

Program

And Abstracts

Academic Research Day

DEPARTMENT OF PSYCHIATRY

Thursday, June 22, 2017
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 the Academic Research Day, participants will be able to:

1. Identify and discuss innovative basic, clinical, and population-level mental health research being conducted in the Department of Psychiatry at Western University;
2. Demonstrate enhanced familiarity with programs of mental health research on the etiology and treatment of mental disorders and on mental health service delivery being carried out in the Department of Psychiatry by faculty, clinicians, trainees, and associated and affiliated scientists;
3. Compare and contrast the strengths and limitations to diverse methodological approaches to conducting innovative and impactful research in psychiatry.

KEYNOTE LECTURE OBJECTIVES

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

1. Recognize the differences between the Canadian Armed Forces Military and Veteran health care systems;
2. Appreciate the evolution in recognition and treatment of mental illness in Canadian Military and Veterans;
3. Understand current knowledge on suicide and efforts toward suicide prevention in the Canadian Veteran population.

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 (5.25 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
Gymnasium

8:30 a.m. Welcome and Opening Remarks
Dr. Raj Harricharan, Vice-Chair, 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 page 8

* Presenting author

8:40 a.m. A Randomized Controlled Trial of Riluzole in Autism Spectrum Disorder
*Nicolson, R. *, Bennett, T., Harvey, C., Hodgins, C., Ahmad, A., Mehta, R., Richard, J., & Anagnostou, E.*

9:00 a.m. Letting Schizophrenia Go: The Intrinsic Organization of Symptoms in Early Psychosis
*Palaniyappan, L. *, Das, T., Schmidt, A., & Borgwardt, S.*

9:20 a.m. Higher Order Thalamic Nuclei Resting Network Connectivity in Early Schizophrenia and Major Depressive Disorder
*Penner, J. *, Osuch, E., Schaefer, B., Theberge, J., Neufeld, R. W. J., Menon, R., Rajakumar, N., Bourne, J. A., & Williamson P. C.*

9:40 a.m. Predictors of Long-Term Treatment Outcome in Combat and Peacekeeping Veterans with Military-Related PTSD
*Richardson, J. D. *, Contractor, A. A., Armour, C., St Cyr, K., Elhai, J.D., & Sareen, J.*

10:00 a.m. Break & Poster Display
Gymnasium

10:30 a.m.

ACADEMIC KEYNOTE LECTURE: LCol (ret'd) ALEXANDRA HEBER

Welcome Home: A History of Mental Health Care for Canadian Armed Forces Veterans



Dr. Alexandra Heber MD FRCPC CCPE is the Chief Psychiatrist of Veterans Affairs Canada and Assistant Professor of Psychiatry at the University of Ottawa. She has over thirty years' experience working in Mental Health and psychological trauma, first as a nurse, then as a psychiatrist.

Dr. Heber completed Psychiatry residency at McGill University and the University of Toronto, and spent 10 years as Assistant Professor of Psychiatry at the University of Toronto, where she co-ordinated the Women's Program in the HIV Clinic at Mount Sinai Hospital and was the psychiatrist on an Assertive Community Treatment Team at the Canadian Mental Health Association.

She started working as a civilian for the Canadian Armed Forces (CAF) in 2003, then "put on the uniform" in 2006 and served as Clinical Leader of the Operational Trauma and Stress Support Centre in Ottawa for 10 years. She deployed to Afghanistan in 2009 as the Psychiatrist in Charge of the Canadian Forces Mental Health Services for Task Force Afghanistan. Promoted to Lieutenant-Colonel and posted to Headquarters in 2013, she established the national Section of Clinical Programs, overseeing the 30 Canadian Armed Forces mental health clinics across Canada. She authored the 2015 Surgeon General Report on the Medical Professional Technical Suicide Review (MPTSR) and she personally conducted 10 of these onsite suicide reviews during her military career.

She has presented nationally and internationally on Post-Traumatic Stress Disorder in both military and civilian populations. Along with a colleague, she has developed an accredited online course entitled, "PTSD: A Primer for Primary Care Physicians". Her research interests include PTSD and the cannabinoid system, and the transition experience from CAF Member to Veteran.

12:00 p.m. Lunch & Poster Display

Gymnasium – Posters will remain on display for viewing throughout lunch

1:00 p.m. Superior Colliculus Resting State Networks in Post-Traumatic Stress Disorder and its Dissociative Subtype

*Olivé, I. *, Densmore, M., Harricharan, S., Theberge, J., McKinnon, M. C., & Lanius, R.*

1:20 p.m. Sensory Overload and Imbalance: Resting-State Vestibular Connectivity in PTSD

Harricharan, S., Nicholson A.A., Densmore, M., McKinnon, M.C., Théberge, J., and Lanius, R

1:40 p.m. Plastic Modulation of Intrinsic Neural Networks in PTSD through Amygdala Downregulation via Real-time fMRI Neurofeedback

*Nicholson, A.A. *, Rabellino, D., Densmore, M., Frewen, P.A., Paret, C., Kluetsch, R., Schmahl, C., Théberge, J., Neufeld, R.W., McKinnon, M.C., Reiss, J, Jetly, R., & Lanius, R.A.*

2:00 p.m. Break & Final Poster Display

Gymnasium

2:30 p.m. The “Real World” Effectiveness of Early Psychosis Intervention: Comparison of Service Users and Non-Users in Population-Based Health Administrative Data

*Anderson, K. *, Norman, R., MacDougall, A., Edwards, J., Palaniyappan, L., Lau, C., & Kurdyak, P.*

2:50 p.m. Factors Associated with Involuntary Hospitalization among People with Early Psychosis

*Rodrigues, R. *, MacDougall, A., Zou, G., Lebenbaum, M., Kurdyak, P., & Anderson, K.*

3:10 p.m. The Novel Use of Participatory Video as a Recovery-Oriented Intervention in Early Psychosis: A Pilot Study

*MacDougall, A. G. *, Kukan, S., Price, E., Glen, S., Bird, R., Powe, L., Lysaker, P., Anderson, K. K., & Norman, R. M. G.*

3:30 p.m. Awards Presentation

3:45 p.m. Concluding Remarks & Completion of Evaluation Forms

Dr. Marnin Heisel, Director of Research, Department of Psychiatry

4:00 p.m. End of Academic Research Day

POSTER PRESENTATIONS

Abstracts for poster presentations begin on page 12

- Board #1** **Geriatric Cooperatives in the South West Local Health Integration Network: Assessing Partnerships in the Care of Older Adults Living with Responsive Behaviours**
I. Gutmanis & L. M. Hillier
- Board #2** **Exploring the Functional and Structural Correlates of Personal Space Preferences**
J. B. Vieira, T. P. Tavares & D.G.V. Mitchell
- Board #3** **Ventricular Volume in Frontotemporal Dementia and Genetically at-risk Family Members: Results from the GENFI Study**
T. Tavares, D. Mitchell, R. Bartha, J. Van Swieten, D. Galimberti, C. Graff, M. Tartaglia, F. Tagliavini, J. B. Rowe, R. LaForce Jr, G. B. Frisoni, A. De Mendonca, S. Sorbi, B. Borroni, M. Masellis, J. Rohrer, & E. Finger
- Board #4** **Pilot Study of the Neuroprotective Effects of Ginsenoside-Rg3(3-O-beta-D-glucopyranosyl-(1->2)-beta-D-glucopyranosyl)dammar-24-ene-3beta,12beta,20s-triol), the putative neuro-steroid targeting transcription complex signaling: PPARγ(Peroxisome-Proliferation-Activated-Receptor) in MPTP (1-methyl-4-phenyl-1, 2, 3, 6-tetrahydropyridine) Model of Parkinson's Disease**
J. J. Hou, H. Raheb, S. S. Chiu, H. Raheb, Z. Cernosvsky, R. Campbell & Y. Bureau
- Board #5** **Differential Expression of Cerebral Dopamine Neurotrophic Factor (CDNF) in the Hippocampus of and Behavior Profile in Leucine-Rich-Repeat-Kinase (LRRK-2) Transgenic Rat: Implications for Non-Motor Symptoms (NMS) of Parkinson Disease**
J. Varghese, K. Terpstra, H. Raheb, S. S. Chiu, R. Mishra, Z. Cernosvsky & Y. Bureau
- Board #6** **The Medical-Legal Aspect of Sexual Deviant Behaviors Due to Brain Lesions: A Case Report and Narrative Review of the Literature**
N. Mokhber, M. R. Azarpazhooh, A. Prakash, J. A. Zamproga Ballès & A. Prakash.
- Board #7** **Can We Improve Physical Health Monitoring for Patients Taking Antipsychotics on a Mental Health Inpatient Unit?**
E. Ross, R. Barnett, R. Tudhope, M. Renaud, J. Zhang, S. Fong, M. Wodzinski, & K. Vasudev
- Board #8** **The Health System Impact of an Early Intervention Treatment Program for Youth with Mood and Anxiety Disorders**
K. K. Anderson, A. John-Baptiste, A. MacDougall, P. Kurdyak, & E. Osuch.
- Board #9** **Who Gets in to Early Psychosis Intervention Services? A Comparison of Service Users and Non-Users in Health Administrative Data**
K. K. Anderson, R. Norman, A. MacDougall, J. Edwards, L. Palaniyappan, C. Lau, & P. Kurdyak

