Program
And Abstracts

Academic Research Day

DEPARTMENT OF PSYCHIATRY

June 23rd, 2016
8:00 a.m. to 4:00 p.m.

Parkwood Institute
Mental Health Care Building
550 Wellington Road,
London, Ontario, N6C 0A7
CPD OBJECTIVES

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.

KEYNOTE LECTURE OBJECTIVES

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

1. Explain the nature of Canadian legislation proposals on medically assisted dying both historically and in relation to practices of euthanasia and assisted suicide elsewhere in the world.
2. Discuss the implications of contemporary research findings and moral arguments for evaluating the nature of Canadian proposals and their values and potential pitfalls.
3. Understand the clinical implications of proposed legislation for physicians, mental health professionals and lay persons.

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 (6.75 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.
8:00 a.m. Poster Session & Continental Breakfast
(Poster Abstracts begin on p. 15)

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

8:40 a.m. Evidence Based Care for Iraqi, Kurdish, and Syrian Asylum Seekers and Refugees of the Syrian Civil War: A Systematic Review
Cisse Nakeyar* & Paul Frewen

9:00 a.m. Functional Connectivity of the Periaqueductal Gray in Post-Traumatic Stress Disorder and its Dissociative Subtype
Sherain Harricharan*, Daniela Rabellino, Paul A. Frewen, Maria Densmore, Jean Théberge, Margaret C. McKinnon, Allan N. Schore, & Ruth A. Lanius

9:20 a.m. The Neurobiology of Emotion Regulation in Posttraumatic Stress Disorder: Amygdala Downregulation via Real-Time fMRI Neurofeedback
Andrew A. Nicholson*, Daniela Rabellino, Tomas Ros, Maria Densmore, Paul Frewen, Christian Paret, Christian Schmahl, Jean Theberge, Rosemarie C. Kluetsch, & Ruth A. Lanius

9:40 a.m. Cannabidiol Blocks the Formation of Traumatic Memories through a Serotonergic 5-HT1A Receptor Mechanism in the Nucleus Accumbens and Blunts Dopamine Activity: Implications for Post-Traumatic Stress Disorder Therapy
Chris Norris*, Michael Loureiro, Cecila Kramar, Jordan Zunder, Justine Renard, Walter Rushlow

10:00 a.m. Poster session (30 minutes)
Refreshments will be available during the poster session
Mid-Morning Sessions

10:30am. **Modulation of Traumatic Memory Acquisition and Recall via Prefrontal Cortical Dopamine D4 and D1 Receptor Transmission Differentially Controls Opiate Reward Sensitivity: Implications for Addiction Co-Morbidity in Post-Traumatic Stress Disorder**
Jing Jing Li*, Hanna Szkudlarek, Justine Renard, & Steven R. Laviolette

10:50am. **Developmental Abnormality in Thalamo-cortical Projections Leads to Impaired Behavioural Flexibility and Reversal Learning in Adult Rats**
Sagar J. Desai*, Brian L. Allman, & Raj Rajakumar

11:10am. **Structural and Functional Anomalies in Schizophrenia and Major Depressive Disorder Measured with Magnetic Resonance Imaging**
Jacob Penner*, Reggie Taylor, Betsy Schaefer, Richard W.J. Neufeld, Jean Théberge, Raj Rajakumar, Elizabeth A. Osuch, & Peter C. Williamson

11:30am. **The Effect of Value Reasoning on Stigmatization of Schizophrenia**
Yixian Li* & Ross Norman

12:00. Lunch and Poster Session (60 minutes)

Early Afternoon Session

1:00pm. **The Traumatic Experience of First-Episode Psychosis: A Systematic Review and Meta-Analysis**
Rebecca Rodrigues*, Basmah El-Aloul, & Kelly K. Anderson

1:20pm. **How Many Psychiatric Beds per Capita do we Need?**
Jerry Shum, Richard O’Reilly*, & John E. Gray

1:40pm. **Enhancing Suicide Risk Assessment Skills through Simulations in a Virtual Environment**
Ernest Chan*, Priya Subramanian, Sreelatha Varapravan, Iouri Rybak, Luljeta Pallaveshi, & Amer M. Burhan

2:00pm. Poster session (30 minutes)
Refreshments will be available during the poster session
2:30pm

INVITED KEYNOTE SPEAKER:
DR. BRIAN MISHARA, PH.D.

“The Canadian Approach to Euthanasia and Assisted Suicide in the Context of Contemporary Research Findings and Controversial Moral Premises”

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

1. Explain the nature of Canadian legislation proposals on medically assisted dying both historically and in relation to practices of euthanasia and assisted suicide elsewhere in the world.

2. Discuss the implications of contemporary research findings and moral arguments for evaluating the nature of Canadian proposals and their values and potential pitfalls.

3. Understand the clinical implications of proposed legislation for physicians, mental health professionals and lay persons.

Brian Mishara is Director of the Centre for Research and Intervention on Suicide and Euthanasia (CRISE) and Professor of Psychology at the Université du Québec à Montréal and Vice-chairperson of the Trustees of Befrienders Worldwide, an international organization of helplines. He has published seven books in English and five in French, include research on new technologies and suicide prevention, effectiveness of suicide prevention programmes, how children understand suicide, theories of suicidality, ethical issues, euthanasia and assisted suicide, and evaluations of helpline effectiveness. He was a founder of Suicide Action Montreal, the Montreal suicide prevention centre, a past president of the International Association for Suicide Prevention and Canadian Association for Suicide Prevention. He also consults and conducts suicide prevention training internationally and has held the Bora Laskin National Fellowship in Human Rights Research for studies in human rights issues associated with euthanasia and assisted suicide.

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

Board #1.  Discriminating Bipolar Disorder from Major Depression using Whole-Brain Functioning Connectivity: A Feature Selection Analysis with SVM-FoBa.  
Osuch, E., Jie, N., Wammes, M.*, Jiang T., Sui, J., & Calhoun, V.

Board #2 Rates of Recurrence of Bipolar Disorder during Pregnancy: A Systematic Review.  
Misbah, S.*, Anderson, K.K., & Sharma, V.

Board #3 Southwestern Ontario Suicide (SOS) Study for Quality Improvement.  
Shah, R.*, Eynan, R.*, Heisel, M.J., & Links, P.S.

Board #4 Competency-by-design Curriculum for Electroconvulsive Therapy in Canadian Psychiatry Residency.  
Al-Qadhi, S., Chawla, T., Seabrook, J.A., & Burhan, A*.

Board #5 The Prevalence of Mental Illness and Substance Use among Indigenous Post-Secondary Students in Canada.  
Hop Wo, N.K.*, Anderson, K.K., Wylie, L., & MacDougall, A.

Board #6 Iris Scanning: An Alternative Way of Identification for People.  
Forchuk, C.*, Donelle, L., & Capretz, M.

Board #7 Community Recovery Achieved Through Entrepreneurism (CREATE): A New Paradigm for Promoting Recovery from Serious Mental Illness in Low-Income Settings.  

Board #8 Dialectical Behavioural Therapy Reduces Emotional Dysfunction in Multiple Sclerosis.  

Board #9 The Lived Experience of Psychotherapy for Dissociative Disorders: A Qualitative Study of Response to TOP-DD Internet.  
Kharlas, D.*, Frewen, P., & Brand, B.

Board #10 Visual and Embodied Imagery, Heart-rate Variability, and Individual Differences in Response to Mindfulness Meditation.  
Kharlas, D.*, & Frewen, P.

Board #11 Group Mindfulness-based Intervention Improves Affective Symptoms in Individuals with Early Psychosis: A Pilot Randomized Controlled Trial.  
Board #12  Associations between Childhood and Lifetime Trauma Exposure and PTSD and Dissociative Symptoms are Partially Mediated by Mindfulness-Related Traits.
Boughner, E.*, Thornley, E., Kharlas, D., & Frewen, P.A.

Board #13  Validation of Italian Translation of Childhood Attachment and Relational Trauma Screen (CARTS).
Cantoni, L.*, Brown, M., Simonelli, A., Sacchi, C., & Frewen, P.

Board #14  Distress versus Dissociation in Traumatized Women and Men: Sex Differences in Relation to the 4-D Model of Trauma-related Psychopathology.
Brown, M.*, Boughner, E., Thornley, E., & Frewen, P.

Board #15  Neuro-Mindfulness: 1-20Hz Desynchronization Neurofeedback.
Hargraves, H.*, & Frewen, P.

Board #16  The Innate Alarm Circuit in Post-Traumatic Stress Disorder: Conscious and Subconscious Processing of Fear- and Trauma-related Cues.
Rabellino, D.*, Densmore, M., Frewen, P., Théberge, J., & Lanius, R.

Board #17  Emotion and Interpersonal Distance: Neural Correlates of Approach-Avoidance Tendencies to Distinct Facial Expressions in a Community Sample Varying in Psychopathic Traits.
Vieira, J.*, Tavares, T., & Mitchell, D

Board #18  Functional Neural Deficits during Reversal Learning in Frontotemporal Dementia.
Tavares, T.*, Coleman, K., Mitchell, D., & Finger, E.

