The Department of Psychiatry

Presents

The 30th Annual Albert J. Silverman Research Conference

June 12, 2019
2nd Floor Atrium and Garden Level
Depression Center and Ambulatory Psychiatry
Rachel Upjohn Building, 4250 Plymouth Road

Research Updates in Psychiatry

Tuesday, June 11, 2019

Poster Set-Up (2nd Floor Atrium) ................................................................. 8:00 a.m. – 3:00 p.m.
Poster Session & Wine and Cheese Reception (2nd Floor Atrium) ............... 5:00 – 7:00 p.m.

Wednesday, June 12, 2019

Poster Session & Continental Breakfast (2nd Floor Atrium) ......................... 8:00 – 9:45 a.m.

Opening Remarks, Introduction of Speakers and Presentations (Auditorium)

Gregory W. Dalack, M.D. ................................................................. 9:55 – 10:10 a.m.
Professor and Chair, Department of Psychiatry

Kate Fitzgerald, M.D., M.S. ............................................................. 10:10 – 10:30 a.m.
Childhood Anxiety and OCD: Building Interventions that Work
Associate Professor, Department of Psychiatry

Maureen A. Walton, Ph.D., M.P.H................................................. 10:30 – 10:50 a.m.
Substance Use Among Adolescents and Emerging
Adults: Harnessing Smartphones for Research and Intervention
Professor, Department of Psychiatry

Jonathan D. Morrow, M.D., Ph.D. .............................................. 10:50 – 11:10 a.m.
Cue-Driven Behavior and Addiction Vulnerability
Assistant Professor, Department of Psychiatry

Courtney A. Polenick, Ph.D. .............................................................. 11:10 – 11:30 a.m.
“It Takes Two:” How Close Relationships
Influence Mental Health and Well-Being
Assistant Professor, Department of Psychiatry

Cheryl King, Ph.D................................................................. 11:30 – 11:50 a.m
Teens at Risk for Suicide: Learning New Ways
to Recognize and Respond
Professor, Department of Psychiatry

Announcement of Poster Awards
and Outstanding Internal Grant Reviewers (Auditorium) ................. 11:50 a.m. – 12:00 p.m.
Albert J. Silverman Research Conference Lecturers

1990 - Bernard J. Carroll, M.D., Ph.D.
1991 - Lenore Terr, M.D.
1992 - Lawrence L. Weed, M.D.
1993 - Jay Pettegrew, M.D.
1994 - Larry J. Siever, M.D.
1995 - Cynthia R. Pfeffer, M.D.
1996 - Marsel Mesulam, M.D. and Ned Kalin, M.D.
1997 - Howard Goldman, M.D.
1998 - Cindy L. Ehlers, M.D.
1999 - Alan F. Schatzberg, M.D.
2000 - Carol A. Tamminga, M.D.
2001 - Ronald Duman, Ph.D.
2002 - Robert Drake, M.D., Ph.D. and Lisa Dixon, M.D., Ph.D.
2003 - Mark Olfson, M.D., M.P.H. and Kurt Kroenke, M.D.
2004 - Gabrielle Carlson, M.D. and Melvin McInnis, M.D.
2005 - David Spiegel, M.D. and Mark Chesler, Ph.D.
2006 - Edward Nunes, M.D. and Marc A. Schuckit, M.D.
2007 - Kathleen Merikangas, Ph.D. and Nick Craddock, M.D., Ph.D., FRCPsych.
2008 - Lorrin M. Koran, M.D.
2009 – William H. Coryell, M.D.
2010 – Eva Van Cauter, Ph.D.
2011 – Susan Nolen-Hoeksema, Ph.D.
2012 – William G. Iacono, Ph.D.
2013 – Wayne J. Katon, M.D.
2014 – Julian D. Ford, Ph.D.
2015 – David H. Gustafson, Ph.D.
2016 – Malaz A. Boustani, M.D., MPH
2017 – Paul E. Holtzheimer, M.D.
2018 – Aldo Badiani, Ph.D.
2019 – Kate Fitzgerald, M.D., M.S. / Cheryl King, Ph.D. / Jonathan D. Morrow, M.D., Ph.D. / Courtney A. Polenick, Ph.D. / Maureen A. Walton, Ph.D., M.P.H.
Rachel Upjohn Building Second Level
Poster Location Map

Trainee Posters 1-48
Faculty/Staff Posters 49-100
Albert J. Silverman, M.D., C.M.
1925-2002

Albert Jack Silverman, M.D., C.M. was a noted psychiatrist, neuroscience researcher and former chair of two university psychiatry departments. In 1970, he became chair of psychiatry at the University of Michigan Medical School. He is credited with redirecting the department's research, education and treatment programs, and leading during a time of great change. During his career, Dr. Silverman sought to bridge the divide between the rising field of neuroscience-based psychiatry and traditional psychoanalysis. After he stepped down from the chair in 1981, he remained on faculty and continued his research and the teaching of psychiatry residents. He retired as professor emeritus in 1990 and continued teaching and conducting rounds until 1997.

Today's event is the 30th in an annual series of research conferences held in the department of psychiatry in Dr. Silverman’s honor. A recent generous gift from Mrs. Halina Silverman will assure that the Albert J. Silverman Research Conference will continue in perpetuity as a lasting tribute and legacy for her late husband, an accomplished leader, a fine doctor – devoted to his patients, colleagues and trainees – and a wonderful husband, father and grandfather.

Born in Montreal on January 27, 1925, Dr. Silverman earned his bachelor's of science and medical degrees at McGill University. It was at McGill that he discovered his interest in the physical underpinnings of psychological phenomena - a field called psycho-physiology. After a residency in psychiatry at the University of Colorado Medical Center, he followed his mentor Ewald W. Busse to Duke University, where he became a member of the faculty.

He was naturalized as an American citizen in June 1955, took a leave from Duke, and entered the Air Force that year. During his two and one-half years of service at Wright-Patterson Air Force Base, he completed his board examinations in both neurology and psychiatry. Dr. Silverman led research for the U.S. Air Force on space neuroscience and psychology, which rose from obscurity to prominence literally overnight in 1957 with the launch of Sputnik and the dawn of the space race. In addition to performing key research on physical and psychological responses to G-force acceleration and space travel as chief of the stress and fatigue section of the Aero Medical Laboratory at Wright-Patterson Air Force Base, he helped invent a device that used pilots' brain waves as an oxygen-deprivation warning system.

In a 1991 oral history interview, Silverman recalled his Air Force experience: "This was right at the beginning of space exploration. Just prior to the Russians' putting up Sputnik, we were doing G-
tolerance studies with the human centrifuge. We weren't allowed to call them moon trajectories or anything like that, because the senators were very negative about 'all of this space nonsense.' But in under 24 hours of Sputnik's going up, we got these hurry-up telegrams from headquarters saying, 'What are we doing in space [research]?' So we dusted off all the old technical reports we had been doing anyway, but under non-space names such as 'acceleration in unusual environments.' That kind of vague name now became, 'G-forces necessary for a moon trip,' which now became very kosher."

Silverman left the service as a captain in 1957. He returned to Duke, heading the psycho-physiology lab and then the behavior studies lab. In all, his research during this period of his career led to more than 100 publications and presentations.

In 1963, Dr. Silverman went to Rutgers University where he and three other faculty members worked to establish a new medical school. This entailed architectural planning and supervision, and hiring the chairs of all departments of the medical school. He became chair of the first psychiatry department at Rutgers where he hired the faculty and worked for seven years. The school later became part of the New Jersey Medical School at the University of Medicine and Dentistry of New Jersey. He also studied psychoanalysis at the Washington Psychoanalytic Institute, graduating in May 1964.

In 1970, he came to the University of Michigan. At the U-M, he set out to bridge the gap between the Mental Health Research Institute, home to noted basic research in the neurosciences, and the psychoanalysis-focused psychiatry faculty. In addition to strengthening the clinical trials program, he helped the U-M implement new clinical treatments and research programs emphasizing psychopharmacology, biofeedback, and stress-neuroendocrine relationships. He also revamped the curriculum for medical students to include more psychiatric training, improved the residency program, and attracted young neuroscientists.

From 1975 to 1976, Dr. Silverman was president of the American Psychosomatic Society, which focuses on the mind-body connection in disease. He served on the National Board of Medical Examiners for many years, including a term from 1984 to 1987 as chair of the committee that designed the behavioral sciences portion of the national medical licensing examination. In addition to the APS and NBME, Dr. Silverman was a charter fellow of the American College of Psychiatrists; a fellow of the American Association for the Advancement of Science, the American Academy of Psychoanalysis and the American College of Neuropsychopharmacology; a former chairman of several committees for the American Psychiatric Association; and an honorary fellow of the American Society of Psychoanalytic Physicians.

