significantly positively associated with death ideation, and with suicide ideation in the presence of social hopelessness (SH). We tested these hypotheses both cross-sectionally and longitudinally.

Results: Findings indicated that TB was significantly positively associated with death ideation in cross-sectional analysis, controlling for age, sex, and depression symptom severity; PB was not. A two-way interaction of TB and PB was associated significantly with death ideation, and a three-way interaction of TB, PB and SH was associated significantly with suicide ideation in cross-sectional (n=126) analyses. The three-way interaction significantly predicted suicide-related thoughts in the longitudinal analyses (n=107). The interpersonal variables accounted for significantly more variance in suicide ideation than age, sex and depression symptom severity combined for all analyses.
Board #1
Cannabanoid transmission In the basolateral amygdala bi-directionally controls the motivational properties of opiates via functional excitatory inputs to the nucleus accumbens shell
Ahmad T. & Laviolette, S.R.

The cannabinoid CB1 receptors (CB1Rs) are found in high concentrations in the basolateral amygdala (BLA). The BLA has functional inputs to the Nucleus Accumbens (NA), and this pathway is characterized as an important mechanism controlling emotionally salient memory formation. The mechanism by which intra-BLA CB1R transmission may modulate the encoding of reward-related memories via interactions with the NA is not currently understood. Using an unbiased conditioned place preference (CPP) procedure, we administered either a CB1 agonist or antagonist into the BLA of Sprague-Dawley rats and examined how intra-BLA modulation of CB1 transmission may influence opiate reward CPP, using either a sub or supra-reward threshold conditioning doses of systemic morphine. We report that intra-BLA CB1R transmission can bi-directionally control the salience of opiate-related reward signals via functional interactions with the shell region of the nucleus accumbens (NASh). Thus, intra-BLA CB1 receptor activation with WIN-55,212-2 switched normally rewarding effects of morphine into strongly aversive conditioning effects. In contrast, intra-BLA CB1R blockade with AM-251 strongly potentiated the reward salience of normally sub-reward threshold dose of morphine. Furthermore, glutamatergic blockade in the NASh, but not NACore, prevented both intra-BLA CB1 blockade-mediated opiate reward potentiation and CB1 activation-mediated aversion effects. Moreover, in vivo electrophysiological recordings from the NASh revealed that CB1R activation induced a decrease in fast spiking interneurons, and an increase in medium spiny neurons activity, whereas CB1R blockade produced the opposite neuronal activity pattern. The clinical implications of this study will aid in better understanding the role of CB1R in opiate addiction.

Board #2
Chronic Opiate Exposure alters Dopamine D3 receptor signaling within the Basolateral Amygdala
Rosen, L.G., Rushlow, W.J., & Laviolette, S.R.

The rewarding effects of opiates facilitate the formation of associative memories linked to the drug-taking experience. These memories are encoded in the basolateral amygdala (BLA) via dopamine receptors in a state-dependent manner, such that the role of dopamine receptor subtypes is profoundly altered between an opiate-naive and dependent/withdrawn brain. There is evidence that the dopamine D3 receptor (D3R) is altered in chronic opiate users, thus raising the question of the molecular mechanisms underlying these changes. D3R activation is linked to both GSK3 and calcium/calmodulin kinase pathways, which both play important roles in synaptic plasticity and conditioned reward memory formation in limbic regions. Here, we identify opiate exposure-induced changes to intra-BLA D3Rs and their downstream targets.

We take an integrative approach to answer these questions. Using a rat model of opiate addiction, we first identify changes to the expression of signaling molecules. We then use a morphine conditioned place preference procedure paired with targeted microinfusions of antagonists of our molecules of interest directly into the BLA to probe their behavioural significance. We have found that opiate dependence and withdrawal reduces the expression of D3Rs, and profoundly alters levels of downstream targets including CaMKIV and calcineurin in the BLA. The behavioural significance of these changes is ongoing. Together, this work characterizes how opiate exposure alters the role of intra-BLA D3R signaling in the formation of opiate associative memories. This will ultimately help us understand the mechanisms involved in the creation of the associative opiate memories that often draw abstinent users to relapse.

Board #3
Cognitive Performance is Associated with Gray Matter Decline in First-Episode Psychosis
Dempster, K., Norman, R., Théberge, J., Densmore, M., Schaefer, B., & Williamson, P.