Oliver, L.*, Vieira, J., & Mitchell, D.

Board #20  Long-term Effects of Adolescent Nicotine Exposure on Anxiety and Social Interaction: Implications for Psychiatric Disorders.
Jobson, C.*, Rushlow, W., Rosen, L.G., & Laviolette, S.R.

Board #21  Involvement of Prefrontal Gabaergic Transmission in Schizophrenia-Like Behaviour Induced by Chronic Adolescent THC Exposure.
Renard, J.*, Kramar, C., Szkudlarek, H., Rosen L.G., Rushlow, W., & Laviolette, S.R.

Board #22  Assessment of Serine Quantification Reproducibility using Advanced 1H-MRS in the Human Brain at 3T.
Javadzadeh, H.*, Théberge, J., & Williamson, P.

Board #23  Theory of Mind as a Moderator of the Relationship of Perceived Social Support with Personal Recovery and Life Satisfaction in Patients with a Psychotic Disorder.
Lloyd, C.*, Vandermeer, M., MacDougall, A., & Norman, R.
Board #24  The Novel Use of Participatory Video as a Recovery-Oriented Intervention in Early Psychosis: A Pilot Study. 

Board #25  Determinants of Self-Esteem in Early Psychosis: The Role of Perceived Social Dominance. 
_MacDougall, A., Vandermeer, M.J., & Norman, R.*_

Board #26  Understanding Two Dimensions of Negative Symptoms in Psychotic Disorders. 
_Normal, R.*, MacDougall, A., Bird, R., & Lloyd, C._

Board #27  How Critical is the “Critical Period”? 
_Normal, R.*, MacDougall, A., Manchanda, R., Harricharan, R., & Northcott, S._

Board #28  Recovery at Five Years from Initial Treatment of a Schizophrenia Spectrum Disorder. 
_Normal, R.*, MacDougall, A., Manchanda, R., Harricharan, R., & Northcott, S._
Morning Sessions

Evidence Based Care for Iraqi, Kurdish, and Syrian Asylum Seekers and Refugees of the Syrian Civil War: A Systematic Review
*Cisse Nakeyar & Paul Frewen*

A systematic review of literature reporting on the prevalence of assessment measures, treatments, and biomarkers used in the diagnosis and treatment of PTSD in Iraqi, Kurdish, and Syrian refugees was undertaken. A search of medical, psychological, and sociological databases was conducted (Cochrane Library, EMBASE, PsychINFO, PubMED, and Web of Science) on all relevant literature from the start of 2011 to the time of the search (22 March 2016). Seventeen manuscripts met study inclusion criteria following a search of 670 potential manuscripts. Seven assessment measures were used in more than one study, four of which were clinically administered (Vivo checklist of war, detention, and torture; CAPS; M.I.N.I.; and HAM-D) and three of which were self-report measures (HTQ; HSCL-25; PMLD). Two studies reported on treatment, both of which administered Narrative Exposure Therapy (NET). Several biomarkers were reported but only in a single study, including response in lateral prefrontal regions, right inferior parietal cortex, and bilateral isthmus of the cingulate, EEG event-related potentials (ERPs; P50, N75, and N150), hypercortisolemia, and elevated heart rate. Based on these findings, we advocate the use of the HTQ, HSCL-25 and PMLD to exclude PTSD non-cases, and the CAPS and HAM-D for diagnosis of PTSD in Iraqi, Kurdish, and Syrian refugees in Canada. We further suggest NET as the psychological treatment with the strongest evidence-base in this population. Finally, we advocate continued research into biomarkers as a means of improving and objectifying psychological assessment and treatment of PTSD and depression in Canadian refugees.

Functional Connectivity of the Periaqueductal Gray in Post-Traumatic Stress Disorder and its Dissociative Subtype
*Sherain Harricharan*, *Daniela Rabellino*, *Paul A. Frewen*, *Maria Densmore*, *Jean Théberge*, *Margaret C. McKinnon*, *Allan N. Schore*, & *Ruth A. Lanius*

**Study Objectives:** Post-traumatic stress disorder (PTSD) patients typically exhibit hypervigilance, which can transcend into a hyperarousal response accompanied by sympathetic arousal in response to threat stimuli. However, patients diagnosed with a dissociative subtype of PTSD may experience an additional freezing-shutdown response to threat stimuli that typically involves parasympathetic activity and hypo-reactivity. The periaqueductal gray is a central structure for coordinating defensive responses and consists of dorsolateral and ventrolateral subdivisions that mediate sympathetic and parasympathetic activity, respectively. We looked at how functional connectivity networks of the periaqueductal gray subdivisions at rest differ between healthy individuals and PTSD patients, including those with the dissociative subtype.

**Methods:** We conducted a seed-based analysis of resting-state fMRI data using dorsolateral and ventrolateral subdivisions as regions of interest. Patients were separated into three groups based on diagnosis, PTSD (n=61), PTSD + Dissociative Subtype (n=37) and healthy controls (n=40).

**Results:** Overall, both groups of PTSD patients demonstrated widespread connectivity between the PAG and other brain areas during resting-state when compared to healthy controls. All PTSD patients demonstrated dorsolateral PAG connectivity with areas of the brain associated with active defensive reactions. Interestingly, dissociative PTSD patients demonstrated additional ventrolateral PAG connectivity with areas associated with evoking passive defensive responses to threat.

**Discussion and Summary:** These findings support a novel neural circuitry involving key brainstem structures involved in defensive responses in PTSD and its dissociative subtype that exist during resting-state.
The Neurobiology of Emotion Regulation in Posttraumatic Stress Disorder: Amygdala Downregulation via Real-Time fMRI Neurofeedback
Andrew A. Nicholson*, Daniela Rabellino, Tomas Ros, Maria Densmore, Paul Frewen, Christian Paret, Christian Schmahl, Jean Theberge, Rosemarie C. Kluetsch, & Ruth Lanius

Real-time functional magnetic resonance imaging (rt-fMRI) neurofeedback allows individuals to self-regulate brain activity. In order to examine the regulation of emotional states during symptom provocation, we specifically targeted amygdala down-regulation using rt-fMRI neurofeedback in patients with PTSD. Patients (n=10) completed 3 sessions of rt-fMRI with the instruction to down-regulate the neurofeedback signal from the amygdala while viewing personalized trauma words. Amygdala down-regulation was assessed by contrasting a) regulate trials with b) viewing trauma words and not attempting to regulate, and results were corrected for multiple comparisons. Training was followed by one transfer run without neurofeedback. Generalized psychophysiological interaction (gPPI) and dynamic causal modelling (DCM) analyses were also computed to explore connectivity and causal structure, respectively. PTSD patients were able to down-regulate both right and left amygdala activation. Increased activation in the dorsal PFC was found during regulate as compared to view conditions. In contrast, increased activation in brain regions related to contextual memory/pain processing/consciousness/interoception was observed during the view condition. This therapeutic shift in neural activation was found to be negatively correlated to PTSD symptoms. Increased amygdala- prefrontal cortex connectivity was found during regulate as compared to view conditions. The current study demonstrates the successful down-regulation of amygdala activation in patients with PTSD, with corresponding increased connectivity with emotion regulation regions.

Cannabidiol Blocks the Formation of Traumatic Memories through a Serotonergic 5-HT1A Receptor Mechanism in the Nucleus Accumbens and Blunts Dopamine Activity: Implications for Post-Traumatic Stress Disorder Therapy
Chris Norris* & Steven R. Lavolette

The use of ‘medical marijuana’ for the treatment of neuropsychiatric disorders such as post-traumatic stress disorder (PTSD) is controversial. Emerging evidence suggests that the largest phytochemical component of cannabis, cannabidiol (CBD), may interact with the mesolimbic dopamine (DA) system. CBD is associated with anti-psychotic, anxiolytic and emotional memory processing. However, the neuroanatomical, neuronal and pharmacological substrates responsible for CBD’s effects within the mesolimbic pathway are not understood. Using a combination of electrophysiological recordings and a rodent model of traumatic memory formation (olfactory fear conditioning), we characterized the behavioural and pharmacological effects of CBD within the mesolimbic pathway, focusing on the nucleus accumbens shell (NASh) and ventral tegmental area (VTA). Associative fear memory formation was blocked by intra-NASh CBD. These behavioural effects were challenged with both DAergic and serotonergic (5-HT\textsubscript{1A} and 5-HT\textsubscript{1B}) signalling blockade but only 5-HT\textsubscript{1A} blockade restored associative fear memory formation. In \textit{vivo} intra-VTA electrophysiological recordings revealed that behaviourally effective doses of intra-NASh CBD elicited a predominant decrease in spontaneous DAergic neuronal frequency and bursting activity. These neuronal effects were bi-directionally modulated by co-administration of a 5-HT\textsubscript{1A} receptor antagonist. Finally we demonstrated that administration of GABA\textsubscript{A/B} antagonists in the VTA followed by intra-NASh CBD restored associative fear memory formation. Our findings demonstrate a novel NAc→VTA circuit responsible for the behavioural effects of CBD on emotional memory formation via functional interactions with serotonergic signalling substrates in the mesolimbic pathway. In addition, these findings point to a potential role for CBD in the treatment of traumatic memory disorders such as PTSD.
Mid-Morning Sessions