"Al was truly a force to be reckoned with, an international leader in the field of psychosomatic medicine, and an important figure in the development of psychiatry at Michigan and beyond into a field that embraces all aspects of the human brain and psyche," says John Greden, M.D., past department chair and executive director of the U-M Depression Center.

Prior to his career in Academic Medicine, Dr. Silverman had an active professional career acting and directing in both theater and radio and continued his activities as an amateur musician and sculptor. Dr. Silverman was a Patron of the U-M University Musical Society; a Friend of the U-M Museum of Art, the U-M Opera, and the U-M Musical Theater; and a Patron of the Detroit Institute of Arts. Memberships also included Beth Israel Congregation, Ann Arbor; Hadassah Associates and B’Nai Brith.

Dr. Silverman is survived by his wife Halina W. Silverman, son Barry Evan Silverman (Nancy), daughter Marcy S. Mullan (John), and four grandchildren: Luke, Mark, Kelly, Erin, as well as a brother Marvin Silverman, M.D. and his family of Ottawa, Canada.

We hold this conference in fond memory of Dr. Silverman – visionary, healer and friend.
<table>
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<td>Stratton J Sylvia A Hoodin F Choi S Pawarode A Giordani B and Votruba K</td>
<td>John Stratton</td>
<td><a href="mailto:johstr@med.umich.edu">johstr@med.umich.edu</a></td>
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<td>2</td>
<td>Examining the Neurobehavioral Symptom Inventory Validity-10 as a Measure of Symptom Validity</td>
<td>Gradwohl BD Mangum RW Tolle KA Spencer RJ &amp; Bieliauskas LA</td>
<td>Brian Gradwohl</td>
<td><a href="mailto:brian.gradwohl@va.gov">brian.gradwohl@va.gov</a></td>
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<td>3</td>
<td>Development and Validation of a Post-concussion Scale for the MMPI-2-RF</td>
<td>Gradwohl BD Mangum RW Lengu K Spencer RJ &amp; Bieliauskas LA</td>
<td>Brian Gradwohl</td>
<td><a href="mailto:brian.gradwohl@va.gov">brian.gradwohl@va.gov</a></td>
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<td>4</td>
<td>Is Age a Risk Factor for Cognitive Changes Following Hematopoietic Cell Transplantation?</td>
<td>Stratton J Sylvia A Hoodin F Choi S Pawarode A Giordani B and Votruba K</td>
<td>John Stratton</td>
<td><a href="mailto:johstr@med.umich.edu">johstr@med.umich.edu</a></td>
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<td>5</td>
<td>Title The Value of Early Interdisciplinary Assessment and Management in a Challenging Case of Autoimmune Encephalitis</td>
<td>Ikekwere JC, Malas N, Biermann BJ</td>
<td>Joseph Ikekwere</td>
<td><a href="mailto:jikekweri@med.umich.edu">jikekweri@med.umich.edu</a></td>
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<td>6</td>
<td>Sleep Correlates with Neurobehavioral Functioning Among Children with ADHD and/or Autism Spectrum Disorder</td>
<td>Ng R. Olvera W. Abdullah R. Heinrich K. Hodges E</td>
<td>Rowena Ng</td>
<td><a href="mailto:rrowena@med.umich.edu">rrowena@med.umich.edu</a></td>
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<td>7</td>
<td>Simplifying Somatization: Reducing Healthcare Utilization with a Clinical Practice Guideline to Evaluate and Manage Pediatric Somatic Symptom and Related Disorders</td>
<td>Klein E Malas N Kullgren K</td>
<td>Nasuh Malas</td>
<td><a href="mailto:nmalas@med.umich.edu">nmalas@med.umich.edu</a></td>
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<td>8</td>
<td>Maternal Daytime Dysfunction Due to Sleepiness and its Relation to Child Psychopathology</td>
<td>Strong C Fitzgerald K Premo J</td>
<td>Cameron Strong</td>
<td><a href="mailto:camstrong@med.umich.edu">camstrong@med.umich.edu</a></td>
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<td>Diagnostic Utility of NIH Toolbox Cognition Battery in Older Adults with Amnestic Mild Cognitive Impairment</td>
<td>Hill-Jarrett T.G. Garcia S. Shair S. Kayeic V. Bhaumik A.K. Rose E. Tebee S. Campbell S. Lichtenberg P. Hambtegg B. &amp; Giordani B.</td>
<td>Tansha Hill-Jarrett</td>
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<td>10</td>
<td>The Relationship Between Cognitive Screening and Recurrent Falls in Post-Acute Care</td>
<td>Rochette AD Alexander NB Cigolle C Hogikyan R Phillips K Khan F &amp; Steinokas J.</td>
<td>Amber Rochette</td>
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<td>Style and Substance: Qualitative Characterizing of Dementia Caregiving Styles</td>
<td>Breanna Webster Ben Bugajski B.A Amanda Leggett Ph.D.</td>
<td>Breanna Webster</td>
<td><a href="mailto:webstbre@gmail.com">webstbre@gmail.com</a></td>
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<td>Cognitive Behavioral Therapy Delivered via Telemedicine vs. Face-to-Face: Preliminary Findings from a Randomized Controlled Non-Inferiority Trial</td>
<td>Yang A; Conroy DA; Mooney AJ; DuBuc KE; Balstad SA; Pace DE; Sen A; Eisenberg D; Amed JT</td>
<td>Alexander Yang</td>
<td><a href="mailto:aaaaayang@umich.edu">aaaaayang@umich.edu</a></td>
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<td>Demographic and Clinical Factors of School Age Children who Present to a Psychiatric Emergency Room</td>
<td>Singh G MD. Hong V MD. Mateka S DO. Nordsetten A PhD.</td>
<td>Gagan Singh</td>
<td><a href="mailto:gaganzde@med.umich.edu">gaganzde@med.umich.edu</a></td>
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<td>PTSD treatment trajectories among veterans with military sexual trauma and comorbid substance use disorders</td>
<td>Eshelman L.R. Cochran H.M Smith E.R. Porter K.E. Rauch S.A M. &amp; Sexton M.B.</td>
<td>Lee Eshelman</td>
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<td>Cannon B.K. Philyaw-Kotov M.L. Wernette G.T. Eisman A. B. Sigel E.J. Carter P. M. Cunningham R. M. Bourque C. Walton M.A.</td>
<td>Brittnie Cannon</td>
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<td>Elena M. Lamping Ivana D. Senic Joel S. Peterman Cynthia Z. Burton Erica Vest-Wilcox Daniela Lopez-Vives Sagar V. Parikh &amp; Kelly A. Ryan</td>
<td>Elena Lamping</td>
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<td>Elena M. Lamping Ariana Tart-Zelvin Amy L. Cochran Scott A. Langenecker Joel S. Peterman David F. Marshall Melvin G. McInnis Daniel B. Frear &amp; Kelly A. Ryan</td>
<td>Elena Lamping</td>
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<td>Relationship between burden of psychotropic medications and cognitive performance in a large sample of individuals with bipolar illness.</td>
<td>Kirby M. Lamping E. Munson B. Marshall D. Pester B. McInnis M. Ryan K.</td>
<td>Madison Kirby</td>
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<td>Are deficiencies in emotion perception related to health-related quality of life in bipolar disorder?</td>
<td>Brontë C. Munson Elena M. Lamping Madison F. Kirby Lillian Arnett Rachel Lee Rebecca E. Easter David F. Marshall Melvin G. McInnis Kelly A. Ryan</td>
<td>Brontë Munson</td>
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<td>Human induced pluripotent stem cell (hiPSC) derived GABAergic and glutamatergic neuron development and function in bipolar disorder</td>
<td>Schill DJ* Campbell KF* Glanowska KM DeLong CJ McInnis MG Murphy GG O’Shea KS</td>
<td>Dan Schill</td>
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<td>Chronicity of mood symptoms in bipolar disorder and the relationship to neuropsychological performance</td>
<td>Trim, EE, Lamping, EM, Marshall, DM, McInnis, MG, Ryan, KA</td>
<td>Elie Trim</td>
<td><a href="mailto:ertrim@umich.edu">ertrim@umich.edu</a></td>
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<td>The Impact of Completing Medication Reconciliation and Depression Treatment History in an Outpatient Depression Clinic</td>
<td>Choi SJ Storey R Parikh SV Bostwick JR</td>
<td>Jolene Bostwick</td>
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<td>A Loss-of-Function Variant in ANK3 from a Family with Bipolar Disorder Causes Altered Forebrain Circuitry</td>
<td>Nelson AD Caballero-Floran RN Jenkins PM</td>
<td>Andrew Nelson</td>
<td><a href="mailto:andnels@umich.edu">andnels@umich.edu</a></td>
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<td>Katzman WG Hruschak JL Fitzgerald KD</td>
<td>William Katzman</td>
<td><a href="mailto:wkatzman@umich.edu">wkatzman@umich.edu</a></td>
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<td>Electroconvulsive Therapy for Neuroleptic Malignant Syndrome: A Case Series</td>
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<td>Nicholas Marcos</td>
<td><a href="mailto:nmorcos@med.umich.edu">nmorcos@med.umich.edu</a></td>
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<td>René N. Caballero-Floran Andrew D. Nelson Paul M. Jenkins</td>
<td>Rene Caballero-Floran</td>
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<td>Glanowska KM DeLong CJ Murphy GG O’Shea KS</td>
<td>Kasia Glanowska</td>
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<td>Amanda France</td>
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<td>Anthony Mansour Meredith L. Philyaw-Kotov Diane M. Schneeeberger Lara Coughlin Erin E. Bonar Inbal Nahum-Shani Maureen A. Walton</td>
<td>Anthony Mansour</td>
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<td>Ethnic differences in Nicotine Use Among Military Sexual Trauma Survivors</td>
<td>Fedele KM Cochran HM Bloor LE &amp; Sexton MB</td>
<td>Katherine Fedele</td>
<td><a href="mailto:kathermf@med.umich.edu">kathermf@med.umich.edu</a></td>
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<td>Clark DA; Durbin CE; Heitzeq MM; Iacono WG; McGue M; Hicks BM</td>
<td>David Clark</td>
<td><a href="mailto:cladavid@med.umich.edu">cladavid@med.umich.edu</a></td>
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<td>White AM; An X; Debiec J</td>
<td>Amanda White</td>
<td><a href="mailto:whiteware@umich.edu">whiteware@umich.edu</a></td>
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<td>Coordinated hippocampo-cortical coherence and ripple dynamics underlie consolidation following learning of a spatial memory-dependent decision-making task</td>
<td>Hartner JH; Watson BO</td>
<td>Jeremiah Hartner</td>
<td><a href="mailto:jhartner@med.umich.edu">jhartner@med.umich.edu</a></td>
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<td>Stress-sensitive antidepressant-like effects of ketamine in the mouse forced swim test</td>
<td>Fitzgerald PJ; Watson BO</td>
<td>Paul Fitzgerald</td>
<td><a href="mailto:pafitzge@umich.edu">pafitzge@umich.edu</a></td>
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<td>Correlation structure of cortical activity on infraslow timescale across sleep states</td>
<td>Liu Tang-Yu. Watson Brendon</td>
<td>Tang-Yu Liu</td>
<td><a href="mailto:tangyuly@umich.edu">tangyuly@umich.edu</a></td>
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<td>The cannabinoid receptor agonist CP-55,940 dose-dependently impairs acquisition of sign-tracking behavior</td>
<td>Ghedi A. Cope LM. Fitzpatrick CJ. Froehlich BJ. Atkinson R. Barcelo CN &amp; Morrow JD</td>
<td>ALI GHEIDI</td>
<td><a href="mailto:acgheidi@gmail.com">acgheidi@gmail.com</a></td>
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<td>Increased Error-Related Brain Activity in Youth with Generalized Anxiety Disorder or Another Anxiety Disorder</td>
<td>Hanna GL Liu Y Rough HE Isaacs YE Ayoub AM Arnold PD Gehring WJ</td>
<td>Haley Rough</td>
<td><a href="mailto:hrough@umich.edu">hrough@umich.edu</a></td>
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<td>Are you looking at me? Neural oscillation abnormalities in schizophrenia during eye gaze discrimination</td>
<td>Grove TB; Lasagna C; Pamidighantam P; Deldin PJ; Tsu IF</td>
<td>Tyler Grove</td>
<td><a href="mailto:tylerg@med.umich.edu">tylerg@med.umich.edu</a></td>
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<td>Thyagarajan JS Garnett EO Chow HM Rutherford S Angstadi M Chang SE</td>
<td>Jaya Thyagarajan</td>
<td><a href="mailto:jayathya@umich.edu">jayathya@umich.edu</a></td>
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<td>Phaneuf C Cope L Gearhardt A Zucker R Heitzeq M Hardec J</td>
<td>Camille Phaneuf</td>
<td><a href="mailto:cphanuef@med.umich.edu">cphanuef@med.umich.edu</a></td>
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<td>Influence of Sex and Trauma Type on Resting State Functional Connectivity in Adolescents</td>
<td>Reda MR; Joshi S; Liberzon I</td>
<td>Mariam Reda</td>
<td>Undergraduate Student</td>
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<td>Rebecca Clive</td>
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<td>Kristen Palframan</td>
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<td>Jillian Hardee</td>
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<td>Jennifer Jagusch</td>
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<td>Diana Curtis</td>
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<td>Durga Attili</td>
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<td>Mariam Souweidane</td>
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<td>Oluchi Uju-Eke</td>
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Poster #: 1
Title: The Effects of Age on Cognitive Changes Following Hematopoietic Cell Transplantation
Authors: Stratton J Sylvia A Hoodin F Choi S Pawarode A Giordani B and Votruba K
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Trainee Status: Postdoctoral Fellow
Topic: Assessment