Progressive loss of gray matter has been demonstrated in the early years of schizophrenia. The pathogenesis underlying gray matter decline is not clearly understood. It is plausible that glutamatergic metabolite excess demonstrated in early stages of the illness may play a role in the pathogenesis of declining gray matter, and furthermore, that an interplay between both processes may be responsible for the cognitive deficits characteristically seen in early schizophrenia. Several studies have demonstrated a relationship between gray matter volume in patients with schizophrenia, and both cognitive and social deficits. Elevated glutamatergic metabolites have previously been associated with cognitive deficits in patients with first-episode psychosis. Identification of an association between gray matter decline and cognition may lead to development of early interventions directed at preserving gray matter volume, and thus cognitive ability. The present study evaluated the association between gray matter volumes and neuropsychological functioning in a sample of 16 patients with first-episode psychosis. A simple regression was applied to investigate the association between gray matter volume change over 80 months and neuropsychological testing. Trails B duration at baseline was positively associated with gray matter decline in the right globus pallidus. Decline in the left cerebellum, parietal lobe, inferior parietal lobe, gray matter, and Brodmann area 7 was associated with more Trail B errors at baseline. Decline in the left cerebellum, parietal lobe, superior parietal lobule, gray matter and Brodmann area 7 was associated with more WCST perseverative errors at baseline cognitive testing. All significant findings were cluster corrected. The results suggest that cognitive impairments may precede gray matter decline in first-episode psychosis.
Board #4
“Blindsight” and subjective awareness of fearful faces: Inversion reverses the deficits in fear perception associated with core psychopathic traits
Oliver, L.D., Mao, A., & Mitchell, D.G.V.

Though emotional faces have been found to preferentially reach awareness, the present study utilized continuous flash suppression (CFS), and both objective and subjective indices of awareness, to determine whether they enhance subjective awareness and “blindsight”. CFS is a potent form of interocular suppression, in which a target image presented to one eye is typically suppressed from awareness in favour of a dynamic noise image presented to the other eye. Under CFS, healthy adults localized a target disgusted, fearful, or neutral face (objective index of awareness), and rated their confidence in their response (subjective index of awareness) on each trial. Psychopathic traits were also measured to investigate their influence on emotion perception. As predicted, fear increased localization accuracy, subjective awareness, and “blindsight” of upright faces. Coldhearted psychopathic traits were also inversely related to localization accuracy and subjective awareness, but not “blindsight”, of upright fearful faces. In a follow-up experiment using inverted faces, increased localization accuracy and awareness, but not “blindsight”, were observed for fear. Surprisingly, localization accuracy and subjective awareness of inverted fearful faces were positively correlated with coldhearted trait levels. These results suggest that emotion enhances both pre-conscious processing and the qualitative experience of visual awareness. However, the distinct effects associated with “blindsight” and subjective awareness raise the possibility that pre-conscious and conscious processing of emotional faces rely on different cognitive mechanisms.

Board #5
An fMRI Study of Facial Expression Processing in Individuals at-risk for Developing Frontotemporal Dementia
Tavares, T., Mitchell, D., & Finger, E.

Frontotemporal Dementia (FTD) is a neurodegenerative disorder characterized by atrophy in the frontal and/or temporal lobes and early behavioural impairments such as loss of empathy, emotional blunting and deficits in emotion recognition. Considering that atrophy is difficult to detect in some patients during the early stages of the disease, we examined whether early neural dysfunction in emotional processing can be detected in first degree family members of patients with FTD. Additionally, genetic mutations and levels of protein biomarkers associated with FTD were quantified. To date, 18 family members and 14 healthy controls have completed an fMRI emotional processing task. Preliminary results reveal that relative to controls, biological family members show increased activity in the left inferior/middle frontal gyrus, left superior frontal gyrus and left insula when viewing angry, sad and disgusted faces, respectively. This increased BOLD signal may reflect increased neural recruitment to compensate for inefficient processing when viewing emotional expressions. Knowledge from this study is expected to inform the development of new tools for early disease detection and tracking disease progression.

Board #6
Suicide Contagion among older adults: A systematic Review
Bhullar, G. & Heisel, M.J.

Introduction and Aims: The prevalence of suicide among older adults is increasing, coincident with the aging of the baby-boom cohort. Whereas public awareness of this issue is limited, the manner in which information on this topic is disseminated needs to be addressed sensitively, given the potential for suicide contagion effects. We therefore conducted a systematic review of the literature investigating media-reporting and suicide contagion among older adults.

Methods: We followed the principles of the PRISMA statement as we systematically searched various electronic databases to capture English language, empirical articles, in which at least 10% of the sample was 65 years or older.

Results: We identified 79 articles that appeared to meet our inclusion criteria. However, upon further investigation of the content of those articles, only six met our inclusion criteria. Four of those articles reported an association between media accounts of suicide or assisted suicide and subsequent deaths by suicide among older adults. Findings from the other articles were inconclusive regarding the potential impact of media reporting on late-life suicide.

Conclusions: Our findings suggest an apparent association between media reports of suicide and subsequent suicide behaviour among older adults. Journalists are thus encouraged to familiarize themselves with media resources for reporting on suicide when presenting these stories, given the potential public health impact of media accounts on suicide-related behaviour among at-risk demographics. Research is also needed investigating potential benefits of media reporting on mental health and well-being and the potential transmission of suicide contagion by way of social media.
Board #7
The Development of the Brief Adolescent Suicide Ideation Scale (BASIS)

Introduction: Suicide is the third leading cause of death among Canadians 10-14 years of age and the second leading cause of death among those 15-19 years of age. Enhanced suicide risk detection and intervention among adolescents is needed in schools and in primary care, emergency and mental health services. The purpose of this study was thus to develop and initially validate a novel Brief Adolescent Suicide Ideation Scale (BASIS) for use with community and hospital clinical care providers, to enhance suicide risk detection and monitoring among adolescents.