Modulation of Traumatic Memory Acquisition and Recall via Prefrontal Cortical Dopamine D4 and D1 Receptor Transmission Differentially Controls Opiate Reward Sensitivity: Implications for Addiction Co-Morbidity in Post-Traumatic Stress Disorder

Jing Jing Li*, Hanna Szkuldlarek, Justine Renard, & Steven R. Laviolette

PTSD and addiction share strong comorbidity; the inability to suppress obtrusive memory recall related to either stressful or rewarding experiences may be an underlying neuropsychological feature triggering PTSD and addiction. Our research has shown that activation of the prefrontal cortex (PFC) dopamine (DA) D4 (D4R) and D1 receptor (D1R) strongly modulates emotional memory formation and expression. Using an olfactory fear conditioning paradigm, we conditioned salient or non-salient associative fear memories by delivering supra-threshold vs. sub-threshold foot shock, we examined if recall of associative fear memory would increase subjects’ sensitivity and vulnerability to morphine addiction, measured in a conditioned place preference (CPP) paradigm. We also examined if blocking traumatic memory recall with PFC D1R stimulation may block this effect and if artificially creating a fear memory with PFC D4R stimulation would increase morphine reward sensitivity. Rats receiving supra-threshold fear conditioning showed strong associative fear memories and strongly potentiated morphine reward sensitivity. Activation of PFC D1 receptor transmission dose-dependently blocked the recall of fear memory and similarly blocked the potentiation of morphine reward CPP through a cyclic AMP-dependent molecular pathway. PFC D4 activation during memory acquisition created false fear memories in rats receiving sub-threshold foot shock. D4-mediated potentiation of normally non-salient fear memories also caused a dramatic potentiation in morphine reward sensitivity. Our findings have important implications for the role of the PFC DA receptor transmission in PTSD-related traumatic memory acquisition and recall and suggest that dysregulation of PFC DA transmission may underlie comorbidity between PTSD and addiction.

Developmental Abnormality in Thalamo-cortical Projections Leads to Impaired Behavioural Flexibility and Reversal Learning in Adult Rats

Sagar J. Desai*, Brian L. Allman, & Raj Rajakumar

Partial ablation of subplate neurons of the developing prefrontal cortex (PFC) in neonatal rat pups results in the adult emergence of positive and negative symptom-like features and structural abnormalities that are consistent with schizophrenia. Within the PFC, these changes include: 1) altered laminar distribution of GABAergic neurons; 2) decreased density of dopamine fibers in lower layers; 3) decreased synaptophysin and spinophilin immunolabeling, and; 4) loss of GABA transporter-1 immunoreactivity restricted to upper layers of the PFC. As glutamate, dopamine and GABA neurotransmitters play important roles in executive functioning, we hypothesized that subplate-lesioned rats will show executive function deficits. Adult lesioned and sham-operated (control) animals underwent an operant-based attentional set-shifting task, and reversal learning task. Compared to controls, the lesioned rats showed impaired executive function, as the total number of errors made, and the number of trials to achieve the performance criterion was significantly higher in the lesioned group for both tasks. Consistent with our hypothesis, rats whose subplate neurons were partially ablated during development showed increased perseverance in adulthood during task requiring cognitive flexibility; findings consistent with the deficits associated with schizophrenia. Since subplate lesion model has structural as well as behavioural abnormalities reminiscent of schizophrenia, it can be used as a high throughput screening model to test new chemical entities (NCE’s) developed against symptoms of schizophrenia.
Structural and Functional Anomalies in Schizophrenia and Major Depressive Disorder Measured with Magnetic Resonance Imaging
Jacob Penner*, Reggie Taylor, Betsy Schaefer, Richard W.J. Neufeld, Jean Théberge, Raj Rajakumar, Elizabeth A. Osuch, & Peter C. Williamson

Study Objectives: Structural and functional anomalies have been proposed in Schizophrenia (SZ) and major depressive disorder (MDD). We predicted deficits in directed effort regions in schizophrenia and emotional encoding regions in MDD.

Methods: 72 subjects (24 controls, 24 MDD, 24 SZ) completed clinical testing and a MRI scan session (Research Ethics Approved) that included acquiring T1-weighted structural images, resting fMRI data, and diffusion data.

Results: MDD had reduced gray matter (GM) in left (L) hippocampus, L caudate and L globus pallidus, reduced white matter (WM) in L internal capsule, L posterior temporal, and L ventral prefrontal, reduced resting activity in L anterior insula and L temporal pole, and widespread reduced diffusion directionality focused in right (R) middle cingulate and L anterior insula, compared to controls. SZ had less GM in bilateral caudate head and posterior hippocampus, less WM in bilateral superior parietal, superior temporal, internal capsule, frontal cingulate and L ventral prefrontal, reduced resting activity in R lateral parietal, and widespread reduced diffusion directionality focused in L frontal cingulate, R dorsal anterior cingulate (ACC) and bilateral insula, compared to controls.

Conclusions: MDD patients showed primarily left hemisphere changes involving basal-ganglia, temporal and ventral prefrontal regions. SZ patients showed bilateral changes, again involving basal-ganglia and temporal regions, and also involved more temporal/parietal regions and more of the cingulate. These findings support deficits in directed effort in schizophrenia and in emotional encoding in MDD.

The Effect of Value Reasoning on Stigmatization of Schizophrenia
Yixian Li*, & Ross Norman

Study Objectives: To examine the effectiveness of value-related reasoning interventions in reducing mental illness stigma, and the extent to which relationships between values and social distance are mediated by attitudes and norms.

Methods: In two experimental studies, participants went through varying value-related reasoning interventions and read a vignette of a person described as having schizophrenia. Participants’ value priorities were assessed as well as their attitudes towards the person in the vignette, attitudes towards six social behaviors reflecting social distance toward the person, perceived norms concerning these behaviors, and likelihood of engaging in these behaviors.

Results: In Study 1, writing about reasons related to self-transcendence or self-enhancement values was found ineffective in influencing attitudes and behavioral intentions. In Study 2, reasoning why self-transcendence values are more important than self-enhancement values led to significant more positive attitudes towards supportive behaviors than a control condition, but did not influence attitudes towards the person or behavioral intention. Across the two studies, self-transcendence values were found related to less stigmatization, and self-enhancement to greater stigmatization. Attitudes towards behaviors mediated the relationship between values and behavioral intention, while perceived norms independently added to the prediction of behavioral intentions.

Conclusion and Implications: Values were found systematically related to behavior intentions towards those with mental illness and this was mediated by attitudes towards behaviors. Future research could look at other factors that influence the consistency between values, attitudes, and behavior. The effect of value-based interventions on improving reactions to those with serious mental illnesses needs further investigation.
Early Afternoon Sessions

The Traumatic Experience of First-Episode Psychosis: A Systematic Review and Meta-Analysis

Rebecca Rodrigues*, Basmah El-Aloul, & Kelly K. Anderson

Objectives: Psychosis may be sufficiently traumatic to induce symptoms of posttraumatic stress disorder (PTSD), which may impact outcomes in first-episode psychosis (FEP). The objectives of this systematic review and meta-analysis were to understand the prevalence of post-psychotic PTSD symptoms in FEP and to identify the risk factors associated with the development of PTSD symptoms.

Methods: We searched MEDLINE, EMBASE, PsycINFO, PILOTS, Cochrane Library, Web of Science, and thesis databases. Studies were included if the population was first episode, PTSD was measured in relation to the psychotic episode, and the study was quantitative. Forward and backward citation searching were done. We assessed quality using an adapted Newcastle-Ottawa scale. PTSD prevalence was meta-analyzed using a random effects model and risk factors were summarized. Research ethics board approval was not required.

Results: Eleven studies were included (N = 464 patients). Seven studies assessed PTSD symptoms, three studies assessed full PTSD, and one study assessed both. The prevalence of PTSD symptoms was 36% (95%CI: 26%-47%) and full PTSD was 22% (95%CI: 16%-28%). Factors associated with post-psychotic PTSD included comorbid depression/anxiety and childhood trauma. Involuntary hospitalization and psychotic symptom severity were inconsistently associated with post-psychotic PTSD.

Conclusions: Following a first psychotic episode, approximately 1 in 3 people experience PTSD symptoms and 1 in 4 experience full PTSD. Further studies are needed to evaluate the trajectory of PTSD symptoms following a first psychotic episode and to clarify the associated risk factors.

How Many Psychiatric Beds per Capita do we Need?

Jerry Shum, Richard O’Reilly*, & John E. Gray

Objectives: Many Canadian cities struggle to meet the demand for inpatient psychiatric care. Few attempts have been made to establish the optimum number of psychiatric beds needed by a mental health service. In this study, we examine the quality of Canadian and international data on bed numbers.

Method: We extracted data on psychiatric bed numbers from the World Health Organization and the Organization for Economic Cooperation and Development databases. We compared Canadian data with those in the Canadian Institute for Health Information (CIHI) database. We further verified CIHI data, which is hospital specific, by contacting individual hospitals in two Canadian provinces. To assess the accuracy of low bed numbers in one western jurisdiction, we visited psychiatric services in two Italian regions. Finally, we polled Canadian and international jurisdictions to determine if they had targets for psychiatric beds.