Abstract
The majority of patients (51-60%) undergoing hematopoietic cell transplantation (HCT) show cognitive deficits post-HCT, though most scores return to pre-transplant levels by one-year post transplant. Whether age affects the ability of patients to return to their cognitive baseline by one-year post-transplant, however, is not well understood. The current study investigated cognitive changes over the year post-transplant in older adults (age 60+) as compared to younger adults matched for education, gender, and transplant type (i.e., autologous versus allogeneic transplants). Participants were 37 patients undergoing HCT (21 autologous and 16 allogeneic transplant recipients). Mean age and education were 56.0 and 14.7 years, respectively. Patients were grouped based on age: < 60 (n = 20; mean age: 48.9) and ≥ 60 (n = 17; mean age: 64.5). Neuropsychological assessments were conducted before (T1) and 1-year after (T2) transplant and included the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Trail Making Tests, Grooved Pegboard, Mini Mental State Examination, and the Wisconsin Card Sorting Test. Chi Square tests indicated that the groups did not differ in the percentage of impaired scores across tests at T1 and T2 (i.e., scores ≤ 8th percentile). Independent t-tests indicated that the two groups differed in the amount of change from T1 to T2 on RBANS Story Memory (measuring verbal encoding), with older adults improving and younger adults declining. All other comparisons failed to reach statistical significance. Findings indicate that older adults show relatively similar cognitive trajectories as their younger counterparts following HCT. Older patients improved on RBANS Story Memory, possibly due to non-significant differences in baseline raw scores. Overall, results suggest that patients age 60 and older who are otherwise neurologically intact may not be at increased risk for worse cognitive outcome, based on age alone.
Abstract
The Neurobehavioral Symptom Inventory (NSI) is a 22-item self-report measure created to quantify the somatosensory, cognitive, and affective symptoms of Post-concussion Syndrome (Cicerone & Kalmar, 1995). Researchers used a subset of 10 NSI items, the Validity-10, to measure symptom overreporting (Vanderploeg et al., 2014). Using a sample of 45 veterans evaluated in a Polytrauma/TBI Clinic of a Midwest VA Healthcare System, we compared the Validity-10 versus the remaining NSI items (i.e., the Non-Validity-12) for how accurately they detect symptom exaggeration, with validity scales from the Minnesota Multiphasic Personality Inventory Second Edition – Restructured Form (MMPI-2-RF) as criterion measures. The Validity-10, Non Validity-12, and Total Score all strongly correlated with mean of the MMPI-2-RF validity scales (r = .65, .67, and .70, respectively), illustrating equivalency among the various NSI scores. Groups were created based on significant T score elevation on any MMPI-2-RF validity scale (i.e., F-r > 119, or Fp-r, F-s, FBS, or RBS > 99). ROC analyses demonstrated that areas under the curve were equivalent for NSI Total Score (.84, 95% CI: .70, .98), Validity-10 (.81, 95% CI: .68, .95), and Non-Validity-12 (.81, 95% CI: .66, .96) in detecting overreporting. These findings challenge the notion the Validity-10 has unique utility as an embedded symptom validity scale, and highlights the possibility that all NSI items could serve this function.
Title: Development and Validation of a Post-concussion Scale for the MMPI-2-RF

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Trainee Status: Postdoctoral Fellow