Methods: We employed an iterative, process of developing, revising, and validating the BASIS involving: 1) initial selection, refinement, and adaptation of relevant items from 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 in 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.

Conclusions: 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.

Board #8
Examining the roles of life satisfaction, meaning in life, and daily hassles in predicting suicide ideation among community residing older adults
Gyorgy, O., Heisel, M.J., Links, P.S., & Flett, G.L

Introduction: Research is needed testing models potentially promoting of psychological well-being and preventative of suicide risk in later life (Heisel, 2006). In the present study, we tested Shmotkin (2005) and Shrira’s (2011) model, which proposes that subjective well-being and meaning in life serve unique and interrelated roles in promoting functioning in the face of adversity. We specifically investigated whether: 1) life satisfaction and meaning in life are more strongly inter-correlated with increasing adversity, and 2) testing the premise that when either life satisfaction or meaning in life is low, the other variable is more strongly associated with suicide ideation, especially among those reporting greater adversity.

Objectives: We tested Shmotkin and Shrira’s theory with respect to reports of suicide ideation among community residing older adults.

Methods: We recruited 173 community-residing older adults into a 2-year longitudinal study investigating risk and resiliency factors associated with the onset or exacerbation of suicide ideation; the present analyses included findings from 126 participants in a 6-12 month post-baseline assessment (mean age = 74.5 years, SD = 6.0, including 92 women). We employed multiple linear regression analyses to investigate cross-sectional associations among life satisfaction, meaning in life, daily hassles and suicide ideation.

Results:Consistent with our previous findings, suicide ideation was significantly negatively associated with life satisfaction and meaning in life, positively associated with depressive symptom severity and frequency of daily hassles. Although findings from this study did not confirm Shmotkin and Shrira’s theory, life satisfaction and meaning in life each remained robust predictors of suicide ideation, even after controlling for depressive symptom severity and daily hassles.

Conclusions: These positive factors may be potent indicators of psychological resiliency and well-being and may serve as potential targets for suicide risk assessment and intervention among community residing older adults.
Board #9  
**Enhancing Suicide Risk Assessment Skills Through Simulations in a Virtual Environment.**  
*Sadek, G., Cernovsky, Z.Z., Chiu, S., & Bureau, Y.*

**Background:** Suicidal thoughts are common in patients receiving treatment in a range of medical environments. Despite comprehensive training in the theoretical and clinical aspects of psychiatry, Year 3 medical students polled at the end of their Psychiatry rotations consistently cite suicide risk assessment, distinguishing suicidal risk from non-suicidal self-injury, and decision-making around hospitalization as areas that they do not feel confident in. This study aims to help bridge the gap between theory and practice of psychiatric risk assessments in order to improve medical students’ skills and confidence in suicidal assessment.

**Objectives:** The objectives of this study are: to develop a series of simulated risk assessment case scenarios on the Virtual Interactive Case (VIC) e-platform, and to test the impact of this teaching innovation on suicide assessment skills acquisition and confidence in a sample of Year 3 medical students.

We plan to achieve the objectives through a four stage process: 1. Testing usability of the VIC platform for the purpose of suicidal assessment; 2. Developing of a series of suicide risk assessment cases with different diagnoses that are scrutinized for their face, content and construct validity and reliability measures; 3. Conducting a pilot Randomized Controlled Trial to test the effectiveness of the Suicide risk assessment case series on skills acquisition and confidence in Year 3 medical students using the Suicide Intervention Response Inventory (SIRI-2), a reliable and valid measure for this purpose (primary outcome measure) and a Visual Analog Scale (secondary outcome measure); 4. Performing data analysis and dissemination of results through presentations and publications. In this presentation, we will demonstrate the cases developed and provide some preliminary findings.

Board #10  
**Criminal History and Outcome of Opiate Substitution Treatment in Canadian Methadone and Suboxone Patients.**  
*Sadek, G., Varapravan, S., Rybak, I., Burhan, A. Pallaveshi, L., & Chan, E.*

**Introduction:** Methadone and suboxone patients were often involved in criminal activity prior to entering treatment. This study examines the correlation of criminal history to outcomes of urine tests in methadone and in suboxone patients.