- Board #10** **Falling Through the Cracks: The Characteristics and Ongoing Service Use of Patients Screened but Ineligible for Early Psychosis Intervention**
J. Edwards, K. K. Anderson, R. Norman, A. MacDougall, L. Palaniyappan & P. Kurdyak
- Board #11** **Loss of Resting-State Functional Complexity in Schizophrenia and Bipolar Disorder with Psychosis**
T. Das, M. Li & L. Palaniyappan
- Board #12** **Risks and Benefits of Mood-Stabilizer Treatment in Pregnant Women with Bipolar Disorder: A Population Based Cohort Study**
M. Salim, V. Sharma, I. Karp & K. K. Anderson
- Board #13** **Community REcovery Achieved through Entrepreneurism (CREATE): A new paradigm for promoting recovery from serious mental illness in low-income settings**
A. MacDougall, T. Krupa, R. Lysaght, R. Casey, E. Price, M. Janzen Le Ber, O. Branzei, V. Mutiso, S. Kidd & D. Ndete.
- Board #14** **Relationship between Trauma and Mental Health among Bisexuals Living in Ontario**
L. Keating, P. Frewen, J. MacKay, G. Bauer, L. Ross, & M. Robinson
- Board #15** **Diagnostic Accuracy of Referrals in an Academic Consultation-Liaison Service**
J. Charbonneau, M. McLean, S. Ulch, R. King, J. Barr, C. Garcia & M. Mak
- Board #16** **Perceived Effectiveness of Specialized Treatment for Mood and Anxiety Disorders in Emerging Adults: A Qualitative Investigation**
J. Arcaro, P. Tremblay, & E. Osuch
- Board #17** **Experience of Meditation Practice in Help-Seeking and Student Participants**
J. Carswell & P. Frewen
- Board #18** **Brain Response Associated with of Heart Rate Variability in PTSD during Sub- and Supraliminal Processing of Trauma-Related Words**
D. Rabellino, W. D'Andrea, G. Siegle, P. A. Frewen, R. Minshew, M. Densmore, R. W. Neufeld, J. Théberge, & R. A. Lanius
- Board #19** **Clinical Utility of a Short Resting State MRI Scan in Differentiating Bipolar from Unipolar Depression**
M. Li, T. Das, W. Deng, Q. Wang, Y. Li, L. Zhao, Xi. Ma, Yi. Wang, H. Yu, X. Li, Y. Meng, L. Palaniyappan, & T. Li
- Board #20** **"Not for Human Consumption": Novel Psychoactive Substances in the Internet Age**
J. M. Gregory
- Board #21** **Predictors of Remission of Psychotic Symptoms in First Episode Psychosis**
M. Sheehan

ABSTRACTS

ORAL PRESENTATIONS

In order of presentation

A Randomized Controlled Trial of Riluzole in Autism Spectrum Disorder

Rob Nicolson, Teresa Bennett, C. Harvey, C. Hodgins, A. Ahmad, R. Mehta, J. Richard & Evdokia Anagnostou

Background: Medications currently indicated for children and adolescents with Autism Spectrum Disorder (ASD) are used to treat interfering behaviours often seen in ASD, but there are no medications with evidence supporting their use to treat the core symptoms of the disorder. Convergent evidence, however, suggests that ASD is associated with glutamate abnormalities. Riluzole is a glutamatergic modulator, suggesting that it may play an important role in the treatment of ASD. The primary aim of this study was to investigate the safety and efficacy of riluzole in treating the core symptom domains in ASD. The effect of riluzole on interfering behaviours seen in children and adolescents with ASD was also examined.

Methods: 58 children and adolescents participated in a 12 week, randomized, double-blind, placebo-controlled trial of riluzole. The primary outcome measures were the Aberrant Behaviour Scale, the Yale-Brown Obsessive-Compulsive Scale, and the Repetitive Behaviour Scale. Adverse effects were also assessed using the Safety Monitoring Uniform Research Form.

Results: Riluzole was well tolerated, with no serious adverse reactions reported. There were no significant differences between participants on placebo and those on riluzole with regards to social interactions, repetitive behaviour, or ritualistic behaviour. However, subjects taking riluzole did have significantly greater reductions in aggression and hyperactivity.

Conclusions: Although riluzole was generally well-tolerated, it was not superior to placebo in terms of reduction in the core symptom domains of ASD. However, patients taking riluzole did show a significantly greater reduction in hyperactivity and irritability, both of which are interfering symptoms commonly associated with ASD.

Letting Schizophrenia Go: The Intrinsic Organization of Symptoms in Early Psychosis

Lena K. Palaniyappan, Tushar Das, Andre Schmidt & Stefan Borgwardt

Objectives: Psychiatric nosology thrives on the notion that a small number of unseen categorical or dimensional constructs explain the clustering of observable symptoms. Alternatively, symptoms may cluster by virtue of their own idiographic schema, causal or otherwise. This can be represented using network theory characterizing clinical states as systems of connected symptoms.

Methods: Using 24 symptoms of Brief Psychiatric Rating Scale as nodes, and the group-level correlation among symptoms as edges, we constructed symptom-networks from 63 subjects with at-risk mental state but no transition (ARMS-NT), 16 that later developed psychosis (ARMS-T) and 38 drug-naïve patients with first-episode psychosis (FEP) from Basel, Switzerland. We analyzed the degree of clustering and centrality of symptoms in defining each group's symptom structure.

Results: ARMS-NT had more symptom clustering than ARMS-T (Hedges' $g = 1.12$, $p < 0.001$) and FEP ($g = 1.92$, $p < 0.001$). Bridging relationships of the network involved concordant symptoms for ARMS (blunted affect & emotional withdrawal in ARMS-NT; excitement & hyperactivity in ARMS-T), but a discordant relationship in FEP (retardation & distractibility). ARMS subjects were highly modular with a 2-cluster solution; the FEP group had less modular, discordant clustering, with affective features separated from thought disturbances and a unique "ambivalent" cluster (with hostility & blunted affect).

Conclusion: Psychosis could be viewed as a system of covariance among seemingly discordant mental phenomena. The pathogenesis of psychosis is best understood by exploring the factors influencing this discordance - a notion put forward by both Bleuler and Jaspers. Reducing this discordance could strike and weaken the clinical core of a psychotic episode.

Higher Order Thalamic Nuclei Resting Network Connectivity in Early Schizophrenia and Major Depressive Disorder

Jacob Penner, Elizabeth A. Osuch, Betsy Schaefer, Jean Théberge, Richard W.J. Neufeld, Ravi S Menon, Nagalingam Rajakumar, James A. Bourne & Peter C. Williamson

Objectives: The pulvinar and the mediodorsal (MDN) nuclei of the thalamus are higher order nuclei which have been implicated in schizophrenia (SZ) and major depressive disorder (MDD). We predicted deficit connectivity between these nuclei and cortical regions involved in directed effort in schizophrenia and regions involved in emotion encoding in MDD.