Topic: Assessment

Abstract
Post-concussive Syndrome (PCS) encompasses a cluster of somatic, cognitive, and affective symptoms that may result from a traumatic brain injury. Several standalone instruments quantify PCS, but they tend to lack indices for unusual reporting and symptomatic items tend to be keyed in only one direction. The Minnesota Multiphasic Personality Inventory Second Edition – Restructured Form (MMPI-2-RF) contains robust symptom validity and substantive scales but no scales are specifically devoted to PCS. We developed a PCS scale for the MMPI-2-RF with items covering the same symptoms as the Neurobehavioral Symptom Inventory (NSI), a commonly used PCS inventory. Our method for development was an iterative process, beginning with content ratings and proceeding to empirical refinement. Using a sample of 57 veterans who were evaluated in a Midwest VA Polytrauma/TBI Clinic, internal consistency was excellent for the total PCS scale (α = .94) with subscales ranging from marginal to excellent: Somatic (α = .66), Cognitive (α = .78), and Affective (α = .93). A subset sample (n = 42) was used to establish preliminary concurrent validity with the NSI. The total PCS scale significantly correlated with the NSI Total Score at .61. PCS subscales were significantly correlated with their NSI counterparts with coefficients: Somatic (.59), Cognitive (.48), and Affective (.69). This PCS scale for the MMPI-2-RF offers an efficient, embedded measure of PCS while supported by validity and substantive scales.
Abstract
Lingering neuropsychological deficits are observed in 33-41% of patients 12 months post-hematopoietic cell transplantation (HCT), however, it is unclear whether age contributes to such deficits. The current study aimed to understand whether age affects cognitive outcomes 1-year post-HCT. Participants were 78 patients undergoing HCT (40 autologous and 38 allogeneic transplant recipients), with mean age and education of 55 years (range = 18-77) and 14.8 years, respectively. Neuropsychological tests were administered before (T1) and 1-year after (T2) HCT. Tests included the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Trail Making Tests, and the Wisconsin Card Sort Test. After controlling for medical risk status, mixed model analyses indicated that for every 1 year increase in age, participants scores improved significantly on the RBANS Language Index by SS = 0.27, though this is likely not clinically meaningful. Age was not associated with cognitive changes in any other analyses. Findings indicate that age did not meaningfully affect cognitive outcomes 1-year post-HCT, suggesting that age alone may not increase the risk for cognitive deficits following HCT. These findings have clinical implications for HCT candidate selection and management.
Abstract
Since Dalmau et al.’s description of the first case series of anti-NMDAR encephalitis in 2007, there has been a robust increase in awareness of autoimmune encephalitis as a significant diagnostic consideration in the patient with acute onset altered mental status. Anti-NMDAR encephalitis is by far the most common non-infectious cause of encephalitis, yet there are many other causes of autoimmune encephalitis that garner less attention but are important to be mindful of in the course of diagnostic evaluation. Although there is a growing literature exploring the early identification, evaluation and management of autoimmune encephalitis, and specifically anti-NMDAR encephalitis, there is much we still do not know about autoimmune encephalitis. We present the case of a 16-year-old male of Asian descent with no previous medical, developmental or psychiatric history who developed a brief prodrome with subsequent psychosis, delirium and sudden onset seizure disorder. He rapidly decompensated and required intensive care, extended intubation and mechanical ventilation, use of multiple antiepileptics, considerable sedation with dexmedetomidine and midazolam. His workup was completely negative including a cerebrospinal fluid encephalitis panel. He was presumptively treated very early in his course with intravenous immunoglobulin and intravenous high dose steroids and received several courses of these therapies. He also received plasmapheresis given the severity of his presentation and persistence of seizure, agitation and altered mental status. The patient recovered full cognitive, psychiatric and physical functioning within 2 months of hospitalization and rehabilitation with mild impairments in memory, attention, processing speed and executive functioning. This case highlights the critical importance of having autoimmune encephalitis on the differential early and presumptively treating when suspicion is high for this disorder. In this patient’s case, his cerebrospinal fluid studies did not confirm autoimmune encephalitis, but his clinical course was highly suggestive and the decision to treat early and aggressively with immunosuppressive therapies may have dramatically improved the patient’s outcome. This case also demonstrates the importance of interdisciplinary care and the potential to manage severe agitation and psychosis with minimal psychotropic use with close and coordinated management of the underlying disease and environment, coupled with behavioral planning and supports.
Poster #: 6
Title: Sleep Correlates with Neurobehavioral Functioning Among Children with ADHD and/or Autism Spectrum Disorder
Authors: Ng R. Olvera W. Abdullah R. Heinrich K. Hodges E.
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Trainee Status: Postdoctoral Fellow
Topic: Child

Abstract
Youth with ADHD and autism spectrum disorder (ASD) are at risk for sleep disorders, which has implications for greater problem behaviors, anxiety, and attention difficulties in neurotypical children. This study examined whether sleep attributes (sleep behaviors, subjective fatigue, snoring, abnormal breathing) are associated with attention, social functioning, and internalizing/externalizing problems among patients with ADHD (N=36), ASD (N=59), or both diagnoses (ASD+)(N=72) based on parent ratings on a Pediatric Sleep Questionnaire, Conners 3, and the Child Behavior Checklist. Results show patients with ADHD experience greater fatigue, albeit no group differences were found in the rate of diagnosed sleep disorders, sleep behaviors, or disordered breathing. Sleep attributes were differentially associated with behavioral and psychosocial functioning across groups. Fatigue was associated with greater internalizing and externalizing concerns among the ADHD group (rInt= 0.32, rext=0.30), but globally correlated with inattention, hyperactivity/impulsivity, social dysfunction, and emotional maladjustment among patients with ASD alone (rs=0.24-0.53). In contrast, among the ASD+ patients, disordered breathing was mainly related to internalizing and externalizing problems (rInt= 0.32, rext=0.29). Findings highlight the unique effects of sleep disturbances on neurobehavioral functioning associated with ADHD, ASD, or ASD+, and the need to incorporate screening of sleep functioning for youth with neurodevelopmental disorders.
Abstract
Objectives: Somatic Symptom and Related Disorders (SSRD) is a common, yet complex condition in pediatric medicine that can result in significant loss of functionality, poor quality of life and negative outcomes. This study describes the outcomes of an interdisciplinary clinical practice guideline (CPG) for evaluation and management of pediatric SSRD in an academic children’s hospital. Specific outcome measures include hospital cost, time to mental health consultation, length of stay (LOS), and readmission rates. Methods: Data were collected via electronic health record review and PHIS cost estimates. The control group included patients admitted with a diagnosis of a SSRD in the year prior to protocol implementation (n=53). Patients admitted with a SSRD diagnosis for two years after CPG implementation were either in the time-control, non-protocol group (n=54) or the protocol group (n=55). Analysis included comparison of demographics, cost, LOS, number of procedures, readmission rate and delay to mental health consultation among the three groups. were compared using unpaired t-tests or non-parametric tests. Results: Cost estimations were significantly less in both the protocol and time-control groups when compared to pre-protocol costs ($8,926 and $12,695 vs. $60,369; p<.0001). LOS was also significantly less in the protocol vs. control (p=.04). Conclusions: Use of an interdisciplinary CPG significantly reduced estimated costs and LOS for children admitted with SSRDs. Cost reductions were also significant in the non-protocol post-implementation group, which suggests an institutional culture-shift for inpatient pediatric SSRD management. Further analysis is needed to determine where costs were most reduced, whether these findings are sustainable over a longer period of time and if there are any biases in care provision in protocol vs non-protocol groups. This study supports standardization of inpatient pediatric SSRD care as a means of reducing healthcare utilization in a population of youth that are often high utilizers of care.
Abstract
Background: Assessment of risk factors for children that increase their risk of developing future behavior problems poses a unique clinical challenge in the field of child and adolescent psychiatry. Maternal risk factors (e.g. income and marital status) have also been shown to heighten their children's risk for the development of psychopathology. Sleep plays a critical role in behavior regulation, is affected in depression, and is influenced by a wide range of demographic and psychological variables. The purpose of this study was to examine the relationship between maternal sleep and the presence in their children of reported symptoms relating to anxiety, depression, and behavior regulation.

Methods: Children (n=59, aged: 4-9 years (M=6.069, SD=1.006, 59.3% female) and their mothers were sampled from clinic and community settings and were administered questionnaires. Maternal sleep quality was assessed by the Pittsburgh Sleep Quality Index, which captures both numeric and self-reported categories relating to an individual's perception of their sleep. Child anxiety and depression were assessed via parent-reported Child Behavioral Checklist (CBCL). Maternal depression symptoms were assessed with the Beck Depression Inventory (BDI). Associations between these measures were analyzed by ANOVA with post-hoc analysis and linear regression as appropriate.

Results: A statistically significant difference was observed in the mean child CBCL scores when children were sub-set into maternal categories of self-reported days of dysfunction due to sleepiness over the past month. Mean child CBCL T-score domains with statistically significant differences were: attention problems (F= 4.935, p= 0.004), depression problems (F= 3.073, p= 0.035), ADHD (F= 4.422, p= 0.007), oppositional defiant (F= 2.865, p= 0.045), and total t-score (F= 3.073, p= 0.035). Maternal mean DBI scores were also statistically significantly different when grouped by days of maternal dysfunction due to sleepiness (F= 9.791, p< 0.001). There was no relation between these CBCL categories and maternal DBI scores.