**Method:** One hundred and three patients (67 men, 36 women) in a Canadian urban clinic undergoing opiate substitution treatment participated in this study. The majority (75.7%) were on methadone (mean dose =42.3, SD=21.6) and the rest (24.3%) were on suboxone (mean dose =7.4, SD=4.5). Their age ranged from 22 to 65 years (mean=37.0, SD=10.5). Those on methadone did not differ from those on suboxone with respect to age (t=9.7, df=96.2, p<.05) and gender (X2 test, p=ns). Their self-reported criminal history from the admission files and their last 10 urine screening tests were recorded, measuring benzodiazepines, cocaine, opiates, and oxycodone levels. Men and women in this sample did not significantly differ with respect to mean age (t-tests, p=ns) and with respect to criminal history (phi correlations, p=ns) except as follows: women were more frequently (phi=.21, p=.035) on probation or parole (17.1%) than men (4.5%) and more men (21.2%) than women (5.9%) had charges of driving under influence of alcohol or illicit drugs (phi=.20, p=.048).

**Results:** Almost a half of our patients (43.3 %) had some urine test for cocaine. Within all of our patients, 35.3% were convicted of the crime in a court of law and 31.4% spent time in jail. Only 10.0% were involved in crimes involving violence or weapons and 16.0% were charged with driving under influence of alcohol or illicit drugs. Some were on parole or probation (16.0%). Only one patient was ordered to enter treatment as a condition of probation.

Methadone patients did not differ from those on suboxone in their criminal history (t-tests, p=ns). Methadone patients were more likely to have positive urine tests for cocaine (t=2.5, df=96.2, p<.05) than those on suboxone but no significant differences were noted on other urine tests.

**Conclusion:** Methadone and suboxone patients did not differ in their criminal history. The treatment outcomes of methadone patients were less satisfactory with respect to unclean urine tests for cocaine.

Board #11  
**Sleep Quality and Pain in Methadone and in Suboxone Patients.**  
*Sadek, G., Cernovsky, Z.Z., Chiu, S., Bureau, Y., & Mekhaiel, S.*

**Introduction:** Methadone patients often report impaired sleep. This study compares sleep quality and as a corollary, pain ratings, between patients prescribed methadone and suboxone.

**Method:** Sixty-eight patients (44 men, 24 women) in a Canadian clinic undergoing opiate substitution treatment participated in this study. The majority (72.1%) were on methadone (mean dose =42.2, SD=24.6) and the rest (27.9%) were on suboxone (mean dose =3.7, SD=5.0). Their age ranged from 22 to 65 years (mean=36.7, SD=10.7). Those on methadone did not differ from those on suboxone with respect to age (t-test, p=ns) and gender (x2 test, p=ns). All completed items of the Pittsburgh Sleep Quality Index and rated their level of pain on a scale from 0 (no pain) to 10 (extreme pain). Their last 10 urine screening tests were recorded, measuring benzodiazepines, cocaine, opiates, and oxycodone levels.

**Results:** Forty two percent of patients rated their sleep as “fairly bad” and 8.2% as “very bad”. Of interest, 32.8 % of participants obtained less than 6 hours of sleep per day. In terms of pain, 55.9% reported moderate or severe levels (ratings above 3 points on the scale from 0 to 10). Methadone patients did not differ from those on suboxone in their pain ratings and sleep ratings (Mann-Whitney, p=ns). Methadone patients were more likely to have positive urine tests for cocaine (t=2.4, df=63, p<.05) but no significant differences were noted on other urine tests. Neither the dose of methadone nor the dose of suboxone correlated with pain and sleep ratings (rho, p=ns).

**Conclusion:** Methadone and suboxone patients did not differ in their ratings of sleep quality or pain.
Board #12
Pilot study of the correlates of Cardio-vascular Risks, Insulin resistance and Neurocognition in Neuroleptic-induced Parkinsonism in Schizophrenia: post-hoc analysis of RCT study
Varghese, J., Raheb, H., Chiu, S., Cernovsky, Z., Bureau,Y., Campbell, R., Dua, D., Singh, A., & Prakash, A.

Introduction: Spontaneous extrapyramidal motor signs (s-EPS): bradykinesia, muscle rigidity and dyskinesia were first described in drug-naïve schizophrenic patients. Neuroleptic-induced Parkinsonism (NIP), and Tardive Dyskinesia (TD) account for major adverse events of 1st-generation (FGA) and 2nd generation antipsychotics (SGA). Objective of our study was to examine: 1) whether SGA results in NIP; 2) whether cardio-metabolic risks, insulin resistance and cognitive deficits are correlated with NIP in schizophrenia.

Method: We conducted a post-hoc analysis of the NIP from the cohort of schizophrenia subjects at baseline prior to RCT trial of Ginsana-115 in schizophrenia. We used Simpson Angus scale (SAS) for EPS, Abnormal involuntary Scale (AIMS) for dyskinesia, HOMA model for insulin resistance, Framingham risk score (FRS) for cardio-vascular risk estimates and Neurocog® for neurocognition.