Methods: Resting fMRI data were acquired from 72 participants (24 SZ, 24 MDD, 24 controls), matched for age and illness duration. We performed seed-based connectivity analyses with seeds in bilateral pulvinar and MDN, covarying for gender and smoking ($p < 0.05$, FWE-corrected; SPM8).

Results: SZ had less connectivity than controls between the left pulvinar and precuneus, left ventral-lateral prefrontal cortex (vlPFC), and superior and medial-frontal regions, between the right pulvinar and right frontal pole, and greater connectivity between the right MDN and left dorsolateral prefrontal cortex (dlPFC). SZ had less connectivity than MDD between the left pulvinar and ventral anterior cingulate (vACC), left vlPFC, anterior insula, posterior cingulate cortex (PCC), and right hippocampus, between the right pulvinar and right PCC, and between the right MDN and right dorsal anterior cingulate (dACC).

Conclusions: This is the first study to measure the functional connectivity to the higher order nuclei of the thalamus in both SZ and MDD. We observed less connectivity in SZ than MDD between pulvinar and emotional encoding regions (vACC and vlPFC), a directed effort region (PCC), and a region involved in representation and salience (anterior insula), and between MDN and a directed effort region (right dACC).

Predictors of long-term treatment outcome in combat and peacekeeping veterans with military-related PTSD

Don Richardson, Ateka A. Contractor, Cheria Armour., Kate St Cyr, Jon D. Elhai & Jitender Sareen

Objective: Posttraumatic stress disorder (PTSD) is a significant psychiatric condition that may result from exposure to combat; it has been associated with severe psychosocial dysfunction. This study examined the predictors of long-term treatment outcomes in a group of veterans with military-related PTSD.

Method: The study consisted of a retrospective chart review of 151 consecutive veterans treated at an outpatient clinic for veterans with psychiatric disorders resulting from their military operations between January 2002 and May 2012. The diagnosis of PTSD was made using the Clinician-Administered PTSD Scale. As part of treatment as usual, all patients completed the PTSD Checklist-Military version and Beck Depression Inventory (BDI-II) at intake and at each follow-up appointment, the Short-Form Health Survey (SF-36) at intake, and either the SF-36 or the 12-item Short-Form Health Survey at follow-up. All patients received psychoeducation about PTSD and combined pharmacotherapy and psychotherapy.

Results: Analyses demonstrated a significant and progressive improvement in PTSD severity over the 2-year period ($n = 117$) Yuan-Bentler $\chi^2_{40} = 221.25$, $P < .001$). We found that comorbid depressive symptom severity acted as a significant predictor of PTSD symptom decline ($\beta = -.44$, $SE = .15$, $P = .004$). However, neither alcohol misuse severity nor the number of years with PTSD symptoms (chronicity) was a significant predictor of treatment response.

Conclusions: This study highlights the importance of treating comorbid symptoms of depression aggressively in veterans with military-related PTSD. It also demonstrates that significant symptom reduction, including loss of probable PTSD diagnosis, is possible in an outpatient setting for veterans with chronic military-related PTSD.

Superior Colliculus Resting State Networks in Post-Traumatic Stress Disorder and its Dissociative Subtype

Isadora Olivé, Maria Densmore, Sherain Harricharan, Jean Theberge, Margaret McKinnon & Ruth Lanius

Background: Abnormal subconscious and conscious threat-detection mechanisms are operational during actual threat processing and at rest in PTSD. The innate alarm system (IAS) models the neurocircuitry involved in subconscious threat processing in PTSD. Here, we investigate a primary subcortical structure of the IAS model, the superior colliculus (SC), where the SC is thought to contribute to the mechanisms underlying threat-detection in PTSD. Despite this knowledge, the functional connectivity between the SC and other nodes of the IAS remains uninvestigated.

Methods: We conducted a resting state fMRI study to investigate the functional architecture of the IAS focusing on connectivity of the SC in PTSD, its dissociative subtype (PTSD+DS), and healthy controls using region-of-interest seed-based analysis.

Results: We observed group-specific resting state functional connectivity between the SC for the PTSD and the dissociative subtype, indicative of dedicated IAS collicular pathways in each group of patients. When comparing PTSD to PTSD+DS, we observed increased resting state functional connectivity between the bilateral SC and the contralateral dorsolateral prefrontal cortex (DLPFC). The DLPFC is involved in modulation of emotional processes associated with active defensive responses characterising PTSD. When comparing PTSD+DS to PTSD, increased resting state functional connectivity was observed between the right SC and the right dorsal anterior insula (right dAIC) and the right temporoparietal junction (right TPJ). Here, the TPJ is involved in depersonalization responses associated with passive defensive responses typical of PTSD+DS.

Conclusion: Taken together, our findings suggest that resting state functional connectivity of the SC parallels the unique symptom profile and defensive responses observed in PTSD and its dissociative subtype.

Sensory Overload and Imbalance: Resting-State Vestibular Connectivity in PTSD

Sherain Harricharan, Andrew A. Nicholson, Maria Densmore Margaret C. McKinnon, Jean Théberge, & Ruth Lanius

Background: The vestibular system integrates multisensory information to monitor one's bodily orientation in space, and is influenced by interoceptive awareness. Post-traumatic stress disorder (PTSD) involves typically alterations in interoceptive and bodily self-awareness evidenced by symptoms of hyperarousal, as well as of emotional detachment, including emotional numbing, depersonalization, and derealization. These alterations may disrupt vestibular multisensory integration between the brainstem (vestibular nuclei) and key vestibular cortical regions (parieto-insular vestibular cortex, prefrontal cortex). Accordingly, this study examined functional connectivity of the vestibular system in PTSD and its dissociative subtype.

Methods: Using resting-state fMRI data in SPM12 and PickAtlas, a seed-based analysis was employed to examine vestibular nuclei functional connectivity differences among PTSD (PTSD, $n=60$), PTSD dissociative subtype (PTSD+DS, $n=41$) and healthy controls ($n=40$).

Results: Increased vestibular nuclei functional connectivity with the parieto-insular vestibular cortex and the dorsolateral prefrontal cortex (dlPFC) was observed in PTSD and in controls as compared to PTSD+DS, and greater connectivity with the posterior insula was observed in controls as compared to PTSD. Interestingly, whereas PTSD symptom severity correlated negatively with dlPFC and mid-insula connectivity, clinical measures of depersonalization/derealization correlated negatively with right supramarginal gyrus connectivity.

Discussion: Taken together, decreased vestibular nuclei functional connectivity with key cortical vestibular regions in the PTSD+DS as compared to PTSD group, and its negative correlations with PTSD and dissociative symptoms, suggest that dysregulation of vestibular multisensory integration may contribute to the unique symptom profiles of each group. Further research examining disruption of vestibular system neural circuitry in PTSD and its dissociative subtype will be critical in capturing the neurophenomenology of PTSD symptoms and in identifying psychotherapeutic techniques that target dysfunction related to the vestibular system.

Plastic Modulation of Intrinsic Neural Networks in PTSD through Amygdala Downregulation via Real-time fMRI Neurofeedback

Andrew A. Nicholson, Daniela Rabellino, Maria Densmore, Paul A. Frewen, Christian Paret, Rosemarie Kluetsch, Christian Schmahl, Jean Théberge, Richard W. J. Neufeld, Margaret C. McKinnon, Jeffrey Reiss, Rakesh Jetly & Ruth A. Lanius

Objective: Large scale neural networks, such as the default mode network (DMN), salience network (SN), and central executive (CE) network, have been shown to be altered in patients with posttraumatic stress disorder (PTSD), where electroencephalography neurofeedback has been shown to plastically modulate these networks. Using real-time fMRI neurofeedback, downregulation of the amygdala during PTSD symptom provocation has been shown to increase amygdala connectivity with prefrontal executive functioning regions. However, changes in large scale neural network intrinsic connectivity during amygdala downregulation has not yet been investigated in PTSD.