Conclusion: Maternal self-reported days of dysfunction due to sleepiness may potentially increase risk for their children to develop further psychopathology independent of mothers' depression symptomatology. These findings highlight the need for broader assessment clinically of children's environments with additional focus on maternal function given the potential impact on their children's functional outcomes.
Abstract
Background: Accurate detection and diagnosis of mild cognitive impairment (MCI) is imperative to identifying the precursors of neurodegenerative disease and developing early interventions. With MCI diagnostic criteria requiring evidence of objective cognitive impairment, there is a need for neuropsychological measures that have high accuracy and diagnostic differentiation from normal aging. This study examined (1) diagnostic classification accuracy of normal aging from MCI (amnestic single-domain MCI, amnestic multi-domain MCI) using the NIH Toolbox Cognition battery, and (2) which NIH Toolbox Cognition subtests best differentiate groups.
Methods: Participants included 134 cognitively normal (Age M: 70.3, SD: 6.98), 16 single domain amnestic MCI (Age M: 73.7, SD: 8.47), and 35 multi-domain amnestic MCI (Age M: 71.9, SD: 7.14) older adults. Diagnosis was made via consensus according to National Alzheimer's Coordinating Center's Uniform Data Set criteria. Stepwise discriminant function analyses (DFAs) were conducted with Toolbox demographically-adjusted standard scores as predictors of group membership. Diagnostic comparisons were made for (1) normal aging vs. single domain amnestic MCI and (2) normal aging vs. multi-domain amnestic MCI. Data were examined for significant neuropsychological predictors of diagnostic category and for diagnostic accuracy. Results: The Picture Sequence Memory Test was selected for statistical optimization in the stepwise DFA for single domain amnestic MCI vs. cognitively normal participants and resulted in a significant discriminant function, (Wilks’ $\lambda = .924$, $\chi^2 = 11.623$, $p = 0.001$) with successful classification of individuals as normal (100%) and amnestic MCI (0%). List Sorting Working Memory, Pattern Comparison Processing Speed Test, and Oral Reading Recognition were selected to discriminate cognitively normal participants from those with multi-domain amnestic MCI and was a significant discriminant function, (Wilks’ $\lambda = .738$, $\chi^2 = 50.320$, $p < 0.001$). As a result of this function, 94.1% of cognitively normal and 40.5% of multi-domain amnestic MCI participants were correctly classified. Conclusions: Episodic memory performance on NIH Toolbox Cognition best classified normal aging older adults and was not as accurate with classification of single domain amnestic MCI. Classification improvement was observed in the multi-domain amnestic MCI subgroup with the use of Toolbox measures of processing speed, working memory, and reading ability.
Abstract
Objective: Falls comprise the majority of safety incidents reported in hospital settings and are associated with several negative outcomes (e.g., extended length of hospital stay, increased morbidity and mortality, higher healthcare costs). Experiencing a fall can increase risk for subsequent falls and those with one vs. multiple falls have different fall risk profiles. Falls are particularly frequent among older adults in the post-acute care (PAC) setting, and preliminary research suggests that repeat fallers may fall earlier during their PAC stay. However, less is known about the factors upon admission that can differentiate those who are at risk for repeat falls. We sought to determine whether the Mini-Mental State Exam (MMSE) upon PAC admission might differentiate these two groups. We hypothesized that individuals with low MMSE scores would be more likely to fall multiple times during their PAC stay. Participants and Methods: Retrospective medical record review was completed for 300 Veterans who experienced a fall while admitted to a Veterans Administration Hospital Community Living Center post-acute care unit (CLC-PAC). Individuals who completed cognitive screening during their admission process and had available MMSE total scores were included in analyses; individuals with delirium or severe or progressive dementia were excluded. The final sample (n=139) was divided into single (n=104) and multiple (n=35) fallers. Results: Logistic regression analyses showed that after controlling for age, lower MMSE scores upon admission were associated with greater likelihood of recurrent falls, with the likelihood of recurrent falls increasing by 19% for every one-point decrease on the MMSE (p < .05). Conclusion: MMSE scores appeared highly sensitive to risk for recurrent falls after controlling for age. Future work is needed to determine other factors upon admission that distinguish single and repeat fallers and to identify interventions aimed at reducing multiple fall risk.
Abstract
Introduction. 15 million Americans serve as family caregivers (CG) for a person with age-related dementia, yet how these family members provide care is understudied. Studies done by Corcoran (2011) and Hong and colleagues (2013) each categorized family CG styles in distinct contexts. Looking to reinforce prior work with a mixed-methods approach, the current study focuses on a qualitative analysis of what care strategies CG use and how they make up distinct caregiving styles. It is posited that CG will use accepting/understanding versus non-accepting/helpless and more flexible/nonlinear versus rigid/linear strategies to define these styles. Methods. Participants include 100 adults who provide care for a friend or family member with a doctor’s diagnosis of dementia. During the in-person baseline interview, participants were asked to describe a care challenge they’d been having recently, why it was challenging, and how they handled or responded to the challenge. The qualitative data will be coded to develop interrelated themes of caregiver management. A caregiving management styles typology will be classified and caregivers will be categorized to a particular caregiving style. Results and Conclusions. The data is currently being collected and analyzed. Based on initial review, study researchers anticipate caregivers will have management styles that display care strategies along dimensions of accepting/understanding or non-accepting/helpless, and more flexible/nonlinear or rigid/linear behaviors. Thus CG styles might be classified into four categories: controlling, adaptive, authoritarian, or unprepared, displaying variations of these dimensions. Categorizing caregiving styles will provide a basis to determine which styles could be at risk for distress and how interventions might be individualized to caregiver style.
Abstract
Introduction: Cognitive Behavioral Therapy for insomnia (CBT-I) is an evidence-based non-medicication treatment for chronic insomnia. Although highly effective, there are limited data available to support modalities of treatment other than face-to-face. In addition, few studies have evaluated factors involved in treatment outcomes. In an ongoing randomized controlled non-inferiority trial, we compared the efficacy of face-to-face and telemedicine-delivered CBT-I for the first 30 participants and evaluated the role of sleep-related cognitions in treatment outcome.

Methods: 30 adults with chronic insomnia (22 women, mean age 51.6 ± 15.4 years) were recruited through advertisement and insomnia clinics and screened for disqualifying sleep, medical, and mental health disorders. Following screening, eligible participants were randomized to CBT-I delivered via face-to-face (n=13) or telemedicine (n=17). CBT-I was delivered in 6 weekly sessions by a trained therapist. Participants completed the consensus sleep diaries throughout treatment and measures of daytime functioning before and after treatment.

Results: There were no Condition by Time interactions for any of the sleep or daytime variables. The main effects of Time were evident for all sleep diary measures: sleep latency (F=25.1, df=1,28, p<.001); wake after sleep onset (F=37.0, df=1,28, p<.001); total sleep time (F=7.9, df=1,28, p<.009); and sleep efficiency (F=62.7, df=1,28, p<.001). Similarly, significant pre-to post-treatment improvements were seen in fatigue (MFI-20 General Fatigue: 13.7 ± 4.8 to 10.3 ± 3.6, p<.001), depression symptoms (PHQ-9: 9.2 ± 4.8 to 4.1 ± 3.6, p<.001), anxiety symptoms (GAD-7: 4.6 ± 4.0 to 2.3 ± 2.2, p<.001), DBAS scores (DBAS: 5.1 ± 1.8 to 2.6 ± 1.6, p<.001), and overall functioning (WSAS: 11.9 ± 10.8 to 7.1 ± 7.8, p<.001). Changes in DBAS scores did not differ between insomnia remitters (n=15) and non-remitters (n=15). Conclusions: Preliminary findings suggest that CBT for insomnia is equally efficacious whether delivered via face-to-face or telemedicine. Pre- to post-treatment improvements in both conditions were found on sleep and daytime measures related to health, well-being, and sleep-related beliefs. Changes in sleep-related cognitions improved in both conditions and were not significantly associated with treatment response. Recruitment is continuing to ensure adequate power for the analyses and to evaluate sustainability over 12 weeks.
Abstract
Objectives: Over the last decade, mental health (MH) related emergency department (ED) visits have significantly increased. Majority of the current data is focused on adolescents and adults and there is limited information on children younger than 12 years. Our study’s objective was to determine utilization patterns of psychiatric emergency services by children under 12 years and associated clinical factors. Methods: We conducted a 6 year retrospective study of children <12 years of age who presented to a psychiatric emergency service (PES) between July 2012 to June 2018. We divided visits into initial visits (n=2013) and most recent visits (n=360). Demographic variables (age, sex, insurance, adoption status), visit month/year, clinical diagnosis, lifetime adverse events (physical abuse, sexual abuse, bullying), history of self harm, referral source, discharge disposition and access to guns were documented for each visit. We performed a chi square analysis to identify association between admission and a visit feature. This study was conducted at the University of Michigan Health System and approved by the institutional review board. Results: For initial visits, mean age of the cohort was 9.99 years, 57.9% were male, 41.08% were publicly insured and 12 % were adopted. Most common diagnosis were attention deficit hyperactivity disorder (ADHD), major depressive disorder (MDD), anxiety disorder and mood disorder. Close to half of the patients were on a psychotropic, 32.07 % reported lifetime self harm, 20.25 % reported bullying and 16.8 % had access to guns. Further analysis revealed the following: 1) having certain MH diagnosis, a MH provider (?2 (1) = 34.231, p<.001), any type of self harm (?2 (1) = 50.302, p<.001) and current psychotropic use (?2 (1) = 28.378, p<.001) were associated with inpatient hospital admission. Number of children who spent greater than 9, 13 or 24 hours in PES, close to doubled from 2012 to 2018. Conclusions: This is one of the first studies, which sought to investigate utilization patterns in a psychiatric emergency service for children under the age of 12 years. Our study mirrors national trends of an increase in MH related ED visits and that patients with MH concerns are waiting longer periods of time.
Poster #: 14
Title: PTSD treatment trajectories among veterans with military sexual trauma and comorbid substance use disorders
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Trainee Status: Postdoctoral Fellow
Topic: Health Services