Results: Germany, Canada and Italy have respectively 87, 35 and 10 psychiatric beds/100,000 population. Comparison of the CIHI data with those obtained directly from hospitals showed differences of up to 20%. Site visits established that Italy has more than twice its internationally reported numbers of beds. The Canadian Psychiatric Association (CPA) has recommended 50 acute beds and 15 longstay beds/100,000. Ontario has established a target of 35/100,000, which is significantly lower than the CPA’s.

Conclusion: Publically reported data on psychiatric bed numbers is inherently unreliable for Canada and for some international jurisdictions. Few jurisdictions or institutions have identified a target for the number of psychiatric beds.
Enhancing Suicide Risk Assessment Skills through Simulations in a Virtual Environment
Ernest Chan*, Priya Subramanian, Sreelatha Varapravan, Iouri Rybak, Luljeta Pallaveshi, & Amer M. Burhan

Background: Training clinicians in suicide risk assessment is essential for suicide prevention. Such training, however, is often emotionally and ethically challenging for trainees (Høifødt, et al, 2007). A recent study provided proof of concept of virtual patients in suicide risk assessment training of medical students (Foster, 2015).

Methods: We developed four cases on suicide risk assessment on the Virtual Interactive Case (VIC), an online platform. We tested usability, face, content, and construct validity of the cases using experts and novices. We recruited 56 medical students entering their psychiatry clinical clerkship block and randomized them to either the experimental (VIC) or control (Training-as-Usual) groups. At the beginning and end of their Psychiatry rotation, participants completed a self-rated Visual Analog Scale of competence and confidence in suicide risk assessment and the Suicide Intervention Response Inventory. Scores between the two groups were compared. The HSREB has determined that this project does not require approval of a Research Ethics Board in accordance with Tri-Council Policy Statement 2, 2.5. This study was funded by the FTI grant from Western University.

Results: The VIC platform was usable and case scenarios had good face validity. The training items were tested on three subject matter experts each and modified based on feedback. Construct validity was tested using experts and novices and comparing scores. Results are discussed.

Conclusion: The VIC program can enhance suicide risk assessment competency and confidence in medical trainees. Use of VIC and similar software will be an important resource for medical trainees in the future.
ABSTRACTS: POSTER DISPLAYS

Board #1

Discriminating Bipolar Disorder from Major Depression using Whole-Brain Functioning Connectivity: A Feature Selection Analysis with SVM-FoBa.
Osuch, E., Jie, N., Wammes, M.*, Jiang T., Sui, J., & Calhoun, V.

Objective: Depressive symptoms are a common feature of both Major Depressive Disorder (MDD) and Bipolar Disorder (BD), particularly in the early stages of illness. Thus, discriminating between BD and MDD is a major clinical challenge early in treatment, especially in the absence of clear episodes of mania. This study attempted to find useful biomarkers for these mood disorders using functional brain network connectivity.

Method: Resting state fMRI data was collected from 73 participants (22 BD; 28 MDD; 23 healthy control subjects). An advanced feature selection algorithm, using both forward and backward selection, allowed for adaptive selection of informative feature subsets from high-dimensional functional connections (FCs) within the brain. Thirty-eight FCs were identified as informative from 6,670 possibilities in these participants.

Results: Up to 88% classification accuracy was achieved between BD and MDD using this algorithm. Of the 38 indicated FCs, functional connectivity between left Brodmann Area (BA) 22 and right BA 40 was significantly correlated with scores in the Bipolarity Index ($r = -.52, p=.0005$), indicating that this represents a potential marker of bipolarity in young adults.

Conclusions and Implications: Diagnostic accuracy of 88% is excellent. The correlation between BPI score the BA 22/BA 40 network may represent impairment in socio-emotional processing in individuals with BD. This research has the potential to identify BD in depressed youth presenting for the first time to services and could thereby help ensure that patients get the correct medication early in the course of illness.

Board #2

Rates of Recurrence of Bipolar Disorder during Pregnancy: A Systematic Review.
Misbah, S.*, Anderson, K.K., and Sharma, V.

Objective: Bipolar disorder (BD) is a chronic and episodic mental illness affecting approximately 2% of the Canadian population. Women are more susceptible following onset of reproductive events, particularly pregnancy. However, there is much uncertainty in the literature about the effects of pregnancy on relapse of mood episodes. This study reviews the most updated literature on the relationship between BD and the rate of recurrence during pregnancy.

Methods: Four electronic databases, MEDLINE, PsycINFO, EMBASE and CINAHL were searched. The primary outcome of interest was the rate of reoccurrence in the study population during pregnancy. The secondary outcome was the type of recurrence episode. Relevant papers included for analyses were assigned a quality assessment score using a rating scale adapted from the Newcastle-Ottawa Scale for observational studies.

Results: A total of nine articles were included. There is very limited evidence from the literature about the role pregnancy plays in BD. Despite some findings of a protective effect, many studies repeatedly demonstrate high rates of BD recurrences. Moreover, several studies demonstrate that pregnant women with BD are more likely to have depressive or mixed episode rather than hypomanic or manic episodes.

Conclusions: The result of high rate of relapse should prompt the development of evidence-based guidelines, which will allow women with BD to make informed decisions during pregnancy. Moreover, results from this review can policy administrators and physicians to develop and implement clinical recommendations for patients. The impact of pregnancy on the course of BD still needs to be greatly explored.
Board #3

Southwestern Ontario Suicide (SOS) Study for Quality Improvement.
Shah, R.*, Eynan, R., Heisel, M.J., & Links, P.S.

Purpose: The purpose of the study was to develop a systematic confidential study process into suicide in Ontario to guide quality improvement of mental healthcare services and suicide prevention initiatives.

Method: A three-year case series study of consecutive suicides in Southwestern Ontario identified by Office of the Chief Coroner’s (OCC) was conducted. Healthcare providers who provided care to suicide decedents were invited by OCC to complete an online confidential suicide questionnaire offered through a secured Fluidsurvey portal.

Results: A total of 476 suicide cases were analyzed with a response rate of 87.8%. Of the 270 invitations to healthcare provider, 187 (69.3%) completed online suicide questionnaire in response to OCC request. The majority of the suicide decedents (54.6%, n=260), were between the ages 40-64 (X= 47.2 (SD=17.1), white (91.4%, n=416), single (34.2%, n=439), male (74.4%, n=476) with less than high school education (53.8%, n=158). Hanging (43%, n=476) was the most common method of suicide followed by self-poisoning (19%) and firearms (12%). Of the 86 cases of self-poisoning, prescription medications were used in 66.3%. Major depressive disorder (40%, n=458) was the most frequent primary diagnosis followed by alcohol/substance abuse (13.5%). Most decedents had mental health diagnosis for more than 5 years (70.8%) while 36.5% had a lifetime history of an admission to mental health services, self-harm (29.8%), perpetration of violence (11.8%), and childhood abuse (11.7%). Moreover, 63.6% of decedents visited their healthcare provider face-to-face in the month prior to their death. Approximately 57% had signs of emotional distress and 36.1% had interpersonal stressors at the time of their last contact. Of the 124 cases assessed, 34.7% were considered at no risk for immediate suicide 43.5% % were considered at low risk, and 1.6% were considered at high risk.

Conclusions: This study highlights the importance of conducting such a survey with healthcare providers to identify gaps in clinical services. Furthermore, improvement in suicide risk assessment by general practitioner and restrictions of prescription medications for self-poisoning is warranted.

Board #4

Competency-by-design Curriculum For Electroconvulsive Therapy in Canadian Psychiatry Residency.
Al-Qadhi, S., Chawla, T., Seabrook, J.A., & Burhan, A.*

The Competency-by-design initiative (CBD) in residency and continuing professional education is underway. Residency programs in Canada including psychiatry will revise their curriculum to allow meaningful transition to competency per milestone model within the CanMED 2015 framework. The objective of this study was to cultivate competencies and milestones for ECT training in Canadian Psychiatry residency Programs based on the CBD and CanMED 2015 framework.

Methods: A modified Delphi process was utilized to reach consensus on competencies, milestones and CanMED roles related to ECT training among ECT experts from 6 Canadian universities. Experts were identified based on preset criteria and were approached electronically.

Results: ECT experts from Western University developed a list of suggested competencies that were milestone into 18 “foundation”, 10 “core” and 4 “advanced” competencies. Lists of competencies were circulated via survey monkey tool to ECT experts in the first Delphi round to be rated on a 5 point likert scale in terms of level of agreement. A second Delphi round was circulated for the 31 original items plus new suggested items. Level of agreement between experts per item was calculated for the two rounds showing an increase in agreement in round 2. Reliability and internal consistancy of the rating was high.

Conclusion: This study produced expert validated competencies for ECT curriculum in psychiatry residency. The modified Delphi process is feasible to validate competencies for other areas of psychiatry residency curriculums within the Competency-by-design and CanMED framework. Implications and future directions will be discussed.
**Board #5**

The Prevalence of Mental Illness and Substance Use among Indigenous Post-Secondary Students in Canada.