Methods: Patients (n=15) completed 3 sessions of real-time fMRI neurofeedback, with the instruction to downregulate the amygdala while viewing personalized trauma words. Amygdala downregulation was assessed by contrasting a) regulate trials, with b) viewing trauma words and not attempting to regulate. Training was followed by one transfer run without neurofeedback. Independent component analyses were used to explore functional connectivity within the SN, CE, and DMN.

Results: PTSD patients were successfully able to downregulate their amygdala, displaying both increased connectivity within the SN and CE and decreased connectivity within the DMN. Changes in the intrinsic functional connectivity of these networks were negatively correlated to PTSD symptoms.

Conclusion: This is the first demonstration that amygdala downregulation using real-time fMRI neurofeedback results in network connectivity changes within PTSD patients. This suggests that amygdala downregulation is targeting neural networks that may be related to a spectrum of clinical symptoms observed in PTSD, including cognitive dysfunction (CE), arousal/interoception (SN), and an altered sense of self (DMN).

The “Real World” Effectiveness of Early Psychosis Intervention: Comparison of Service Users and Non-Users in Population-Based Health Administrative Data

Kelly K. Anderson, Ross Norman, Arlene MacDougall, Jordan Edwards, Lena Palaniyappan, Cindy Lau & Paul Kurdyak

Objectives: Early psychosis intervention (EPI) programs improve clinical and functional outcomes for people with first-episode psychosis. Relatively less is known about their impact in the larger health system context. We sought to compare indicators of health service use, self-harm, and mortality between people with first-episode psychosis who were using EPI services and a propensity-matched group of concurrent controls who were not accessing these services.

Methods: Using health administrative data, we constructed a retrospective cohort of incident cases of non-affective psychosis in the catchment area of the Prevention and Early Intervention Program for Psychoses (PEPP) in London, Ontario between 1997 and 2013. This cohort was linked to primary data from PEPP to identify EPI-users. We compared outcomes between EPI-users and non-users with proportional hazards models.

Results: EPI-users had substantially lower rates of all-cause mortality in the two-year period after admission to the program (HR=0.24, 95%CI=0.11-0.53), although we did not observe a significant difference in suicide rates between the groups (HR=0.73, 95%CI=0.29-1.80). EPI-users also had lower rates of emergency department use (HR=0.71, 95%CI=0.60-0.83) but higher hospitalization rates (HR=1.42, 95%CI=1.18-1.71). These benefits were not observed after two years, when EPI care is typically stepped down to medical management.

Conclusions: Users of EPI services have mortality rates that are four times lower than people with first-episode psychosis who do not use these services, as well as better outcomes across several health system indicators. Our findings support the effectiveness of EPI services for the treatment of first-episode psychosis in the larger health system context.

Factors Associated with Involuntary Hospitalization among People with Early Psychosis

Rebecca Rodrigues, Arlene MacDougall, GY Zou, Michael Lebenbaum, Paul Kurdyak & Kelly K. Anderson

Objectives: The objectives of this study were to estimate the proportion of people with early psychosis in Ontario who experienced involuntary hospitalization at first admission, and to identify the factors associated with involuntary status.

Methods: We used health administrative data to construct a retrospective cohort of incident cases of nonaffective psychosis among people aged 16 to 35 years in Ontario from 2009 to 2013. We estimated the proportion of patients hospitalized within two years of first diagnosis, and the proportion with involuntary status at first admission. We used logistic regression with augmented backward elimination to identify factors associated with an increased risk of involuntary hospitalization. Potential risk factors included sociodemographic, clinical, and service use factors. Ethics approval was obtained through ICES.

Results: Data analysis is in progress; however, in our preliminary analysis we identified 18,483 incident cases of nonaffective psychosis. During the 2-year follow-up period, 37% (n = 6,881) of cases were hospitalized. Of those cases hospitalized with voluntary or involuntary status (n = 6,276), 82% were admitted on an involuntary basis.

Conclusions: Initial findings indicate that the majority of first hospitalizations for young people with early psychosis in Ontario occur on an involuntary basis. This study will be the largest and most comprehensive to date examining involuntary hospitalization and associated risk factors in a population-based early psychosis sample. Our findings will facilitate the implementation of strategies to improve pathways to care for people with early psychosis in Ontario.

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

*Arlene G. MacDougall, Sahana Kukan, Elizabeth Price, Sarah Glen, Richelle Bird, Laura Powe,
Paul Lysaker, Kelly Anderson & Ross M.G. Norman*

The development of a coherent personal narrative concerning the meanings of one's experiences with a psychotic illness can be the catalyst for recovery. This pilot study examined the feasibility and potential clinical utility of using Participatory Video (PV) as a narrative intervention in early psychosis. Ten outpatients (mean age=22.7 (2.58 SD) years; 8 males) of the Prevention and Early Intervention Program for Psychoses (PEPP) in London, Ontario, participated in 13 biweekly facilitated PV workshops to plan, film and produce videos of their experiences using iPads. Participants were assessed at baseline (T1), immediately (T2) and 3-months (T3) following the workshops on symptoms, social functioning and recovery measures, including self-esteem, self-stigma, and hope. The Indiana Psychiatric Illness Interview (IPII) assessed narrative development and meta-cognitive abilities at T1 and T3. A focus group and client satisfaction questionnaire (CSQ-8) at T2 assessed acceptability. At T3, participants (n=6) showed significant improvement ($p<.05$) on affective flattening, levels of confusion, tension and self-stigma. Trending ($p<.10$) improvements were also observed for subjective recovery, positive formal thought disorder and self-esteem. Total mean CSQ-8 score (27.0) indicated high satisfaction. Focus group data revealed themes of personal insight and empowerment; collaboration and group cohesion; and perceived impact on others. Despite the rich content of the IPIIs, analysis did not reveal significant changes over the course of the study. Although this study is limited by its small sample size, it suggests that PV is both feasible and has potential clinical utility in early psychosis. A larger trial of effectiveness is necessary.

ABSTRACTS

POSTER DISPLAYS

Board #1

Geriatric Cooperatives in the South West Local Health Integration Network: Assessing Partnerships in the Care of Older Adults Living with Responsive Behaviours

Iris Gutmanis & Loretta M. Hillier

Background: Established in 2010, Geriatric Cooperatives support the evolving Behavioural Supports Ontario (BSO) program in the South West Local Health Integration Network. Geriatric Cooperatives bring together members representing relevant cross-sectoral services and identify system gaps, develop sub-region work plans, leverage local capacity, and help coordinate and improve healthcare system-wide linkages.

Study Objectives: To evaluate partnerships formed within these Cooperatives.

Methods: In 2012 and 2015 Geriatric Cooperatives members were invited to complete an on-line survey that included the Partnership Self-Assessment Tool (PSAT). Based on the idea that synergy created through the partnership allows the group to achieve more than the individual parts, the PSAT identifies partnership strengths/weaknesses in four dimensions (leadership, efficiency, administration and management, and sufficiency of resources, both financial and non-financial).

Results: Response rates for the three Cooperatives evaluated in both 2012 and 2015 fell from 70% in 2012 to 36% in 2015, perhaps due to high membership turnover (57% of those who completed the survey in 2015 were new). Mean dimension scores across both years indicated that more effort was needed to maximize collaborative potential. However, both years, more than 20% of respondents selected "don't know" for 7/67 items challenging recommended scoring methods and suggesting that member experience varied and/or that members did not perceive themselves as responsible for functions fundamental to a true partnership.

Conclusions: Cooperatives still have a lot of work to do to make local partnerships truly effective.

Implications: Examination of both item non-response and mean scores is needed to identify necessary quality improvement opportunities.