Abstract
Veterans reporting experiences of military sexual trauma (MST) endorse higher rates of posttraumatic stress disorder (PTSD) and substance use disorders (SUD) compared to the general Veteran population (Kimerling et al., 2007). Comorbid PTSD and SUD is associated with poorer treatment outcomes, including dropout (Schafer & Najavits, 2007). The current study examined how SUD status influenced PTSD symptoms and attrition among 158 Veterans initiating PTSD treatment for MST. Individuals with SUD (n = 37) were more likely to prematurely drop out compared to non-SUD peers, \( \chi^2(1) = 7.35, p < .01 \). Specific to attrition speed, Kaplan-Meier survival analyses revealed individuals with SUD demonstrated a more rapid pace of premature drop than their non-SUD peers, \( log \chi^2(1) = 8.19, p < .01 \). Completion and attrition rates for minimally adequate care (MAC; i.e., completing at least eight sessions) also differed by SUD status, \( \chi^2(1) = 6.24, p < .05 \). SUD individuals were more likely to drop out before receiving MAC compared to non-SUD peers. Furthermore, SUD individuals demonstrated a more rapid pace of premature drop than non-SUD peers before receiving MAC, \( log \chi^2(1) = 6.63, p < .01 \). Further analyses are planned to examine the impact of SUD status on baseline PTSD severity and how PTSD symptom change during treatment influences attrition rates. Treatment implications and future research directions will be discussed.
Title: Feasibility of Integrating the Saferteens Program in Primary Care
Authors: Cannon B.K. Philyaw-Kotov M.L. Wernette G.T. Eisman A. B. Sigel E.J. Carter P. M. Cunningham R. M. Bourque C. Walton M.A.
Contact: Brittnie Cannon | brittnic@med.umich.edu
Trainee Status: Injury and Violence Prevention

Abstract
Background: Given the host of poor outcomes associated with violence, there is a need for effective violence prevention interventions focused on youth. Saferteens is an evidence-based, violence prevention intervention featuring a 30-minute therapist session and 8-weeks of text message boosters. Although most adolescents use primary care, violence interventions like Saferteens have yet to be systematically integrated into this setting. Purpose: Using the Replicating Effective Programs framework, we customized Saferteens for optimal delivery in primary care. REP includes 3 primary components: program packaging, training and technical assistance. The aim of this quasi-experimental study is to explore the effectiveness of a tailored Saferteens-PC (Primary Care) program in community health clinics. Methods: In June 2018 – June 2019, a total of 100 youth (ages 14-18) will be recruited from two local primary care clinics serving disadvantaged populations. Screened patients are eligible if they report past-year aggression and provide informed consent/assent. Enrolled participants will complete baseline and 3-month follow-up surveys and receive either the Saferteens-PC intervention or usual care resource brochure. Results: Key preliminary findings will highlight the process for customization and intervention delivery, as well as individual characteristics such as past-year aggression prevalence. Our findings will speak to the feasibility of implementing the Saferteens-PC program in primary care settings.
Abstract
Cognitive complaints and functional deficits are common in Bipolar Disorder (BP). The Barcelona Bipolar Disorder Programme (Martínez-Arán et al., 2011) developed a 21-session functional remediation intervention for individuals with bipolar disorder (BP) to help treat functional impairment by teaching interactive ecological neurocognitive techniques to improve attention, memory, and executive function. In a large Spanish study recruiting primarily individuals with both significant functional impairment and neuropsychological deficits, the remediation demonstrated improvement in functional outcomes and specific neurocognitive domains. We adapted this program and conducted a feasibility intervention with a sample of American patients with BP at the University of Michigan. This current set of analyses investigated the influence of the intervention on neurocognition following the 21 sessions. Participants with BP (n = 30) were enrolled in the intervention. All participants were administered a brief neuropsychological battery focused on memory, executive functioning, attention, and processing speed before the intervention and 13 completed the test battery post intervention. Participant recruitment and retention were problematic. Analyses showed no significant difference in neuropsychological performance between baseline and post-intervention; however, most tests did trend for slightly improved post-remediation performance. Overall, findings from this small pilot project did not show significant cognitive benefit from the functional remediation intervention. However, we had a small sample size and inconsistent subject participation. Further refinement of the intervention may be helpful to increase participation and efficacy in an American sample.
**Poster #:** 17  
**Title:** Data-derived Subsyndromal Classes of Bipolar Disorder Show Sparse Evidence of Neuropsychological Differences  
**Authors:** Elena M. Lamping Ariana Tart-Zelvin Amy L. Cochran Scott A. Langenecker Joel S. Peterman David F. Marshall Melvin G. McInnis Daniel B. Forger & Kelly A. Ryan  
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**Topic:** Mood  

**Abstract**  
Researchers previously demonstrated the utility of objectively classifying Bipolar I Disorder (BPI) patients using longitudinal mood course through Bayesian nonparametric hierarchy with latent states and patient-specific mood dynamics (Cochran et al., 2016). The same participants (n=202) were administered a neuropsychological battery. Analyses offered insignificant differences in cognition between BPI subtypes, and reaffirmed significant cognitive differences between BPI patients and those not diagnosed with BP or other mental health disorders (comparison group; CG). An exception of Depressive protective factors in auditory memory and emotion perception tasks was observed when different groups were compared. Future research should expand upon these protective factors.
**Poster #:** 18  
**Title:** Relationship between burden of psychotropic medications and cognitive performance in a large sample of individuals with bipolar illness.  
**Authors:** Kirby M. Lamping E. Munson B. Marshall D. Pester B. McInnis M. Ryan K.  
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**Trainee Status:** Undergraduate Student  
**Topic:** Mood

**Abstract**  
The contribution of medication to cognitive impairment in bipolar illness is complicated to control for and results in mixed findings. There seems to be an increase in risk for medication-associated cognitive side effects with polypharmacy and higher dosages (Balanzá-Martínez et al., 2010). We used an adopted protocol often seen in the literature to assess the influence of total psychotropic medication use on cognition (Sackeim, 2001). We predicted that those with greater medication usage (greater burden of psychotropic medications) would show poorer performance on cognitive tasks, notably in speed-related tasks. Individuals with bipolar illness (n=397) from the Prechter Longitudinal Study were administered a neuropsychological test battery and medications were recorded. A single medication variable was created reflecting the quantity, duration, and dosage of psychotropic medication (e.g., antidepressant, antipsychotic, mood stabilizer, etc.) for each individual. This resulted in a summed composite score: medication load. Correlational analyses between medication load and neuropsychological test performance showed statistically significant correlations for the Purdue Pegboard trials, the Rey Osterrieth Complex Figure learning and recall trials, and the Trail Making Test Part B. However, partial correlations between medication load and neuropsychological performance, controlling for current depressive symptoms, were not significant. In sum, findings show a significant negative effect of medication burden on fine motor dexterity, timed visuomotor sequencing, and visual memory, but effects may be better accounted for by current depressive symptoms. Depressive symptoms, therefore, may have a greater contribution to cognitive performance than polypharmacy.
Title: Are deficiencies in emotion perception related to health-related quality of life in bipolar disorder?