Results: Our sample comprised schizophrenia patients treated with SGA (n = 44; mean age: 38 yrs, male/female:29/15). We conducted Spearman linear regression on correlates of SAS scores. The baseline SAS scores (mean =4.2 SD=3.9) correlated significantly with log-IR ( r=0.44, p=0.007) and FRS scores (r=0.60, p<0.001) independent of Body mass index (BMI). NIP severity was related to higher insulin resistance and elevated cardiovascular risk score. Higher SAS scores correlated significantly (P < 0.05) with impaired composite neurocognitive index and selected cognitive domains. AIMS scores correlated significantly with FRS scores ( r=0.36, p =0.039) and memory (r=0.32, p=0.037).

Conclusion: Our finding that NIP in schizophrenia is related to neurocognitive deficits and modifiable cardio-vascular risks provides rationale for integrating life style management to core schizophrenia treatment pathway.

Board #13
Posttraumatic Substance Use Disorders (PTSUD): Perceived Causal Relations between Trauma-related Symptoms and Substance Use
Boughner, E., & Frewen, P.

Background: Posttraumatic stress disorder (PTSD) and substance use disorders (SUD) are common co-occurring problems, and each condition has been considered a risk factor for the other. A novel methodology entitled perceived causal relationship (PCR) scaling has been developed to assess comorbid symptomatology at an idiographic level by investigating the perceived causal interrelationships between different psychological symptoms or problems. A matrix of associations is created between measured variables with regards to participants' own thoughts concerning how the symptoms or psychological problems relate. However, PCR has never been applied toward specifically toward understanding PTSD and SUD comorbidity.

Study Objectives and Methods: This study aims to provide evidence for or against the self-medication theory as an explanation for PTSD and SUD comorbidity, and extends the self-medication theory to analyses of trauma-related and SUD-related dissociative experiences. A total of 513 participants were recruited through Amazon's MTurk web service to complete online surveys regarding PTSD and SUD symptoms and the PCR between them.

Results: Trauma-related re-experiencing and avoidance were predictive of SUD, and perceived to be more causal of substance abuse than was substance abuse perceived to be causal of PTSD symptoms. In contrast, particularly among males, participants viewed their SUD as more (or at least equally) causal of their dissociative symptoms as they perceived their dissociative experiences to be causal of their SUD.

Conclusions: Results partially support the self-medication theory of PTSUD comorbidity as referring to trauma-related re-experiencing and avoidance, but a substance-induced disorder may account for certain presentations of dissociation.
Board #14
Further Development and Validation of the Childhood Attachment and Relational Trauma Screen (CARTS) in Internet Samples: Extension to Witnessing Violence and Intersibling Abuse
Brown, M., Frewen, P., DePierro, J., D’Andrea, W., & Schore, A.

Background: Existing psychometric measures of childhood trauma history generally fail to take into account the relational-socioecological environment in which childhood trauma occurs. Variables such as the relationship between the perpetrator and the victim, the emotional availability of caregivers, witnessing the abuse of others, and the respondent’s own thoughts, feelings, and actions in response to maltreatment are rarely assessed by current measures.

Study Objectives and Methods: To address these concerns, the current study further developed and validated the Childhood Attachment and Relational Trauma Screen (CARTS) within three internet samples (total N = 1728).

Results: The internal reliability, convergent validity with other measures of childhood trauma history, and concurrent validity for measures of PTSD symptoms, interpersonal problems, and difficulties with emotion regulation of the original CARTS item set was supported across all samples, and paired differences in means and correlations between item-rated descriptiveness of self, mothers, and fathers identified in prior research were replicated. In addition, new analyses evaluating witnessing violence demonstrated that men were rated as more often violent towards women than the reverse, although intimate partner violence was frequently bidirectional. New analyses of family ratings referring to siblings further demonstrated that older brothers were either as or more frequently abusive when compared with parents.

Conclusions: The current study further supports the reliability, validity, and utility of assessing childhood attachment and maltreatment in a relational-socioecological framework.

Board #15
Trauma-related Dissociation and Subtyping PTSD: Altered States of Consciousness and the 4-D Model
Brown, M., Lanius, R., & Frewen, P.

Background: Consistent with the diagnosis of a dissociative subtype of PTSD, the 4-D Model of Trauma-related Dissociation differentiates the symptomatology of posttraumatic stress into distressing experiences associated with normal waking consciousness (NWC-distress) versus dissociative experiences exemplary of trauma-related altered states of consciousness (TRASC). Four dimensions are represented: one’s experience of time and memory, thought, one’s body, and emotion. STUDY Objectives and Methods: However, experiences of TRASC have not been assessed in large community samples in relation to the revised DSM-5 PTSD criteria. We evaluated TRASC as well as PTSD symptoms by self-report in participants recruited online (n = 2507). We also evaluated the hypotheses of the 4-D model via measures of PTSD and related psychological symptoms, dissociative experiences, and childhood trauma history.

Results: Consistent with hypotheses, relative to symptoms of NWC-distress, experiences of TRASC were: 1) endorsed less frequently, 2) co-endorsed less frequently, 3) predicted incremental variance in measures of dissociative experiences, and 4) were more specific to a history of childhood traumatization. An exploratory factor analysis generated a two-factor solution composed of NWC-distress and TRASC factors.