**Objective:** To estimate the prevalence of mental illness and substance use among Indigenous students attending Canadian post-secondary institutions.  

**Method:** We obtained data from the National College Health Assessment - American College Health Association Spring 2013 survey, which includes 34,039 participants in 32 post-secondary institutions across Canada. We calculated prevalence estimates with 95% confidence intervals (CI). We compared Indigenous and non-Indigenous students using age- and sex-adjusted prevalence ratios (PR) obtained from Poisson regression models.  

**Results:** Of the total sample, 1,110 (3.3%) post-secondary students self-identified as Indigenous. Within the past 12 months, Indigenous students had higher odds of intentionally injuring themselves (PR=1.53, 95%CI=1.27–1.84), seriously considering suicide (PR=1.32, 95%CI=1.12–1.56), attempting suicide (PR=1.74, 95%CI=1.16–2.62), or having been diagnosed with depression (PR=1.26, 95%CI=1.08–1.47) or anxiety (PR=1.18, 95%CI=1.02-1.35) when compared with non-Indigenous students. Indigenous students also had higher odds of having a lifetime diagnosis of depression (PR=1.31, 95%CI=1.17-1.47) when compared with non-Indigenous students. Indigenous students were more likely to report binging on alcohol (PR=1.10, 95%CI=1.02–1.19), using marijuana (PR=1.21, 95%CI=1.06–1.37), and using other recreational drugs (PR=1.32, 95%CI=1.06–1.63) compared to non-Indigenous students.  

**Conclusions:** This study demonstrates that Indigenous students at post-secondary institutions across Canada experience higher prevalence of mental illness and related issues compared to the non-Indigenous student population. This information highlights the need to advocate for the necessary mental health resources to support Indigenous students attending post-secondary institutions.

**Board #6**

Iris Scanning: An Alternative Way of Identification for People.  

*Forchuk, C.*, *Donelle, L.*, & *Capretz, M.*  

It is common for mental health clients and people who are homeless to lose pieces of identification, such as health cards. Loss of identification can leave individuals stranded without any access to continued non-urgent care or services. This project aims to explore another means of identification, iris scanning, in hopes of finding an identification strategy that is independent of an individual's ability to recall from memory or need to carry identification, and thus improve their access to care. This study will assess the functionality of the iris scanning technology in a community setting and to evaluate the acceptability to Salvation Army shelter clients and staff of using iris scanning for client identification. As individuals check into the shelter they were asked to have a scan of their iris taken which generated a unique identifying number for each person. The research team members documented the number of people who agreed to be scanned, the number of people who declined, and the number of successful scans completed. A total of 230 people were asked to participate in the study. Among those, 192 participants agreed to have their irises scanned and agreed to answer the interview questions; eight participants refused the iris scan but agreed to be interviewed, and 30 people refused to participate in the study. A second iris scan was requested of 50 individuals to allow the research team to assess whether the technology consistently identifies someone with the same number. Planned focus groups with shelter staff will address acceptability and concerns regarding the technology.
Board #7


Study Objectives: 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 care and are socially marginalized (WHO, 2008). The innovative transdisciplinary CREATE model of recovery for low income settings involves the establishment of a locally-informed social business designed to employ PWSMI coupled with an evidence-based Psychosocial Rehabilitation (PSR) Toolkit consisting of psychoeducation, self-management, employment and other life skills development modules that is co-delivered in a group setting by local mental healthcare workers & PWSMI themselves.

Methods: 10 PWSMI accessing psychiatric services at the local hospital in Machakos, Kenya, have been recruited and are currently employed at CREATE’s first social business, Point Tech Solutions, a local print shop where they receive the PSR Toolkit as part of their employment. Proof of concept will be demonstrated through CREATE’s impact on employees’ quality of life, symptoms, goal attainment, time use, employment/financial status, family burden and on the larger community using a mixed methods repeated measures design that involves input from multiple stakeholders (employees, family members, mental healthcare providers, local business owners and business customers).

Future Directions: To evaluate the feasibility of expanding the PSR Toolkit into Kenyan hospital settings through training and ongoing support of local mental healthcare professionals and to scale the CREATE model of recovery into other regions within and outside of Kenya.

Board #8

Dialectical Behavioural Therapy Reduces Emotional Dysfunction in Multiple Sclerosis.

Objective: To examine whether dialectical behaviour therapy (DBT), within the family of cognitive behavioural therapies, is effective in treating depressive and anxiety symptoms in multiple sclerosis (MS).

Research Method/Design: Persons with MS were recruited from a MS clinic if they met criterion on either the anxiety or depression subscales of the Hospital Anxiety and Depression Scale. A convenience sample of 20 patients was assigned to either DBT (n = 10) or standard care (n = 10). All patients were tested by a blinded assessor pre- and post-treatment and at 6-month follow-up on measures of depression, anxiety, general psychopathology, and quality of life. Patients in the DBT group attended a skills training group twice weekly for 2 months for a total of 16 sessions.

Results: For the DBT group, significant improvements were demonstrated in self-rated and clinician-rated depressive symptoms, clinician-rated anxiety symptoms, self-rated general psychopathology symptoms, and quality of life. In contrast, the standard medical care group showed no significant improvements across all measures.

Conclusions: This pilot work provides preliminary support for the utility of DBT as a means of improving emotional function in MS, but further work is needed to clarify this benefit using a large, randomized, controlled approach.
Board #9

The Lived Experience of Psychotherapy for Dissociative Disorders: A Qualitative Study of Response to TOP-DD Internet.

Kharlas, D.*, Frewen, P., & Brand, B.

No previous studies have investigated the experience of taking part in internet-assisted psychotherapy for dissociative disorders (DD). This qualitative study uses thematic analysis to analyze self-reports collected from patients and their therapists during the course of the first internet-assisted psychotherapy trial for DD: the Treatment of Patients with Dissociative Disorders (TOP-DD) online study. The analysis aimed to understand the response to psychoeducational videos. Specific identified themes will be defined with examples. In general, themes demonstrated that TOP-DD helped patients gain new insights into their DD, symptomology, motivations in treatment and coping with alters. Patients further described barriers to therapy such as extreme emotional states, difficulty understanding topics within the TOP-DD videos, and difficulty applying skills learned. Generally it was found the TOP DD videos were an effective catalyst for noticeable progress within their recovery from trauma-related DD. Therapists described their clients experiencing decreased dissociation, decreased self-harming behaviour, and increased effort both within therapy sessions and within the context of their own lives. Therapists also observed their clients at times struggling with facing phobias or other extreme emotions. In conclusion, the current study revealed that both patients and therapists found TOP-DD to be an effective psychoeducational adjunctive intervention to ongoing psychotherapy and was considered to provide a number of unique positive outcomes.

Board #10

Visual and Embodied Imagery, Heart-rate Variability, and Individual Differences in Response to Mindfulness Meditation.

Kharlas, D.*, & Frewen, P.

Previous research suggests a relationship between vividness of visual and embodied imagery and degree of pleasantness experienced in response to mindfulness meditation (MM) practice. Heart Rate Variability (HRV) is a measure of the parasympathetic nervous system associated with psychological flexibility and wellbeing that may also partially mediate pleasantness experienced in response to MM. This honors thesis together investigated associations between HRV and subjective measures of pleasantness and vividness of visual and embodied imagery experienced during MM in 63 undergraduates. Participants practised a brief MM while HRV was measured and afterwards self-reported on their vividness of visual and embodied imagery, distress and pleasantness. HRV was significantly higher during MM compared to the baseline measurement. Furthermore, a regression model found that embodied imagery was the only independent predictor of pleasantness in response to MM. Future studies should focus on finding novel physiological measurements of well-being and studying how these relate to individual differences integral to the experience of MM. The current results further support the use of meditations utilizing guided imagery to encourage the felt embodiment of positive characteristics and an objective indicator of cardiac and psychological health.
Board #11

Group Mindfulness-based Intervention Improves Affective Symptoms in Individuals with Early Psychosis: A Pilot Randomized Controlled Trial.


Objectives: Mindfulness-based interventions (MBI) for psychosis appear effective at reducing negative and positive symptoms, distress, and improving functioning and quality of life (Khoury et al., 2013). However, little is known about MBI in early psychosis. This study aims to evaluate the feasibility and clinical utility of the Mindfulness Ambassador Council (MAC), a 12-session facilitated and manualized group designed for youth and adapted for the mental healthcare setting.

Methods: 21 patients of PEPP were recruited and randomized to receive MAC (n=11) or treatment as usual (TAU) (n=10). Participants were assessed at baseline, immediately and 3-months post-intervention on positive, negative, affective and anxiety symptoms, social functioning, subjective recovery, mindfulness and cognitive skills. Focus group and client satisfaction (CSQ-8) were used to assess acceptability. 4 participants withdrew.