Authors: Brontë C. Munson Elena M. Lamping Madison F. Kirby Lillian Arnett Rachel Lee Rebecca E. Easter David F. Marshall Melvin G. McInnis Kelly A. Ryan

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Trainee Status: Undergraduate Student

Topic: Mood

Abstract
Difficulties with emotional perception, both visually and audibly, is a common symptom in bipolar disorder (Hoertnagl et al., 2019). More broadly, being able to correctly identify emotion in others is vital to successfully navigating social interactions and maintaining relationships. Thus, this ability is important to our well-being, including health. To better understand how emotion perception is related to the health of individuals with bipolar disorder, we examined this relationship in a sample of 799 individuals with all types of Bipolar Disorder from the Prechter Longitudinal Study. Participants were administered a neuropsychological battery at study entry which included measures of auditory and visual emotion perception (Emotion Perception Test and Facial Emotion Processing Test: EPT and FEPT). They were also administered measures of mood (depression and mania) and they completed the SF-36, a health-related quality of life self-report measure. Analyses found no significant association between the EPT, FEPT, depression, anxiety, or the SF-36 (PCS and MCS). Mood state at time of testing, as well as gender, IQ, and age were not significantly related to performance on either emotion perception test. These findings do not show a clear relationship between emotion perception and self-reported health related-quality of life. Future research should investigate ways in which the deficiencies seen in emotional processing disrupts the lives of those living with bipolar disorder.
Poster #: 20
Title: Performance validity testing among individuals with various affective disorders
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Trainee Status: Postdoctoral Fellow
Topic: Mood

Abstract
Research suggests cognitive impairments associated with various affective disorders may be impacted by testing effort (Lieberman et al., 2016; Moritz et al., 2017). As part of an ongoing longitudinal study of individuals with affective disorders, we compared a mixed group of individuals with various affective disorders including bipolar (BP) I, BP II with recurrent depression, Schizoaffective BP, BP NOS, and major depressive disorder (N = 392) and individuals with no history of mental health disorder (N = 112) on commonly administered performance validity measures, including the Test of Memory Malingering (TOMM) and the California Verbal Learning Test forced choice (CVLT FC). There were no significant differences in performance between the mixed affective and healthy groups on the TOMM Trial 2 (p = .07) or on the CVLT FC (p = .07). Thus, individuals with affective disorders perform similarly to healthy individuals on measures of performance validity, suggesting that cognitive impairments are associated with other factors rather than insufficient effort. As such, cognitive impairments and related factors associated with affective disorders should serve as focuses for research and clinical intervention.
Bipolar I Disorder (BP) is a serious, recurrent mood disorder that is characterized by alternating episodes of mania and depression that affects nearly 5.7 million Americans. Considerable evidence suggests that changes in the development and function of several neural subtypes may be responsible for these shifts in mood state, however the underlying mechanisms remain unknown. There is an interplay in communication and network assembly governed by inhibitory GABAergic interneurons and excitatory glutamatergic neurons which modulate neuronal excitability during cortical differentiation. However, little is known about how these populations contribute to the BP phenotype. In the current investigation we have derived stem cells from BP patients who share a single nucleotide polymorphism, rs1006737, in the L-type calcium channel gene CACNA1C known to be associated with BP. We generated four independent lines of both C and BP human induced pluripotent stem cells (hiPSC) and differentiated them to GABAergic and glutamatergic neurons using dual Smad inhibition followed by exposure to dorsal or ventral patterning factors, harvesting cells at sequential stages of differentiation. GABAergic neural progenitor cells (NPCs) were > 90 % positive for the ventral marker Nkx2.1 and yielded > 80 % GABA+ neurons that co-express mature neuronal markers SV-2, Map2, and NeuN protein. GABAergic neurons robustly express GAD67 and SLC12A5 mRNA, indicative of a switch to an inhibitory state. Glutamatergic NPCs were > 90% Pax6, Nestin and FoxG1 positive while continued neuronal differentiation yielded > 90 % vGlut2 and vGlut1 positive neurons that co-express the mature neuronal marker NeuN. Interestingly, preliminary data suggests that BP glutamatergic NPCs display a premature differentiation phenotype as compared to their Control counterparts in that glutamatergic NPCs express significantly more EMX2, FOXG1 and CACNA1C mRNA. Electrophysiology, live cell calcium imaging, neurite outgrowth analysis, and RNA-seq of C and BP GABAergic and glutamatergic neurons is in progress. Understanding the developmental and functional differences in BP GABAergic and glutamatergic cortical neurons may help identify novel therapeutic targets to treat bipolar disorder. Support MH106434
Abstract
Although literature is mixed, most studies demonstrate that individuals with a more chronic course of bipolar disorder (BD) exhibit lower performance on neuropsychological testing when compared to those individuals with BD with a more remitting mood course. Many of these studies are limited due to small sample sizes, homogeneous samples, and restricted use of neuropsychological tests. The current study examined neurocognition and chronicity of mood course in one of the largest samples of individuals with BD who are part of the Prechter Longitudinal Study for BD. The sample is comprised of individuals with BD who were deemed to have a remitting mood course by study clinicians and a best estimate process (n=253), and those with a more chronic course of mood symptoms (n=475). We compared the means of those chronically ill with those with remitting mood symptoms on eight cognitive test domains and found no significant group differences. We also compared the two groups on clinical illness features (e.g., years with BD, number mood episodes) and found that those with a chronic mood course were significantly less educated, their illness had greater impact on overall life functioning, and had more mood episodes per year with the illness. These findings indicate that those with a chronic mood course are more impacted in life functioning, including education, compared to those with more remitting mood symptoms, but they do not exhibit poorer neuropsychological performance. These findings also point to a trait-life feature of neurocognitive dysfunction in BD, regardless of chronicity of mood symptoms.
Poster #: 23
Title: The Impact of Completing Medication Reconciliation and Depression Treatment History in an Outpatient Depression Clinic
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Topic: Mood