Conclusions: The present results support the 4-D model and the notion of a dissociative subtype of PTSD as defined within the DSM-5.

Board #16
Latent profile analysis and principal axis factoring of the DSM-5 dissociative subtype of PTSD
Brown, M., Steuwe, C., Lanius, R., & Frewen, P.

Background: A dissociative subtype has been recognized based on the presence of experiences of depersonalization and derealization in relation to DSM-IV PTSD. However, the dissociative subtype has not been assessed in a community sample in relation to the revised DSM-5 PTSD criteria. Moreover, the 20-item PTSD Checklist for DSM-5 (PCL-5) currently does not assess depersonalization and derealization.

Study Objectives and Methods: We therefore evaluated two items for assessing depersonalization and derealization in 557 participants recruited online who endorsed PTSD symptoms of at least moderate severity on the PCL-5.

Results: A 5-class solution identified two PTSD classes who endorsed dissociative experiences associated with either 1) severe or 2) moderate PTSD symptom severity (D-PTSD classes). Those in the severe dissociative class were particularly likely to endorse histories of childhood physical and sexual abuse. A principal axis factor analysis of the symptom list identified six latent variables: 1) Reexperiencing, 2) Emotional Numbing/Anhedonia, 3) Dissociation, 4) Negative Alterations in Cognition & Mood, 5) Avoidance, and 6) Hyper arousal.

Conclusions: The present results further support the presence of a dissociative subtype within the DSM-5 criteria for PTSD.
Board #17
The Dissociative Subtype of Posttraumatic Stress Disorder: Unique Basolateral and Centromedial Resting State Connectivity

**Background:** Emerging evidence suggests that basolateral (BLA) and centromedial (CMA) amygdala complex resting state functional connectivity differs between patients with posttraumatic stress disorder (PTSD) and trauma-exposed controls. However, amygdala complex connectivity within individuals characterized by the dissociative subtype of PTSD has not yet been examined. The objective of this study was therefore to compare directly BLA and CMA connectivity patterns between dissociative subtype and non-dissociative PTSD patients, as well as healthy controls.

**Methods:** PTSD patients (n = 49), including dissociative subtype (n = 13) and non-dissociative (n = 36) individuals, and age-matched healthy controls (n = 40) participated in a resting-state fMRI paradigm. Bilateral BLA and CMA functional connectivity was compared using a seed-based approach (SPM anatomy toolbox).

**Results:** With regard to patient group comparisons, the dissociative subtype group exhibited greater amygdala connectivity to prefrontal regions involved in emotion regulation (bilateral BLA and left CMA to the middle frontal gyrus and bilateral CMA to the medial frontal gyrus) when compared to the non-dissociative PTSD group. In addition, the dissociative subtype group showed greater amygdala connectivity to areas involved in consciousness, awareness, and proprioception, phenomena associated with depersonalization and derealization (left BLA to superior parietal lobe and cerebellar culmen; left CMA to dorsal posterior cingulate and precuneus).

**Conclusions:** Unique BLA and CMA connectivity to specific brain regions parallel the differential symptom profiles of the PTSD subgroups and elucidate implications for unique biological markers of the dissociative subtype of PTSD.

Board #18
Posttraumatic Eating Disorders (PTED): Perceived Causal Relations Between Trauma-related Symptoms and Eating Disorders
Thornley, E. & Frewen, P.

**Background:** Posttraumatic stress disorder (PTSD) and eating disorders (ED) are frequently comorbid psychological conditions in persons who have experienced traumatic life events, although little is known about the causes of such comorbidity.

**Study Objectives and Methods:** We completed a gendered analysis of the co-occurrence of symptoms of PTSD, ED, and dissociation in association with psychological trauma history using Perceived Causal Relations (PCR) scaling in a general community sample recruited online (n = 523) as well as in persons seeking inpatient treatment for ED (n = 10, recruitment ongoing).

**Results:** Within the internet community sample, dissociative symptoms were found to partially mediate the association between psychological trauma history and increased ED symptoms. Moreover, participants perceived their PTSD and dissociative symptoms as a greater cause of their ED symptoms than vice versa. Gender differences were also observed for: (1) trauma history, (2) symptom frequencies, (3) correlations between trauma history, ED symptoms and PTSD symptoms, (4) mediation analyses, and (5) PCR ratings. Data collection from persons seeking treatment for ED is ongoing with results forthcoming.

**Conclusions:** The current study supports the conceptualization of PTSD and ED comorbidity as a Posttraumatic Eating Disorder (PTED). Clinical significance for assessment and treatment will be discussed.
Board #19
Meditation Breath Attention Scores (MBAS) and other Meditative Experiences across Different Meditation Practices
Hargreaves, H. & Frewen, P.