Results: An intent to treat analysis demonstrated that the MAC group (n=9) showed significant improvement (p<0.05) compared to TAU (n=8) on self-reported levels of tension, depression, anger, and fatigue, and practicing acceptance, and a trend towards having improved self-esteem and practicing awareness. No group differences were detected on any of the other measures. Mean CSQ-8 total was consistent with high satisfaction. Qualitative data revealed themes of personal learning/growth, perceived benefits, focus on wellness versus illness, connection, and satisfaction with MAC facilitators and strategies. Trends for improved vigour and social engagement were observed at 3-months post-intervention compared to immediately post-intervention.

Conclusions: This study confirms feasibility, acceptability and potential therapeutic benefits for improving affective symptoms and mindfulness skills in early psychosis.

Future Research: A larger multi-site RCT is being planned.

Board #12

Associations between Childhood and Lifetime Trauma Exposure and PTSD and Dissociative Symptoms are Partially Mediated by Mindfulness-Related Traits.

Boughner, E., Thornley, E., Kharlas, D., & Frewen, P. A.

Background: Theory suggests that relationships between trauma, PTSD, and certain dissociative experiences can be understood through mindfulness and mindfulness-based therapies, although limited research has compared the strength of associations between mindfulness and trauma-related distress versus dissociation.

Method: 952 participants surveyed online were used to examine whether mindfulness traits (Five Facet Mindfulness Questionnaire [FFMQ]) partially mediate relationships between self-reported childhood and lifetime trauma and symptomatic outcomes of PTSD and its dissociative-subtype.

Results: Mindfulness traits were more strongly correlated with PTSD symptoms than with dissociation, although associations with the latter were also significant. Mindfulness traits partially mediated the association between trauma exposure and PTSD and dissociative outcomes, particularly in the case of the mindful describing, acting with awareness, and non-judging traits.

Conclusions: Our findings suggest that the development of trauma-related symptoms may be influenced by mindfulness traits, such that a decrease in mindfulness traits is associated with increased distress and dissociation.
Board #13

Validation of Italian Translation of Childhood Attachment and Relational Trauma Screen (CARTS).
Cantoni L.*, Brown,M., Simonelli,A., Sacchi, C., & Frewen, P.

**Background:** Several studies have supported the validity and utility of the Childhood Attachment and Relational Trauma Screen (CARTS) as a tool to understand the socioecological environment of an individual growing up as a child. However, to date, studies examining the CARTS have solely investigated North American populations; therefore, validation projects in other countries and languages seem warranted.

**Aims:** 1) To assess the reliability and validity of an Italian translation of the CARTS, and 2) to compare differences in CARTS ratings between an Italian and Canadian student sample.

**Methods:** In total, 79 Italian and 288 Canadian students completed the CARTS as well as measures of childhood experience and mental health.

**Results:** Within the Italian sample, multiple regression analyses indicated good convergent validity of the CARTS with the Childhood Trauma Questionnaire and the Parental Bonding Instrument. Correlation analyses demonstrated that Mother ratings referring to attachment and abuse predicted adult (romantic) attachment anxiety assessed by the Experiences in Close Relationships (ECR-R) scale, whereas Father ratings predicting PTSD symptoms and other symptoms of psychopathology-distress. Finally, MANOVA analyses indicated that Canadian Mothers and Fathers were rated higher in positive and secure attachment but, conversely, as also more emotionally and physically abusive, when compared to Italian Mothers and Fathers.

**Conclusion:** The use of the CARTS in a population outside of North America was supported, and additional international multilingual translation of the CARTS is being pursued. In addition, a novel contribution of the current study was to show that early childhood attachment-related experiences (CARTS) predicted current attachment behaviour during relationships during young adulthood (ECR-R).

Board #14

Distress versus Dissociation in Traumatized Women and Men: Sex Differences in Relation to the 4-D Model of Trauma-related Psychopathology.
Brown, M*., Boughner, E., Thornley, E., & Frewen, P.

**Background:** Previous literature suggests that women are at greater risk for developing posttraumatic stress disorder (PTSD), whereas studies have not identified robust gender differences in dissociative disorders (DDs). Moreover, no previous studies have compared the strength of the association between lifetime trauma exposure (LTE) or adverse childhood experiences (ACE) and PTSD vs. DD symptoms between genders.

**Methods:** Following the 4-D model of trauma-related dissociation, we compared gender differences in self-reported PTSD symptoms (i.e., Normal Waking Consciousness [NWC]-Distress) to those for DD symptoms (specifically, trauma-related altered states of consciousness [TRASC]), in association with measures of LTE and ACE, in 420 men and 529 women recruited online.

**Results:** Men reported more LTE, while women reported more ACE. Women reported greater NWC-distress, whereas gender differences were not noted in response to TRASC, excepting in the case for men to report greater internal voice hearing (i.e., auditory hallucinations). The association between LTE and TRASC was stronger in men than women. Moreover, the association between ACE and both NWC-distress and TRASC was stronger in men than women.

**Conclusions:** Hypotheses of the 4-D Model were supported across both men and women; however, NWC and TRASC symptoms were more strongly associated with traumatic experiences in men versus women. As a result, treatment programs for men, in particular, may benefit by carefully assessing childhood and lifetime traumatic experiences, as results demonstrated a strong relationship to PTSD and DD symptoms.
Board #15

**Neuro-Mindfulness: 1-20Hz Desynchronization neurofeedback.**

*Hargraves, H.*, & *Frewen, P.*

**Background:** Positive outcomes linked to experiences of altered states of consciousness have been linked to various brain wave patterns, as well as both positive (openness) and negative personality traits and affective disorders. Various innovative neurofeedback (NFB) technologies are being developed in an attempt to create adjunctive therapeutic treatments.

**Objective:** The current pilot study investigated 1-20 Hz desynchronization NFB to induce altered states and examine associations between NFB, openness, altered states of consciousness, and mood changes in participants.

**Methods:** 48 students completed the Brief Symptom Inventory (BSI), a measure of personality, and a measure of absorption. Participants then completed 15min of NFB desynchronization. The Profile of Mood States (POMS) was administered before and after the NFB session and the Altered States of Consciousness Questionnaire (OAV) at the end of session.

**Results:** POMS scores indicated significant reductions in vigor and tension, with a significant increase in fatigue from pre to post NFB. BSI scores were positively correlated with absorption, disembodiment, impaired cognition and control, anxiety, elementary imagery, and audio-visual synaesthesia.

**Conclusion:** Preliminary findings indicate that participants experiencing 1-20 Hz desynchronization responded to the OAV in a pattern not unlike previous reports of altered states (psilocybin and MDMA). We anticipate that an investigation of the correlated effects across brainwave bandwidths, and an investigation of the complexity of signal findings, along with self-report responses collected within 24 hours following NFB will help to further elucidate results, with respect to personality and affective disposition. Future research will include sham and control conditions.

Board #16

**The Innate Alarm Circuit in Post-Traumatic Stress Disorder: Conscious and Subconscious Processing of Fear- and Trauma-related Cues.**

*Rabellino, D.*, *Densmorea, M.*, *Frewen, P.*, *Théberge, J.*, & *Lanius, R.*

**Study objectives:** To examine the neural correlates during the conscious and subconscious processing of personalized trauma-related words and fearful facial expressions in PTSD subjects as compared to healthy controls.

**Methods:** We investigated the neural correlates of subliminal (16 msec backward masked) and supraliminal (161 msec) stimuli of fearful faces and individualized trauma-related words in individuals with PTSD (n=26) as compared to healthy controls (n=20) using fMRI (3 Tesla). Using SPM 8 implemented in MATLAB R2013, within- and between-group tests were performed to assess differences in BOLD signal to investigate cue>neutral stimulus (e.g., subliminal fearful>neutral faces) during sub- and supraliminal sessions, respectively. Correlations with PTSD symptoms were also performed within the PTSD group.

**Results:** Increased activity in the right cerebellum and the posterior cingulum was observed in PTSD as compared to controls during subliminal processing of trauma-related words, whereas increased activity of the basal forebrain was found within the PTSD group when processing supraliminal trauma-related words. Moreover, significant positive correlations were found in PTSD between re-experiencing symptoms and response within the amygdala, and between hyper-arousal symptoms and response within the periaqueductal gray, during subliminal processing of trauma-related words and during supraliminal processing of fearful faces, respectively.

**Conclusion:** These findings further our understanding of rapid threat processing and defensive responses, highlighting the role of the cerebellum and periaqueductal gray as part of an ‘innate alarm system’ in PTSD. Implications for PTSD treatment suggest to take into account potential subliminal trauma reminders in both the internal and/or external environment when planning psycho-physiological interventions.
Board #17

Emotion and Interpersonal Distance: Neural Correlates of Approach-Avoidance Tendencies to Distinct Facial Expressions in a Community Sample Varying in Psychopathic Traits.

Vieira, J.*, Tavares, T., & Mitchell, D.