Board #2

Exploring the functional and structural correlates of personal space preferences

Joana B. Vieira, Tamara P. Tavares & Derek G.V. Mitchell

During social interactions, humans regulate interpersonal distance in order to preserve personal space boundaries. Research has shown that atypical personal space preferences are characteristic of several psychiatric and personality disorders (e.g. autism, schizophrenia, psychopathy); yet, the neural bases of personal space regulation remain poorly understood. In this study, we used functional Magnetic Resonance Imaging (fMRI) and voxel-based morphometry (VBM) to investigate the functional and structural brain correlates of personal space preferences as a function of emotional expression. Twenty-three volunteers underwent MRI scanning while they viewed approaching and withdrawing angry, fearful, happy, sad and neutral faces. Outside the scanner, participants set the distance to those faces on a computer screen, and adjusted the distance between themselves and the experimenter across a series of trials. Results showed participants kept the greatest and shortest distances from angry and happy faces, respectively. This was accompanied by increased activation in the dorsomedial prefrontal and orbitofrontal cortices, inferior frontal gyrus, and temporoparietal junction for angry and happy expressions relative to other emotions. Amygdala activation was increased for approaching faces and correlated with greater distances to angry, fearful and sad expressions. To also investigate the structural correlates of personal space preferences, we performed VBM analysis. Results showed grey matter volume in the right premotor cortex was positively correlated with preferred distance. Taken together, our findings elucidate the neural mechanisms underlying social approach-avoidance and provide further information on the systems potentially impaired in disorders with abnormal personal space preferences.

Board #3

Ventricular volume in Frontotemporal Dementia and genetically at-risk family members: results from the GENFI study

Tamara P. Tavares, Derek G. V. Mitchell, Robert Bartha, John van Swieten, Daniela Galimberti, Caroline Graff, Maria Carmela Tartaglia, Fabrizio Tagliavini, James B. Rowe, Robert Laforce Jr, Giovanni B. Frisoni, Alexandre de Mendonça, Sandro Sorbi, Barbara Borroni, Mario Masellis, Jonathan Rohrer & Elizabeth Finger

Introduction: Frontotemporal Dementia (FTD) is a highly heritable neurodegenerative disorder characterized by drastic changes in behaviour and language abilities. As clinical trials of potential disease modifying treatments are underway, it is pertinent to identify biomarkers that can help detect at-risk individuals and that can be used as surrogate outcome measures to track and assess the effectiveness of treatments. Current research in Alzheimer's disease has recognized the brain's ventricular volume as a possible biomarker to identify individuals at-risk for developing the disorder and to index disease progression. While cortical volume differences between presymptomatic mutation carriers and non-carriers have been observed 10 years prior to disease onset (Rohrer et al, 2015), no study has assessed ventricular volume expansion in presymptomatic mutation carriers in FTD. The current study addresses this knowledge gap by delineating the progression of ventricular expansion in presymptomatic mutation carriers and in patients who have been diagnosed with FTD. **Methods:** 130 T1-weighted MRI scans of participants who are known carriers of an FTD-causing mutation (MAPT, Progranulin or C9ORF72) or a first-degree family member of a known mutation carrier were collected at baseline and approximately 1 year later. Volumetric analysis was conducted using the fully-automated longitudinal processing stream in Freesurfer. Preliminary observations reveal that presymptomatic carriers show greater ventricular volume relative to non-carriers. **Conclusion:** The results of this study will describe the pattern of ventricular volume change in FTD and determine its potential utility as a biomarker for predicting disease onset, tracking disease progression and response to treatment.

Board #4

Pilot study of the neuroprotective effects of Ginsenoside-Rg3(3-O-beta-D-glucopyranosyl-(1->2)-beta-D-glucopyranosyl)-dammar-24-ene-3beta,12beta,20s-triol), the putative neuro-steroid targeting transcription complex signaling: PPAR γ (Peroxisome-Proliferation-Activated-Receptor) in MPTP (1-methyl-4-phenyl-1, 2, 3, 6-tetrahydropyridine) model of Parkinson's Disease

Jerry Jurui Hou, Hana Raheb, Simon S Chiu, Hana Raheb, Zack Cernosvsky, Robbie Campbell & Yves Bureau

Introduction: Converging evidence suggests neuroinflammation underscores pathophysiology of Parkinson Disease (PD). We hypothesize that Ginsenoside Rg3 exhibits anti-Parkinsonian activity via regulating dopamine-driven PPAR γ (Peroxisome-Proliferation-Activated-Receptor) transcription signaling involved in PD neuro-inflammation cascade.

Objective s: 1) to examine the neuroprotective efficacy of Rg3 in MPTP induced in vitro and in vivo PD models;2)to correlate the neuroprotective potency of Rg3 with changes of PPAR γ , cytokines and brain derived neurotrophic factor (BDNF) levels

Methods: In the MPTP in vitro PD model, rodent mesencephalic dopamine neurons were treated with neurotoxic dosage of MPTP. In the vivo PD model, C57/BL mice were treated weekly with MPTP. Motor performance was measured with climbing pole, rotarod tests and locomotor activity counts. Cytokines and mRNA levels of PPAR γ and BDNF were measured with ELISA and Western blot.

Results: In the primary rodent mesencephalic cultures, Rg3 rescued the dopamine neurons from MPTP induced reduced levels of Tyrosine hydroxylase-positive (TH+) positive and apoptosis. In the sub-chronic MPTP model, Rg3 at daily oral dosage of 5 mg/g, 10 mg/kg, 20 mg/kg for 5 days significantly improved the decline in motor performance. We found that Rg3 treatment compared with the placebo group, significantly blocked TH (+) neurons in the striatum and substantia nigra ,and reversed the decline in dopaminergic function. MPTP treatment produced the pro-inflammatory phenotype with elevated levels of pro-inflammatory tumor necrosis factor:TNF- α ,interleukins IL-1 β , IL-6. Rg3 treatment antagonized MPTP-induced inflammation indices and enhanced mRNA PPAR γ and BDNF.

Conclusion: Our finding of anti-inflammatory-coupled-neurotrophic effects of Rg3 in PD models will fast-track Phase II clinical trial in PD.

Board #5

Differential expression of Cerebral Dopamine Neurotrophic Factor (CDNF) in the hippocampus of and Behavior Profile in Leucine-Rich-Repeat-Kinase (LRRK-2) transgenic rat: implications for Non-motor symptoms (NMS) of Parkinson Disease

Josh Varghese, Kristen Terpstra, Hana Raheb, Simon S Chiu, Ram Mishra, Zack Cernosvsky & Yves Bureau

Background and rationale: With recent interest in non-motor symptoms (NMS) during prodromal phase of Parkinson's Disease (PD), the role of the hippocampus in NMS is largely unexplored. No study has examined whether the cerebral dopamine neurotrophic factor (CDNF) mediates NMS through regulating endoplasmic reticulum stress (ERS) and inflammatory responses, while protecting dopamine neurons in substantia nigra (SN).

Objective: to characterize the behavioral phenotype of the transgenic LRRK-2 rat as PD model and to investigate the differential expression of CDNF in the striatum and the hippocampus.

Methods: We purchased 35-week-old male LRRK2 transgenic rats carrying R1441G mutation of human LRRK2 gene and LRRK2 wild type (WT) rats from Taconic Farms, NY, USA. We conducted weekly PD-cylinder behavioral test and gross observation for 4 weeks. At the end of the 4-week period, both groups were sacrificed. Hippocampus and striatum were dissected out and frozen.

Results: Our results showed that both groups of LRRK2 mutant and LRRK2 WT did not differ in body weight , gross behavior and repeated cylinder test . Western blot analysis of CDNF protein showed that CDNF expression levels in the hippocampus of LRRK2 transgenic rats were 19.4% statistically higher than the LRRK2 WT ($p=0.024$). In the striatum, LRRK-WT rats showed non-significant trend towards higher CDNF protein levels.

Conclusions: Our study demonstrates 1) LRRK2 transgenic rat as heuristic model of NMS -PD ;2)differential hippocampus CDNF expression in LRRK2 transgenic R1441G mutant rats. Our results implicate CDNF as potential neurotrophic and anti-inflammatory biomarker of motor and NMS in PD.

Board #6

The medical-legal aspect of sexual deviant behaviors due to brain lesions: A case report and narrative review of the literature

Naghme Mkhber, Mahmood Reza Azarpazhooh, Ajay Prakash, Julie A. Zamprognà Ballès & Arun Prakash

We reported an unusual case of sexual assault in a 60-year-old male with no history of mental illness. The lack of memory about the time of the assault and the patient's uncharacteristic behaviour suggested sexual deviant behaviour secondary to a brain lesion. Further investigations revealed a lentiform stroke. A possibility of abnormal sexual behaviour due to an epileptic seizure and/or a destructive brain lesion was suggested.