Background: The ability to regulate attention has been implicated in well-being, while tendencies toward mind wandering have been associated with anxiety and depression. Mind wandering is the process of becoming distracted away from an attentional task toward intrusive thoughts, feelings or task-irrelevant environmental stimuli. The early stages of mindfulness training are associated with focused attention (FA) techniques that require a participant to focus their attention on a specific object or sensation, such as following the breath, in an attempt to regulate mind wandering. Whether different FA meditations are differentially associated with mind wandering is not known.

Study Objectives and Methods: This study investigated differences in attentional focus and experiences between 6 different mindfulness training practices in 62 undergraduate students. The Meditation Breath Attention Score (MBAS), the Meditation Experiences Questionnaire (MEQ) and the Toronto Mindfulness Scale (TMS) were administered, and associations between these measures and trait mindfulness, as well as symptoms of depression, anxiety, stress, and adult ADHD, were investigated.

Results: MBAS scores were found to correlate positively with mindful acting with awareness and mindful describing traits, and negatively with depression, anxiety, and stress (but not ADHD) symptoms. Differences between specific FA techniques were also noted on the MEQ and TMS but not the MBAS.

Conclusions: Experiences of state mindfulness vary across the practice of different FA meditations, although we did not observe differences in meditative focus or mind wandering on the MBAS. Clinical significance for mindfulness-based therapies for anxiety and depression and future research directions are discussed.

Board #20
Trait Mindfulness correlates with Individual Differences in Multisensory Imagery Vividness
Kharlas, D., & Frewen, P.

Background: State and trait mindfulness is a multifaceted construct, although its association with other cognitive, affective, and body-based measures of personality and individual differences remains poorly understood. Given that guided mindfulness meditations frequently involve focused imagery, we predicted that multisensory imagery vividness would correlate with mindful observing traits.

Study Objectives and Methods: 137 undergraduate students and 370 participants from Amazon’s MTurk webservice completed questionnaire measures of mindfulness traits (Five Facet Mindfulness Questionnaire [FFMQ]) and multisensory imagery vividness. They then completed a 8-10 minute meditation involving guided imagery of visualizing and embodying the positive characteristics of natural objects (a mountain, sun, or tree) and rated the level of imagery vividness they experienced as well as their emotional responses to the meditation.

Results: Consistent with predictions, mindfulness traits were correlated with imagery vividness, both in response to the multisensory imagery vividness questionnaire and in response to the meditation practice. Individual differences in trait mindfulness also predicted greater positive affect in response to the meditation. Results in students were largely specific to the mindfulness trait “Mindful Observing”, whereas in online participants not only “Mindful Observing” but additionally other mindfulness-related traits exhibited these associations.

Conclusions: Individual differences in multisensory imagery vividness is a construct of relevance to understanding mindfulness as a personality trait.

Board #21
The Efficacy of Mindfulness Meditation and the Mediating Role of Neurofeedback in Psychological Well-Being: A Randomized Controlled Pilot Study
Van Oss, N. & Frewen, P.

Background: The practice of mindfulness meditation (MM) has demonstrated positive outcomes in the treatment of various psychological conditions including anxiety, depression and posttraumatic stress disorder (PTSD). However, whether the benefits of MM can be augmented through the use of EEG neurofeedback (NFB) is unknown.

Study Objectives and Methods: The current randomized controlled pilot study investigated neurofeedback as a means to augment the practice of mindfulness meditation. Psychologically healthy undergraduate students (N = 21) from Western University were randomized either to practice MM alone, to practice MM with NFB, or to practice sham (placebo) NFB. All participants participated in four sessions and completed self-report measures of state and trait mindfulness and current mood states.

Results: At the end of the intervention, no significant differences between the three conditions were found. Immediate subjective effects of MM were found across groups such that participants experienced significant decreases in tension and depression and a significant increase in positive affect after MM. Moreover, there was a trend for all participants to report greater Mindful Nonjudging traits across groups. Analyses of EEG and peripheral psychophysiological arousal are ongoing.

Conclusions: The current study suggests that EEG-NFB may not augment the subjective benefits of MM as practiced without EEG-NFB, at least in a short-term intervention with psychologically healthy persons. The study should also be evaluated in a less psychologically healthy sample, for example, persons with anxiety, depression and/or PTSD.
Board #22
Mindfulness Group Intervention for Early Psychosis: A pilot study of the Mindfulness Ambassador Council
MacDougall, A., Carr, J., Vandermeer, M., Lloyd, C., Sethi, R., Anderson, K., & Norman, R.

Research suggests that mindfulness-based interventions (MBI) for psychosis are effective in reducing positive, negative and affective symptoms and can lead to improvements in functioning and quality of life (Khoury et al., 2013). However, studies to date have largely focused on patients with chronic illness, and little is yet known about the use of MBI for young people recovering from their first episode of psychosis.