Interpersonal distance is a meaningful communication cue likely influenced by situational and individual factors. Here, we have characterized neural responses to approaching and withdrawing emotional faces, and explored how they varied as a function of psychopathic traits, particularly low empathy (i.e., coldheartedness). Twenty-three healthy volunteers completed a psychopathy questionnaire, and underwent fMRI scanning while they were presented with approaching and withdrawing angry, fearful, happy, sad and neutral faces. Interpersonal distance was assessed by asking participants to adjust the distance from the faces in a computerized task. Distances in the computerized task correlated with preferred interpersonal distances in the real-world. Participants kept the greatest distances from angry faces, and shortest from happy faces (p <.001). This was accompanied by increased activation in the medial prefrontal and orbitofrontal cortices, inferior frontal gyrus and temporoparietal junction for angry and happy expressions relative to the other emotions (FDR p <.05). Irrespective of emotion, longer distances were kept from approaching versus withdrawing faces (p < .001), with increased activation in a network of regions that included the right amygdala and bilateral insula (FDR p <.05). Importantly, activation within the amygdala was positively correlated with distance to angry, fearful and sad expressions (all ps <.05). Also a significant interaction between coldheartedness and emotion emerged; high compared to low coldheartedness scorers showed reduced amygdala activation to fearful and sad expressions, and increased activation to angry expressions. These findings elucidate the neural mechanisms underlying social approach-avoidance, and how they may be disrupted in individuals with elevated psychopathic traits.

Board #18

Functional Neural Deficits during Reversal Learning in Frontotemporal Dementia.


Reversal learning is the ability to alter behaviour in response to a contingency change and negative feedback. Reversal learning relies on specific regions of the prefrontal cortex and is mediated by serotonin and dopamine. Importantly, deficits in reversal learning have been found to be associated with social-behavioural difficulties. Frontotemporal Dementia (FTD) is a neurodegenerative disorder characterized by atrophy within the frontal/temporal lobes and severe behavioural deficits including social inappropriateness and poor decision making abilities. Behavioural studies indicate that patients with FTD have reversal learning deficits; however the functional neural correlates of these deficits are currently unknown. The current study aimed to characterize functional activity during reversal learning in FTD by comparing patients with FTD and healthy controls on an fMRI reversal learning task. Preliminary results reveal that patients with FTD show the expected neural signalling pattern with the ventromedial prefrontal cortex, but show an abnormal neural response within the dorsomedial prefrontal cortex when they fail to alter their behaviour after given negative feedback. This approach may aid the development and screening of behavioural and pharmacologic interventions targeting abnormal behaviours associated with impaired reversal learning such as impulsivity and reactive aggression in FTD and related neuropsychiatric disorders.
**Board #19**

**The Neurocognitive Correlates of Distinct Facets of Empathy: Mirror Regions Differentially Recruited during Cognitive and Emotional Empathy.**
*Oliver, L.*, Vieira, J., & Mitchell, D.*

Empathy is a crucial component of interpersonal interactions, and many debilitating disorders feature empathy deficits. Empathy is largely considered to be a multidimensional construct, including cognitive empathy (the ability to adopt another's perspective) and emotional empathy (the capacity to share another's emotional experience). It has been suggested that the mirror neuron system (MNS) may facilitate empathy by supporting the simulation of perceived experience in others; however, its role in empathy remains controversial, and whether it is involved in the experience of cognitive or emotional empathy remains unclear.

Presently, healthy adults underwent fMRI while completing a false belief task targeting cognitive empathy, and an emotional empathy task that assessed how strongly they felt for people in emotionally-charged situations. Further, mirror regions were individually localized using a button-pressing task. Conjunction analyses revealed mirror areas that were also recruited during cognitive empathy, including bilateral posterior superior temporal sulcus (STS). Emotional empathy also resulted in increased activation in identified mirror regions, including left posterior STS and inferior frontal cortex.

Critically, across all identified mirror regions, greater activation was observed during emotional compared to cognitive empathy. Activation in the region of overlap for the emotional empathy task and MNS localizer in the left inferior frontal cortex was also positively associated with emotional empathic experience. Thus, mirror areas appear to be recruited to a greater degree during the experience of emotional versus cognitive empathy. The MNS may therefore be of particular interest in disorders featuring emotional empathy impairments, such as frontotemporal dementia, conduct disorder, and psychopathy.

**Board #20**

**Long-term Effects of Adolescent Nicotine Exposure on Anxiety and Social Interaction: Implications for Psychiatric Disorders.**
*Jobson, C.*, Rushlow, W., Rosen, L.G., & Laviolette, S.R.*

Adolescence is a period in which many are first introduced to cigarettes. With adolescence being a plastic neurodevelopmental period, exposure to addictive substances, like nicotine, may lead to abnormal neural development and behavioural and cognitive deficits. Importantly, nicotine exposure is linked to various psychiatric conditions including schizophrenia, anxiety and depression. To assess the potential long-term neuropsychiatric-like effects of adolescent nicotine exposure, male Sprague-Dawley rats were chronically exposed to Nicotine or vehicle control during adolescence (Post-natal day (PND) 35-44). Once rats reached adulthood (PND 75) they were analyzed with a battery of behavioural and cognitive assays. Neural tissue samples were also extracted for molecular analyses.

Preliminary results demonstrate a significant increase in anxiety-like behaviour as well as social motivation deficits in nicotine-treated rats, relative to controls. Interestingly, we observed no effects on spontaneous locomotor activity levels, sensory gating or working memory across groups. These results suggest that there are long-term emotional regulation disturbances that take place following exposure to nicotine during adolescent neurodevelopment. The increased anxiety and social motivation deficits thus far observed are consistent with a dysregulated DA system. Ongoing studies are examining the potential molecular and neuronal mechanisms associated with this phenotype and further exploring the possibility of affective disorder like deficits following adolescent nicotine exposure. Providing a better understanding of the long-term effects of adolescent nicotine use will not only aid in the creation of public educational programs but also in helping of the understanding the pathology of affective disorders like depression and anxiety disorders.
Board #21

Involvement of Prefrontal GABAergic Transmission in Schizophrenia-Like Behaviour Induced by Chronic Adolescent THC Exposure.

Renard, J.*, Kramar, C., Szkudlarek, H., Rosen L.G., Rushlow, W., & Laviolette, S.R.

Study Objectives: Marijuana is the most widely used illicit drug among adolescents. We have previously shown that chronic treatment with the psychoactive component of cannabis, tetrahydrocannabinol (THC) during adolescence in rats, is associated with a schizophrenia-like phenotype in adulthood involving molecular adaptations in the prefrontal cortex (PFC) and a hyperactive sub-cortical dopamine (DA) system (Renard et al; 2016). Adolescence is a vulnerable period for brain development, where the inhibitory GABAergic system plays a pivotal role during central nervous system maturation. GABAergic hypofunction has been observed in the PFC of post-mortem brains of schizophrenia patients, and may be a mechanism by which the PFC loses its ability to modulate sub-cortical DA signals which may ultimately lead to schizophrenia-like neuropsychopathology.

Methods: Using molecular analyses, behavioural tasks and in-vivo electrophysiological recordings in rats, we studied the adult functionality of the PFC GABAergic neurotransmission following adolescent exposure to THC.

Results: We show that following adolescent THC exposure (1) the GABAergic marker GAD 67 is reduced in the adult PFC and (2) the behavioural alterations observed in social recognition, anxiety levels and motivation are reversed by infusions of a GABA-A receptor selective agonist muscimol in the adult PFC. Furthermore, activation of adult PFC GABA-A receptors normalizes the spontaneous firing of VTA dopaminergic neurons.

Conclusions: Our findings demonstrate that hypofunction of inhibitory PFC GABAergic neurotransmission plays a crucial role in the schizophrenia-like behaviours observed following adolescent THC exposure and suggest that restoring GABAergic cortical function may ameliorate these pathological effects.

Board #22

Assessment of Serine Quantification Reproducibility using Advanced 1H-MRS in the Human Brain at 3T.

Javadzadeh, H.*, Théberge, J., & Williamson, P.

Abnormalities in glutamate neurotransmission are suggested to be associated with symptoms of schizophrenia. Oral administration of D-Serine was proposed as adjuvant treatment targeting the most debilitating symptoms of the illness. Serine, a naturally occurring amino acid in the human brain, is a crucial regulator of glutamate neurotransmission. A sensitive method to assess changes in in vivo serine could be critical to delivering effective serine supplementation. Standard proton magnetic resonance spectroscopy (1H-MRS) cannot detect levels of endogenous serine. However, advanced techniques using high field (4.0T, 7.0T) scanners have assessed human brain serine. This work investigates the reproducibility of serine measurements using a novel MRS sequence (DANTE-PRESS) on a 3T scanner in serine phantoms and proof-of-principle in vivo data. Phantom concentrations (“in vivo” (0.732mM) and “double in vivo” (1.464mM)) were measured as 1.07 ± 0.08 (in vivo), 2.1 ± 0.1 (double in vivo) at baseline and 1.0 ± 0.1 (in vivo), 2.1 ± 0.1 (double in vivo) one week later. The intra-class correlation coefficient was high for both the in vivo (ICC = 0.912) and double in vivo (ICC = 0.929) measurements, demonstrating excellent repeatability. Two repeated measurements from two human participants were: 3.36mM, 2.83mM and 3.90mM, 5.07mM, respectively. We also report results obtained in healthy subjects showing improvement in measurement repeatability after performing a more detailed type of pulse sequence adjustments. Future work will include test-retest reliability assessments in a larger group of healthy participants on 3.0T and 7.0T scanners. We plan to apply measurements of brain serine to participants with schizophrenia.
Board #23

Theory of Mind as a Moderator of the Relationship of Perceived Social Support with Personal Recovery and Life Satisfaction in Patients with a Psychotic Disorder.