We summarized the history of our patient in this paper and provided a review of the medico-legal aspects of hyper-sexuality and sexual deviant behaviors due to brain disorders.

Board #7

Can We Improve Physical Health Monitoring for Patients Taking Antipsychotics on a Mental Health Inpatient Unit?

Elyse Ross, Rebecca Barnett, Rebecca Tudhope, Matthew Renaud, Jennifer Zhang, Stephanie Fong, Michael Wodzinski & Kamini Vasudev

Objectives: Patients living with psychotic disorders are at increased risk of medical complications, including cardiovascular disease, metabolic syndrome, and diabetes. Given the baseline medical vulnerability of these patients, combined with metabolic risks of antipsychotics, appropriate physical health monitoring is critical. The objective was to improve rates of physical health monitoring by implementing an electronic standard order set for psychiatric inpatients prescribed antipsychotics.

Methods: This study was approved by the Research Ethics Board. Using a clinical audit tool, we completed a baseline retrospective audit (96 charts) of patients aged 18-99 years, discharged between January - March 2012, routinely prescribed an antipsychotic for ≥ 3 days. A standard electronic admission order set was subsequently developed and implemented. Training and education was provided to nursing staff. Resident physicians were involved in the development. We completed a second chart audit of patients discharged between January - March 2016 (190 charts) to measure improvement in physical health monitoring.

Results: In the baseline 2012 audit, blood pressure, blood glucose, fasting lipids, ECG, and height/weight were measured in 92%, 31%, 36%, 51%, and 73% of patients respectively. In the 2016 audit, blood pressure, blood glucose, fasting lipids, ECG, and height/weight were measured in 96%, 96%, 64%, 87%, and 71% of patients respectively.

Conclusions: The standard admission order set improved rates of physical health monitoring of blood pressure, blood glucose, fasting lipids, and ECG for inpatients prescribed antipsychotics. However, the intervention rates for abnormal results were unacceptably low. Future research should identify and address associated barriers.

Board #8

The Health System Impact of an Early Intervention Treatment Program for Youth with Mood and Anxiety Disorders

Kelly K. Anderson, Ava John-Baptiste, Arlene MacDougall, Paul Kurdyak & Elizabeth Osuch

Objectives: Early intervention (EI) programs have been shown to be both effective and cost-effective for improving outcomes in first-episode psychosis; however, relatively less is known about the effectiveness of this model of care for youth with mood and anxiety disorders. We sought to evaluate the impact of an EI treatment program for youth with mood and anxiety disorders in the larger health system context, relative to standard care.

Methods: Using health administrative data, we constructed a retrospective cohort of cases of mood and anxiety disorder among youth aged 16 to 25 years in the catchment area of the First-Episode Mood and Anxiety Program (FEMAP) in London, Ontario between 2009 and 2014. This cohort was linked to primary data from FEMAP to identify service users. We used proportional hazards models to compare outcomes between FEMAP-users and a propensity matched group of non-users.

Results: FEMAP-users ($n=490$) had more rapid access to a psychiatrist relative to non-users ($HR=2.82$, $95\%CI=2.45-3.26$, median time = 16 vs. 71 days). In the year following admission, FEMAP users also had lower rates of emergency department use for mental health reasons ($HR=0.73$, $0.53-0.99$). The implications of these differences in service use on health care costs will be discussed (results pending).

Conclusions: An early intervention model of care for mood and anxiety disorders is associated with better outcomes across several indicators. Our findings support the effectiveness of EI services for the treatment of first-episode mood and anxiety disorders from a health systems perspective.

Board #9

Who Gets in to Early Psychosis Intervention Services? A Comparison of Service Users and Non-Users in Health Administrative Data

Kelly K. Anderson, Ross Norman, Arlene MacDougall, Jordan Edwards, Lena Palaniyappan, Cindy Lau & Paul Kurdyak

Objectives: There is a dearth of information on people with first-episode psychosis (FEP) who do not access specialized early psychosis intervention (EPI) services. We sought to estimate the proportion of putative cases of FEP who do not access EPI services, and to examine their socio-demographic characteristics and patterns of service use relative to EPI-users.

Methods: Using health administrative data, we constructed a retrospective cohort of incident cases of non-affective psychotic disorder who sought services in the catchment area of the Prevention and Early Intervention Program for Psychoses (PEPP). This cohort was linked to primary data from PEPP to identify EPI-users. We used multivariate logistic regression models to examine the socio-demographic and service factors that are associated with nonuse of EPI services.

Results: 70% of putative cases of FEP are not accessing EPI services. EPI-nonusers are more likely to be older and to live in areas of high socioeconomic deprivation ($OR=1.86$, $95\%CI=1.31-2.65$), and are less likely to be male ($OR=0.67$, $95\%CI=0.53-0.86$). EPI-nonusers are also less likely to have psychiatrist involvement at the index diagnosis ($OR=0.13$, $95\%CI=0.10-0.17$), and are more likely to have outpatient status ($OR=1.62$, $95\%CI=1.19-2.20$) and to have a prior history of alcohol-related ($OR=2.37$, $95\%CI=1.60-3.53$) and substance-related ($OR=1.50$, $95\%CI=1.11-2.04$) disorders.

Conclusions: We need greater consideration of patients with suspected FEP who are not accessing EPI services – our findings suggest this group is sizable, and there may be socio-demographic disparities in access. Non-psychiatric health professionals could be targeted with intervention aimed at increasing detection and referral rates.

Board #10

Falling Through the Cracks: The Characteristics and Ongoing Service Use of Patients Screened but Ineligible for Early Psychosis Intervention

Jordan Edwards, Kelly K. Anderson, Ross Norman, Arlene MacDougall, Lena Palaniyappan & Paul Kurdyak

Background/ Purpose: Over the past two decades there has been wide spread implementation of early psychosis intervention programs, which have shown to assist with symptomatic and functional recovery. To date, there has been no research describing the characteristics and ongoing service use of people screened for early psychosis intervention (EPI) who do not meet the eligibility criteria of the program. These patients may be at a high risk of mental illness and may have unmet mental health needs.

Methods: Using health administrative data obtained from the Institute for Clinical Evaluative Sciences, we constructed a retrospective cohort of incident cases of psychotic disorder. We linked data from the Prevention and Early Intervention Program for Psychosis in London, Ontario from 1997 through 2014. Using 5 years of follow-up, we compared characteristics and ongoing service use between those who were screened and those admitted.

Results: Compared to persons who were admitted into EPI (n=754), those who were screened (n=1059) were older, more likely to be female, and live in low-income neighbourhoods. Those screened were more likely to be involuntarily hospitalized (HR 1.37, 95% CI: 1.09, 1.72), use emergency department services (HR 2.33, 95% CI: 1.82, 2.94) and primary care services (HR 2.78, 95% CI: 2.13, 3.57) at 2 years, with trends persisting at 5 years.

Conclusion: We need a greater consideration of patients screened for EPI. Our findings suggest this group is sizable and has unmet mental health needs. Further assessment of these patients is needed. Screened individuals may benefit from the implementation of specialized follow-up and treatment plans.

Board #11

Loss of resting-state functional complexity in schizophrenia and bipolar disorder with psychosis

Tushar Das, Mingli Li & Lena Palaniyappan

Introduction: Regional inhomogeneity in brain that possesses generative functional mechanisms was shown to exhibit the scale-free brain activity in previous studies. Any alternation of this scale-free activity could reduce nonlinear complexity in functional magnetic resonance imaging (fMRI) signals and could promote pathological conditions (e.g., autism). Our aims are to investigate (1) Hurst-exponents (HE) and (2) structure-function relations for understanding the altered scale-free mechanisms in schizophrenia (SCZ) and bipolar patients, compared to controls.

Method: We included 32 controls, 16 bipolar and 34 SCZ patients to study HE in AAL atlas based 90 ROIs. Two types of activities were investigated: (i) persistent (HE > 0.5) and (ii) anti-persistent (HE < 0.5). The 'cosine similarity' was calculated between fractional-anisotropy based degree (using DTI data) and each of these functional categories.