Objectives: To evaluate the feasibility, acceptability and potential benefits of the Mindfulness Ambassador Council (MAC), an innovative 12-week facilitated group MBI promoting mindfulness skills and the development of emotional and social competencies in youth by Mindfulness Without Borders, MAC has been previously been implemented and studied in educational settings, and has been modified for use in an early psychosis intervention program (MAC-EP).

Methods: Twenty-four patients of the Prevention and Early Intervention Program for Psychoses (PEPP) at LHSC will be randomly assigned to either receive MAC immediately (Group A) or a wait-list control condition (Group B). Patients will be tested at baseline and immediately after receiving MAC and compared on validated measures of psychotic and mood symptoms, self-esteem, social functioning, perceived recovery, mindfulness and cognitive skills. Group B will subsequently receive MAC and both groups will be assessed 3-months post-MAC to evaluate whether any initial outcomes were sustained. Health services utilization will be compared between pre and post MAC. Focus groups and the Client Satisfaction Questionnaire will be used to assess acceptability of MAC and to inform any further modifications necessary for its use in this population.

Board #23
Promoting Recovery from Serious Mental Illness in Low-Income Contexts: The CREATE model
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Introduction: Mental disorders are one of the leading causes of disability and burden worldwide (Bloom et al., 2011). The majority of people living with mental illness (PWSMI) in low and middle income countries (LMIC) do not receive adequate care (WHO, 2008). One viable solution in addressing the treatment gap is the development of social businesses (SB), which create real employment opportunities that address both work participation and the psychosocial needs of PWSMI (Krupa and Chen, 2013). Preliminary evidence from high-income countries suggests that employment in SBs leads to reduced symptoms and health services utilization, as well as improved employment outcomes and psychological well-being.

Objectives: The novel Community REcovery Achieved Through Entrepreneurism (CREATE) model of recovery for low income contexts involves the establishment of locally-informed SBs using a community development framework coupled with evidence-based psychosocial rehabilitation supports in the form of a tool kit that can be delivered by local community health workers & PWSMI themselves.

Methods: Approximately 10 PWSMI will assist in the development of and become employed in the SB located in Machakos, Kenya. Proof of concept will be demonstrated through impact on quality of life, symptoms, self-management, goal attainment, income, family burden and business sustainability using a mixed methods approach that involves input from multiple stakeholders (employees, family members, mental healthcare providers, local business owners and SB customers). Future Directions: The overarching aim is to build a CREATE network that spans different settings within and outside of Kenya and is organized around and supported by regional hubs.

Board #24
Work-Related Stress Among Canadian Resident Trainees
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Postgraduate training is an exciting time of professional growth; however, residency can also be a challenging period for some physicians. We reviewed the literature to examine the prevalence of, triggers for, strategies for detection and management of work-related stress and mental health problems among Canadian residents.

Methods: PsychInfo, Embase and PubMed databases were searched for relevant English language articles using the medical subject headings resident, residency education, Canada, stress, burnout, emotional stress, chronic stress, job stress, suicide, suicidal behavior, self-injurious behavior.

Results: The search yielded a total of 36 articles of which 12 were included in this review. The prevalence of depression is higher among residents than it is among community samples. Close to 30% of respondents in a 2005 Canadian study identified that they experienced a mental health problem during the course of their residency training. Ratings of perceived stress as well as depression scores are higher in females. Contributing factors to the experience of heightened stress and mental health difficulties include year of postgraduate training, duty hours, sleep deprivation, being unmarried and time pressures.

Conclusions: There is a paucity of research on Canadian residents wellbeing and mental health. The studies that have been done in this area indicate a need for early detection of distress among residents through educational initiatives, recognizing the barriers to physicians seeking help and the implementation of formal wellness programs into residency program curricula.
Board #25
Social Inclusion as Freedom: A thematic qualitative analysis
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The purpose of this study is to better understand the experience of social inclusion from the perspective of psychiatric survivors. Specifically, this analysis examines how different levels of social inclusion (high, medium, and low) affect individual experiences of poverty, homelessness, and mental illness. This analysis was completed in the context of a five-year Community University Research Alliance (CURA) funded by the Social Sciences and Humanities Research Council of Canada, and uses a mixed-methods longitudinal design. During baseline data collection participants completed the Community Integration Questionnaire (CIQ) (Wijer et al. 1994). Quantitative analyses of the CIQ yielded a total score indicating a person’s perceived level of social inclusion. Using this information, the CURA research team created focus group sessions designed to examine specific issues related to individual experiences of high (N=22), medium (N=12), and low (N=12) levels of social inclusion. Researchers used a thematic analysis to analyze data (Braun & Clark, 2006). This analysis found that regardless of an individual’s self-identified level of inclusion, they used the term “freedom” to characterize their experiences. Their conceptualization of freedom highlights the myriad ways by which one’s level of social inclusion affects their experiences of health, well-being, civic life, employment and personal dignity. As a result of the close association between “freedom” and “inclusion,” these findings contribute to ongoing policy discussions at the intersection of clinical practice and social policies aimed at addressing the complex set of issues facing psychiatric survivors.
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