*Lloyd, C.*, Vandermeer, M., MacDougall, A., & Norman, R.

**Objectives:** There is substantial evidence that higher levels of social support are associated with self-perceived recovery from psychotic illness and feelings of well-being and satisfaction with life. There has been no investigation of the possible importance of social cognition, particularly theory of mind (ToM) in moderating this relationship. Some patients use a “positive withdrawal” strategy to facilitate recovery and psychological comfort, and for them social support, as typically assessed, may not be an important determinant of recovery/well-being. Given that compromised ToM may increase the likelihood of positive withdrawal, we tested the hypothesis that ToM moderates the strength of the relationship between social support and subjective recovery and well-being.

**Methods:** Sixty-eight patients receiving services from an early intervention program for psychotic disorders completed the hinting task as a measure of ToM, two measures of perceived social support, the Maryland Assessment of Recovery Scale and the Satisfaction with Life Scale. Western Research Ethics Board approval was obtained.

**Results:** ToM was not correlated with perceived social support, recovery or satisfaction with life. Social support was more strongly related to recovery and life satisfaction for those with better ToM.

**Conclusions & Implications for Care:** Our finding that those with better ToM but low perceived social support show reduced levels of subjective recovery and life satisfaction in comparison to those with lower ToM, suggests some caution in assuming that improved ToM will always yield benefits. More intact ToM can leave patients more aware of the detrimental effects of illness on their social environment.

Board #24

The Novel Use of Participatory Video as a Recovery-Oriented Intervention in Early Psychosis: A Pilot Study.


**Introduction:** The development of a narrative concerning personal meanings of one’s experiences with a psychotic illness can be the catalyst for recovery (Lysaker et al., 2007). There is a need for interventions that help facilitate the formation of such recovery-oriented narratives, particularly in the early stage of illness. Participatory Video (PV) is a group process that empowers individuals to reflect on and tell their personal and collective stories through film.

**Objectives:** To examine the feasibility of PV in the clinical setting and to explore its impact on narrative development, meta-cognition, symptoms, self-perceived recovery, self-esteem, self-stigma, social functioning and hope.

**Methods:** This pilot study employed a mixed-methods repeated measures design. 10 (8M:2F) clients of PEPP were recruited to participate in 12 semi-structured facilitated PV workshops over a period of 6 months where they learned how to plan, film and produce documentary-style videos of their experiences. Participants are being assessed at baseline, immediately and 3-months following the workshops on clinical and recovery-oriented outcomes. In addition, participants will participate in a focus-group immediately post-intervention, where they will be asked to discuss their overall reaction to the PV process and what aspects could be improved upon. Participants will also participate in a brief qualitative interview three-months post-intervention focused on capturing their individual experiences with the PV process and its perceived impacts.

**Future Directions:** Should the PV intervention prove to be feasible, acceptable, and demonstrate potential utility, a PV facilitators training guide will be developed and a larger controlled study of effectiveness will be performed.
Board #25

Determinants of Self-Esteem in Early Psychosis: The Role of Perceived Social Dominance.
MacDougall, A., Vandermeer, M.J., & Norman, R.*

Objectives: Research on self-esteem in individuals experiencing psychosis has focused on stigma internalization (Norman et al., 2012) and co-morbid depression (Chen et al., 2013). However, other factors shown to influence self-esteem in the general population have not been thoroughly investigated, including social dominance, that is, one’s perceived ability to dominate and influence others (Leary et al., 2001), and perceived relational evaluation, which is the extent to which individuals see others as valuing them (Leary & Baumeister, 2000).

Methods: This study examines the relative contribution of these factors and other known predictors in determining self-esteem as measured by the Rosenberg Self-esteem Scale (RSES) in 102 patients of PEPP using a linear regression model. Variables that were independent predictors of the RSES were entered into a stepwise multiple regression model predicting RSES in order to determine their relative importance.

Results: Regression analysis demonstrated that perceived relational evaluation, depressed mood, social dominance, gender and positive symptoms significantly contributed to the prediction of scores on RSES, whereas self-stigma and negative symptoms did not. Perceived relational evaluation was the single most important predictor, followed, in order, by depressed mood, social dominance, gender and positive symptoms.

Conclusions: Low self-esteem in early psychosis can be understood in part as a reflection of low levels of perceived social value and status.

Implications for Care: Efforts to improve self-esteem and recovery in early psychosis should include the enhancement of individuals’ perceptions of self-agency and personal strengths, social standing and relational value.

Board #26

Understanding Two Dimensions of Negative Symptoms in Psychotic Disorders.
Norman, R.*, MacDougall, A., Bird, R., & Lloyd, C.

Objectives: Negative symptoms associated with psychotic disorders such as schizophrenia have important implications for patient functioning and quality of life. Negative symptoms are also much less responsive to current treatments than positive symptoms. In the past it has been suggested that negative symptoms reflect compromised neuro-cognitive and/or social cognitive abilities as well as Parkinsonian symptoms possibly resulting from medication. There has been evidence of the potential importance of the distinguishing between domains of negative symptoms related to diminished expressiveness versus reduced motivation. This report describes a study of 68 patients treated for a psychotic disorder.

Methods: Participants were assessed for negative symptoms and also completed a battery of assessments including those related to neuro-cognition, social cognition, Parkinsonian symptoms, dysfunctional thought patterns, social comparison and self-esteem.

Results: The results indicated that both dimensions of negative symptoms were significantly related to deficits in neuro-cognition, social cognition and Parkinsonian signs. Social cognitive factors such as reduced expectations of success, negative social comparisons and lower self-esteem were more strongly related to motivational deficits than expressive deficits.

Conclusions: Given that motivational deficits are consistently related to community functioning and quality of life, these findings suggest that psychosocial interventions are likely to play an important role in the reduction of some important negative symptom in psychotic disorders.
Board #27

How Critical is the “Critical Period”?  
Norman, R.*, MacDougall, A., Manchanda, R., Harricharan, R., & Northcott, S.

Objectives: An important premise underlying the early intervention in psychosis movement is the postulate that the three to five years of treatment represent a “critical period” in determining longer term outcomes for individuals with psychotic disorders. There has, however, been little examination of the stability of individual as opposed to aggregate outcomes following the first five years of treatment. We report data relevant to this issue derived from patients who received five years of treatment in PEPP, London and were followed up at 10 years.

Method: Fifty-six patients who had been assessed on several domains of outcome, such as symptoms, overall social functioning, employment and use of disability pension at five years, were reassessed at 10 years after initial treatment.

Results: In general, approximately 70% of patients showed stability in their outcomes at 5 and 10 years. In most domains, when change occurred it was predominantly in the direction of improvement between the fifth year and later follow-up.

Conclusions: In general, the findings are consistent with the hypothesis of considerable stability in outcomes after 5 years of treatment for a psychotic disorder. To the extent that there is change, it is predominantly in the direction of further improvement.

Board #28

Recovery at Five Years from Initial Treatment of a Schizophrenia Spectrum Disorder.  
Norman, R.*, MacDougall, A., Manchanda, R., Harricharan, R., & Northcott, S.

Objectives: It is now generally agreed that recovery from psychotic disorders requires not just remission of the symptoms of illness, but also evidence of good psychosocial functioning, including independent living, employment and absence of hospitalizations. In the current report we examine the rates of recovery for each of these dimensions and their predictors in PEPP London clients after five years of treatment.

Method: We applied previously used criteria for recovery in various domains (Albert, et al. 2011; Austin et al, 2015) to a prospective database reflecting course and outcomes for 116 clients of PEPP London diagnosed with a schizophrenia spectrum disorder.

Results: Rates of complete recovery at five years were generally comparable to those reported previously. Most clients met criteria for remission of positive symptoms and no hospital admissions throughout the final two years of follow-up, but substantially lower proportions met criteria for other aspects of recovery such as remission of negative symptoms and employment. There were significant differences in pattern of the predictors of each domain of recovery outcome. For instance, acuity of onset and rated early adherence to medication were related primarily to positive symptom outcome, but early social support was more predictive of several other domains of recovery. Neurocognitive performance early in the course of treatment predicted some aspects of employment at five year follow-up.

Conclusions: The improvement of functional outcomes for PEPP clients should be a priority in future program development.
SPECIAL THANKS AND ACKNOWLEDGEMENTS

Dr. Brian Mishara

Kristen Sanders

Western University Department of Psychiatry Research Committee:
  Dr. Jeff Carter
  Dr. Deborah Corring
  Dr. Paul Frewen
  Dr. Jonathan Gregory
  Dr. Giuseppe Guaiana
  Dr. Marnin J. Heisel
  Dr. Paul S. Links
  Dr. Derek Mitchell
  Dr. Ross M.G. Norman
  Dr. Richard O’Reilly
  Dr. Elizabeth Osuch
  Dr. Peter C. Williamson
  Dr. Lloy Wylie

Parkwood Institute Mental Health Care Building

The Sticky Pudding Catering Company

Motif Print