Results: Degree of FA in different brain lobes was presented by using ANOVA with FDR corrections. Increased degree connectivity in parietal and parietal-subcortical regions were noted for bipolar and SCZ groups, compared to the control. The HE values showed altered regional compensation mechanisms in disease states, compared to controls. Increased similarity of structure-function correspondence was noted in the bipolar group, compared to control and SCZ groups.

Discussion: Patients with bipolar disorder differ from SCZ in key brain regions. Increased similarity of structure and function indicated the reduced complexity in bipolar patients, but not globally reduced in schizophrenia. This may be due to neurochemical disturbances e.g., persistence due to loss of E/I imbalance.

Board #12

Risks and Benefits of Mood-Stabilizer Treatment in Pregnant Women with Bipolar Disorder: A Population Based Cohort Study

Misbah Salim, Verinder Sharma, Igor Karp & Kelly K. Anderson

Objectives: The aim of this study was to examine various risks and benefits associated with treatment use for bipolar disorder (BD) during pregnancy.

Methods: This was a retrospective population based cohort study using data housed at the Institute for Clinical Evaluative Sciences (ICES). ICES data consists of multiple linked health administrative databases with physician billings and hospitalizations for the entire province of Ontario, Canada, and prescription drug use for a subset of the population. Our cohort consists of women aged 13 to 50 who delivered a singleton infant between 2002 and 2014 and had a prior record of hospitalization for BD. All women must have been covered under the provincial drug plan during their pregnancy. The exposure was the use of mood stabilizer treatment alone or in combination with antipsychotics, anxiolytics, and antidepressants. We will compare clinical maternal and neonatal outcomes, delivery outcomes, health service use, and mortality rates between the exposed group and the untreated comparison group. Groups will be balanced on important confounding factors using propensity scores.

Results: The dataset is currently being analyzed. We expect to have preliminary results available by the conference date.

Conclusions: This study will provide additional evidence regarding the potential risks and benefits associated with use of this medication during pregnancy, allowing women and physicians with BD to make informed evidence-based decisions..

Board #13

Community REcovery Achieved through Entrepreneurism (CREATE): A new paradigm for promoting recovery from serious mental illness in low-income settings

Arlene MacDougall, Terry Krupa, Rosemary Lysaght, Regina Casey, Elizabeth Price, Marlene Janzen Le Ber, Oana Branzei, Victoria Mutiso, Sean Kidd & David Ndete

Mental disorders are a leading cause of disability worldwide (Bloom et al., 2011). Yet, the majority of people with serious mental illness (PWSMI) in low and middle income countries do not receive care and are socially marginalized (WHO, 2008). The CREATE model of recovery involves establishing a locally-informed social business designed to employ PWSMI coupled with an evidence-based, recovery-oriented Psychosocial Rehabilitation (PSR) Toolkit that includes psychoeducation and self-management tools. Proof of concept of the CREATE model was undertaken in Machakos Town, Kenya. Seven PWSMI (mean age=34.6 years (8.83 SD); 6 males) were recruited, two of whom helped develop the social business: a local print shop. All participants worked at the print shop and received the Toolkit. Qualitative pre-post interviews assessed engagement in the initiative and perceived impacts. Quantitative measures (e.g. quality of life, symptoms, time use, family burden) triangulated qualitative findings. Qualitative analysis suggested that participation in the initiative reduced participants' pervasive idleness and fringe status in families and communities. Important factors for uptake included the unique aspects of the social business and the benefits for PWSMI (e.g. sense of acceptance and belonging, skills acquisition, independence), their families (e.g. reduced burden), healthcare providers and the broader community (e.g. mental health awareness). Quantitative analysis revealed a significant increase on productive time-use at follow-up, and a trending reduction of financial burden on individuals and their families. The project has expanded the PSR Toolkit into Kenyan hospital settings, with future plans to scale the CREATE model into other regions within and outside of Kenya.

Board #14

Relationship between Trauma and Mental Health among Bisexuals Living in Ontario

Leah Keating, Paul Frewen, Jenna MacKay, Greta Bauer, Lori Ross & Margaret Robinson

Objectives: Research has indicated that compared to lesbian, gay, and heterosexual people, bisexual people experience elevated rates of trauma, discrimination, and psychological distress; that trauma and psychological distress predict poorer mental health; and that lesbian, gay, bisexual, and transgender individuals' mental health outcomes vary by sociodemographic characteristics. Scholars have argued that more research is needed to examine the impact of victimization on bisexual people. To address this gap, the current study examines the relationships among trauma and mental health among bisexual people, taking into account sociodemographic characteristics.

Methods: Data were collected from an Ontario-wide survey of 405 bisexuals using respondent-driven sampling. Data were available for 306 participants. Weighted ordinary least squares regression was used to examine the relationships among different forms of trauma and mental health outcomes.

Results: Abuse during childhood and adulthood, anti-bisexual experiences, perceived discrimination, and parental experiences of trauma were differentially associated with several mental health outcomes including alcohol use, posttraumatic symptoms, and consideration of suicide. **Implications:** Mental health professionals and policymakers should attend to the psychological and social factors that impact bisexual individuals' mental health.

Board #15

Diagnostic Accuracy of Referrals in an Academic Consultation-Liaison Service

James Charbonneau, Michelle McLean, Sandra Ulch, Rebecca King, Jennifer Barr, Carla Garcia, Michael Mak

Study Objectives: The objectives of this study are to (1) Test if certain syndromes are frequently misdiagnosed as another.

Hypothesis – delirium is frequently misdiagnosed as depression; (2) Test for differences in diagnostic accuracy between referrals received from medicine vs. surgery vs. ICU. **Hypothesis –** intensive care and medicine are more accurate vs surgery as the former receive some training in delirium treatment; (3) Test for certain patient characteristics that predict misdiagnosis. **Hypothesis –** female gender, history of psychosis or mood disorder are associated with poor diagnostic accuracy.

Methods: The diagnoses from the referring services will be retrospectively compared to diagnoses made by the CL Service. We will analyze for associations between patient variables and diagnoses. Our data source is extracted from chart review and CL referral forms, and will include 1000 consecutive referrals.

The study will: 1. Describe the statistical distribution of referral diagnoses; 2. Describe statistical patterns of misdiagnosis; 3. Determine variables (if any) that predict failure to make an accurate diagnosis; and 4. Determine if certain Psychiatric diagnoses are made with greater accuracy by referring services.

Results: Preliminary analysis from ~ 300 charts reveal that 60% of referred depression patients in fact have delirium when assessed by CL psychiatry. This abstract will be updated with variables that associate with misdiagnosis when available.

Conclusions: Delirium is commonly misdiagnosed as depression by referring services.

Implications for Care: Greater accuracy in diagnosis facilitates earlier appropriate treatment, leading to shorter stays, better resource use efficiency (reduce health care costs from mistreatment and inappropriate use of mental health services) and lower morbidity/mortality.

Board #16

Perceived Effectiveness of Specialized Treatment for Mood and Anxiety Disorders in Emerging Adults: A Qualitative Investigation

Justin Arcaro, Paul Tremblay & Elizabeth Osuch

Emerging adults (EAs) are vulnerable to the onset of mood and anxiety disorders, which can lead to functional impairment and devastating consequences including suicide. The First Episode Mood and Anxiety Program (FEMAP) was established as an early identification and treatment program designed specifically for EAs experiencing symptoms of mood and/or anxiety disorders. The purpose of this study was to evaluate the perceived effectiveness of services offered through FEMAP and the impact on patient outcomes. Based on a thematic analysis of 22 patients' (15 female, 7 male) semi-structured interviews, a working model of treatment engagement and recovery was developed. The model encompassed three major phases including Help-Seeking, Treatment Engagement, and Long-Term Outcomes. Both facilitative and challenging conditions of treatment engagement were included, along with important patient outcomes, such as symptoms, functioning and perspective changes. These findings provide support for the effectiveness of FEMAP as a comprehensive and practical model of treatment for EAs. Furthermore, this study highlights the importance of patients' perspectives in mental health treatment evaluations to improve treatment engagement and service delivery.

Board #17

Experience of Meditation Practice in Help-Seeking and Student Participants

Jessica Carswell & Paul Frewen

There are findings linking low trait mindfulness to higher distress, neuroticism, and psychopathology, and a large literature broadly supporting the efficacy of Mindfulness Meditation (MM)-related interventions in mental healthcare. However, surprisingly little is yet known about what persons with psychological disorders actually experience when they practice MM. The present study conducted an investigation of mental health help-seeking participants of MM groups for persons with mental health challenges, and compared findings to meditation-related experiences reported within a non-help seeking, or control, sample. It was found that (1) the degree of focused attention did not differ significantly between the help-seeking and non-help-seeking group; (2) help-seeking individuals experienced more symptoms of psychopathology and fewer normative MM-related experiences compared to non-help seeking individuals; (3) the experience of psychopathology during MM distracted from focused attention (FA) toward the breath in the help-seeking group; and (4) help-seeking individuals who reported higher trait mindfulness acting with awareness reported fewer state symptoms of psychopathology during MM. This research has helped us better understand how the phenomenological experience of mindfulness meditation in persons experiencing psychopathology might influence mindfulness abilities. Study limitations and future research directions are discussed. It should be noted that this honors thesis is an extension of the published paper, Experiences of Psychopathology Distract from Focused Attention during Mindfulness Meditation: Assessment in relation to Meditation Breath Attention Scores in Help-Seeking Participants, co-authored with Dr. Paul Frewen (2017)

Board #18

Brain response associated with of heart rate variability in PTSD during sub- and supraliminal processing of trauma-related words

Daniela Rabellino, Wendy D'Andrea, Greg Siegle, Paul A. Frewen, Reese Minshew, Maria Densmore, Richard W. Neufeld, Jean Théberge & Ruth A. Lanius

Study Objectives: Posttraumatic stress disorder (PTSD) is characterized by dysregulated arousal associated with altered autonomic functioning as evidenced by decreased high-frequency heart rate variability (HF-HRV), an indirect measure of parasympathetic modulation of the heart. This study aims to investigate the neural correlates underlying altered parasympathetic responses in PTSD, especially during exposure to trauma-related stimuli, either at or below the awareness threshold.

Methods: We compared the BOLD fMRI response associated with HF-HRV between a PTSD group (n=18) and a healthy control group (n=18), during the sub- and supraliminal processing of personalized trauma-related cues.

Results: The PTSD group showed decreased HF-HRV in response to both sub- and supraliminal cues, in comparison to controls. During subliminal processing of trauma-related vs. neutral words, the PTSD group showed decreased neural response associated with HF-HRV within the left dorsal anterior insula as compared to controls. By contrast, decreased neural activity associated with HF-HRV within the posterior insula/superior temporal cortex and increased neural activity associated with HF-HRV within the left centromedial amygdala during supraliminal processing of trauma-related vs. neutral words emerged in PTSD as compared to controls.

Conclusions: Cortical and subcortical areas crucial to the central autonomic network were found to be associated with compromised parasympathetic modulation of autonomic arousal in PTSD. Remarkably, the contribution of both supra- and subliminal trauma-related stimuli to dysregulated arousal points to their key role in the maintenance of hyper-arousal in PTSD. Treatment implications for PTSD suggest the importance of enhancing the awareness towards potential subliminal trauma reminders when planning psycho-physiological interventions.

Board #19

Clinical utility of a short resting state MRI scan in differentiating bipolar from unipolar depression

Mingli Li, Tushar Das, Wei Deng, Qiang Wang, Yinfei Li, Liansheng Zhao, Xiaohong Ma, Yingcheng Wang, Hua Yu, Xiaojing Li, Yajing Meng, Lena Palaniyappan & Tao Li

Objective: Depression in bipolar disorder (BipD) requires a distinct therapeutic approach from unipolar major depressive disorder (UniD); but to date no reliable methods could separate these two. The aim of this study is to establish the clinical validity and utility of a non-invasive functional MRI-based method to classify BipD from UniD.

Method: The degree of connectivity (degree centrality or DC) of every small unit (voxel) with every other unit of the brain was estimated in 22 patients with BipD and 22 age, gender and depressive severity matched patients with UniD and 22 healthy controls. Pattern classification analysis was carried out using a support vector machine (SVM) approach.

Results: DC pattern from 6-minutes resting fMRI discriminated BipD from UniD with an accuracy of 86% and diagnostic odds ratio of 9.6. DC was reduced in the left insula and increased in bilateral precuneus in BipD when compared to UniD. In this sample with a high degree of uncertainty (50% prior probability), positive predictive value of the DC test was 79%.

Conclusion: DC maps are potential candidate measures to separate bipolar depression from unipolar depression. Test performance reported here requires further pragmatic evaluation in regular clinical practice.

Board #20

"Not for Human Consumption": Novel Psychoactive Substances in the Internet Age

Jonathan M Gregory

Background: During the last decade, the use of novel psychoactive substances (NPS) has proliferated worldwide. The emergence of so-called "research chemicals" or "legal highs," many of which mimic the effects of illicit drugs, represents a challenge for practising physicians. The proliferation of information through pseudo-scientific websites and online communities has led to widespread use of psychotropics (about which we have little knowledge of acute or chronic risks). Thus far, legislative strategies have lacked the responsiveness necessary to tackle the dynamic online market for NPS. Similarly, the medical community has struggled to keep up with the ever-changing availability of NPS on the internet and the information disseminated electronically by the proponents of NPS use.

Objectives: (1) Increase awareness of this growing area of concern for psychiatrists; (2) Develop an approach to NPS classification; (3) Describe a case which elucidates the deleterious effects of these substances.

Conclusions: NPS can be classified by psychoactive effect, chemical structure, or market (e.g. a specific online community). Some representative substances include: ethylphenidate (a psychostimulant sold as a "research chemical"), kratom (an opioid agonist sold as an herbal product), and dextromethorphan (a dissociative drug available over-the-counter). Although a plethora of anecdotal information is accessible to psychiatrists online, the psychopathology associated with many NPS is either absent or poorly described in the literature. The discussion of NPS use in a patient with schizophrenia reveals the diversity of NPS-related presentations (e.g. overdose, substance-induced psychosis, withdrawal) and the vulnerability of patients with psychiatric diagnoses to the NPS internet culture.

Board #21

Predictors of Remission of Psychotic Symptoms in First Episode Psychosis

Melissa Sheehnan

Objectives: The heterogeneous nature of the outcome of first episode psychoses necessitates the identification of early prognostic factors to optimize treatment and predict persistence. The objectives of this study are to determine: 1) whether depression modulates time to initial remission of positive or negative symptoms in first episode psychosis, 2) the time at which change in positive and negative symptoms is most predictive of remission at 5 years.

Methods: 128 patients with first episode psychosis were followed for 5 years by the Prevention and Early Intervention Program for Psychosis (PEPP). Patients completed the following scales: Calgary Depression Scale (CDS), Scale for Assessment of Positive Symptoms (SAP) and Scale for Assessment of Negative Symptoms (SAN). Persistence was defined by the status of non-remission of symptoms for most of the annual symptom assessments done during the 5 year follow-up. Kaplan-Meier survival curves and Pearson correlations were used to determine significance.

Results and Conclusions: Depression, defined by a positive CDS, modulates time to remission of hallucinations (4.39 weeks (CI = 2.37–6.40) versus 14.97 weeks (CI = 7.75–22.19)) and has no modulatory effect on delusions, apathy or poverty. There is a significant negative correlation between percent reduction in total negative symptoms at 2 months and persistence of negative symptoms through the first 5 years ($r = -0.37$, $N = 75$, $p < 0.01$), and percent change SAPS at 2 months ($r = -0.260$, $N = 79$, $p < 0.01$) and 6 months ($r = -0.351$, $N = 102$, $p < 0.01$) with persistence of positive symptoms at 5 years. These findings suggest practitioners could provide patients with early prognostic information based upon initial treatment response. This information may contribute to developing a model predictive of persistence in first episode psychosis. Data from Dr. Ross Norman, PEPP.

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