Abstract
Objectives: To enhance depression care by improving medication information available prior to initial patient consultations. Experimental Design and Sample: Single-center, with intervention delivered to all new patient referrals at a tertiary care depression clinic. Trained pharmacy students utilizing a standard script prior to the first consultation visit conducted a medication review and depression treatment telephone assessment. Results: From 225 individuals contacted once by phone in the week prior to scheduled initial consultation, 141 (62.7%) were reached and 113 (50.2%) completed the full phone assessment. An average of 4–5 medication discrepancies were identified per respondent, of which one-third were considered potentially clinically significant and more than 96% of patients having at least one reported discrepancy. Individuals who completed the call were also more likely to attend the initial consultation. In the medical record, 55 of the 106 (51.9%) pharmacy notes were incorporated in the clinical assessment note. On survey, clinicians reported that access to the pharmacy note saved clinician time, with all prescribing clinicians indicating the pharmacy note significantly influenced subsequent medication recommendations. Conclusions: Telephone assessments conducted by pharmacy students prior to an initial depression clinic consultation was associated with higher consultation attendance, identified a large number of medication discrepancies, were successfully reviewed and received by clinicians, potentially saved clinician time, and influenced subsequent medication prescribing.
Abstract
Bipolar disorder is a highly prevalent brain disease that affects approximately 1-2% of the general population worldwide. ANK3, which encodes the ankyrin-G protein, is one of the most significant genes linked to bipolar disorder through genome-wide association studies (GWAS); however, the functional effects of bipolar disorder-associated ANK3 variants on brain circuitry are not known. GABAergic circuits are critical for the synchronization and higher order function of brain networks. Defects in this circuitry are linked to neuropsychiatric diseases, including bipolar disorder, schizophrenia, and autism. Previous work in cultured neurons has shown that ankyrin-G plays a key role in the regulation of GABAergic synapses on the axon initial segment and somatodendritic domain of pyramidal neurons where it interacts directly with the GABAA receptor associated protein (GABARAP) to stabilize GABAA receptors. Here, we generated a knockin mouse model expressing a mutation that abolishes the ankyrin-G/GABARAP interaction (Ank3 W1989R) to understand how ankyrin-G and GABARAP regulate GABAergic circuitry in vivo. Coronal brain sections from homozygous Ank3 W1989R mice showed a striking reduction in forebrain GABAergic synapses. In addition, whole-cell patch clamp recordings of miniature inhibitory postsynaptic current (mIPSCs) revealed a decrease in both the frequency and amplitude of GABA-mediated currents. Ank3 W1989R mice also displayed smaller kainate-induced gamma oscillations, suggesting disruptions in network synchronization. Moreover, Ank3 W1989R pyramidal neurons demonstrated reduced dendritic spine density and shorter axon initial segments likely as compensatory mechanisms to attempt to maintain homeostasis of neuronal excitability. Finally, we identified this variant, ANK3 W1989R, in a family with bipolar disorder, suggesting a potential role of this variant in disease. Our results highlight the importance of ankyrin-G in regulating forebrain circuitry and provide novel insights into how ANK3 loss-of-function variants may contribute to bipolar disorder in human patients.
Abstract
Results from parental self-report of anxiety and disorganized caregiving can be measured alongside childhood anxiety to determine if a relationship exists between a parent’s current experience and their child’s level of anxiety. Previous research has explored the relationship between childhood psychopathology and adult measures of anxiety and disorganized caregiving. Multiple studies have noted a relationship between parent anxiety and childhood anxiety, while disorganized caregiving has been shown to be more related to a child’s development of externalizing disorders. Moms participating in the Bonding between Mothers and Children research project (BMAC) completed the Beck Anxiety Inventory (BAI) to measure parent anxiety, the Caregiving Helplessness Questionnaire (CHQ) to measure disorganized caregiving, and the Multidimensional Anxiety Scale for Children (MASC) to measure their child’s anxiety. This sample included 45 mothers and 45 children (6.94 +/- 1.36, 28). No subscale of the MASC was found to be significantly correlated with the BAI of the parent, while the CHQ subscale of Mother Helpless was significantly correlated with the MASC subscale of Anxious Coping (r(45) =-.404, p=.006). Relationships amongst these measures demonstrate that contrary to previous research, in this sample, parental self-rating of disorganized caregiving has a greater relation to the anxiety of a child than does the report of their own anxiety. In addition to intervening with a child’s anxiety directly, it may be important to understand how to support parents with the unique skills of parenting, particularly when their children are anxious. Longitudinal work will need to determine whether disorganized parenting predicts the onset of anxiety in children over time, or if the reverse occurs. In theory, interventions designed to empower parents to achieve confidence in parenting may help to reduce the presence of childhood anxiety.
Abstract
Objectives: Neuroleptic malignant syndrome (NMS) is an uncommon condition associated with significant morbidity and mortality. Data on treatment interventions is limited. In this case series, we sought to describe all NMS cases requiring electroconvulsive therapy (ECT) from a large academic institution over a nearly two-decade period. Methods: We retrospectively identified all patients with NMS who were treated with ECT over a 17-year period at the University of Michigan. Patients were included in the study based on chart review utilizing the International Consensus Diagnostic criteria for NMS. Data was collected related to clinical findings, treatment course, and response to ECT. Results: We identified 15 patients meeting inclusion criteria. Most patients had neurocognitive or schizophrenia spectrum disorders and developed NMS after exposure to multiple antipsychotic drugs. All patients received bitemporal ECT after failed pharmacotherapy for NMS. ECT was well tolerated and resulted in a remission rate of 73.3% (n=11). Patients showed early initial response to ECT (mean of 4.2 treatments), but an average of 17.7 treatments was necessary to minimize recurrence of catatonic signs. One patient died after interruption of the index course of ECT because of severe infection and another was discharged to hospice care after limited response. These cases highlight the lethality of NMS and its complications despite aggressive treatment measures. Conclusions: Bitemporal ECT was well tolerated and effective in treating NMS refractory to pharmacotherapy. We suggest that ECT be considered early in cases of NMS that are refractory to pharmacological interventions, especially if the underlying condition is also responsive to ECT.
Title: Lithium partially restores presynaptic GABAergic signaling deficits in the Ank3 W1989R mouse model

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Trainee Status: Postdoctoral Fellow

Topic: Pharmacology

Abstract
Multiple genome-wide association studies (GWAS) have shown that the ANK3 gene is one of the most significant risk loci for bipolar disorder (BD). The ANK3 gene encodes ankyrin-G, an adaptor protein that is involved in the formation of the axon initial segment (AIS), nodes of Ranvier, and GABAergic synapses. Recently, we have generated a mouse model with a W1989R mutation in Ank3, which abolishes the interaction between ankyrin-G and GABARAP necessary for ankyrin-G-dependent stabilization of postsynaptic GABA receptors. We have shown that the Ank3 W1989R mice have striking reductions in inhibitory currents in cortex and hippocampus compared to control mice resulting in increases in the intrinsic excitability of pyramidal neurons. Importantly alterations in inhibitory signaling have also been seen in BD patients. Consistent with this idea, we recently identified a BD family carrying the ANK3 W1989R variant in our patient cohort in the Heinz C. Prechter Bipolar Research Program at the University of Michigan. The proband is a Caucasian male with type I BD characterized by recurrent mania and depression with a successful treatment with lithium. In these studies, we have treated Ank3 W1989R mice for 21 days with chow containing lithium carbonate until serum levels reach the therapeutic range and used voltage clamp and current clamp whole cell electrophysiology recordings to measure inhibitory postsynaptic currents in cortical and hippocampal pyramidal neurons. Our results showed a 21 day lithium treatment partially reverses the defect in spontaneous inhibitory post-synaptic current (sIPSC) frequency, while not significantly affecting sIPSC amplitude. Since sIPSC frequency is a measure of presynaptic GABA release probability, we hypothesize that lithium is increasing activity of parvalbumin-positive GABAergic interneurons. In summary, these results suggest that the ANK3 has an important role in the control of cortical and hippocampal neuronal excitability and dysfunction of this pathway may contribute to the imbalance of circuits seen in BD patients. In addition, our work suggests that lithium may act to increase the presynaptic GABA release in our model, perhaps resulting from increased excitability of parvalbumin-positive interneurons.
Poster #: 28

Title: Alpha-tocopherol and polyunsaturated fatty acids treatment effects on quality and maturation of cultured human neurons derived from induced pluripotent stem (hIPS) cells

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Topic: Pharmacology

Abstract

Utilization of hIPS cells derived neurons as models of neurological and neuropsychiatric disorders has been growing rapidly in recent years. Existing differentiation protocols generate, at least in terms of expression of appropriate neuronal markers, neurons that appear to be relatively mature. However, mature electrophysiological properties of those neurons and their ability to reproduce firing behavior observed in tissue from both rodent or human brains have been difficult to obtain. Both passive and firing active properties of IPS cells derived neurons e.g.: high input resistance, depolarized resting membrane potential, and wide action potentials (APs) suggest immature developmental state. The relatively low fraction of mature IPS cells derived neurons in 2D cultures likely contributes to the high variability and low reproducibility of electrophysiological studies performed in these model systems. To overcome these challenges, we have begun to test the impact of factors known to be crucial for proper brain development and which can be easily incorporated into established cell culture protocols. Here we present data using tocopherol, a potent antioxidant demonstrated to enhance efficiency of neural stem cell differentiation in rodent cultures, and polyunsaturated fatty acids (FAs) critical for the fetal brain development. Human NPCs were derived from IPS cells via dual inhibition of BMP and TGFβ signaling using Dorsomorphin and SB431542. Neuronal differentiation was induced by culturing NPCs in complete BrainPhys supplemented weekly with α-tocopherol (α-t) and various FAs. Electrophysiological recordings were made after 8 weeks of differentiation. We have tested the following treatments: cont + α-t; + α-t + docosahexaenoic acid (DHA); + α-t +eicosapentaenoic acid; + α-t +arachidonic acid, and + α-t +oleic acid. To minimize bias, the experimenter performing recordings was blind to the culture conditions. We examined both passive properties and ability of neurons to fire evoked individual as well as repetitive APs and the presence of synaptic activity. The success rate defined as the fraction of recorded cells with stable seals over time and ability to fire repetitive APs was highest in the cont + α-t and lowest under control conditions. Most treatments with FAs appear to improve quality of recordings in comparison to controls with addition of DHA resulting in the highest proportion of spontaneously active neurons. Interestingly, the consistent synaptic activity was the highest in α-t alone. Our results provide a strong evidence that culture enrichment with α-t improves the quality of electrophysiological data from IPS cells derived neurons.
Abstract
Ankyrins are a family of scaffolding proteins that organize ion channels, transporters, and cell adhesion molecules to the plasma membrane necessary for neuron excitability and function. One family member, ankyrin-G (ANK3), clusters the ion channel NaV1.2 (SCN2A) to the axon initial segment (AIS) early in development which is the site of action potential generation. Late in development, NaV1.2 is replaced with NaV1.6 at the AIS and NaV1.2 localizes to the dendrites and modulates excitability; however, the mechanisms that underlie NaV1.2 dendritic localization are unknown. Another ankyrin family member, ankyrin-B (ANK2), is expressed in the soma, dendrites, and distal axon. I hypothesize that ankyrin-B directly interacts with NaV1.2 in the dendrites of mature neurons to maintain proper neuronal excitability. To test this hypothesis, I overexpressed the NaV1.2 II-III loop, the known ankyrin binding region, in HEK293T cells. Using immunoprecipitation, I showed that ankyrin-B is capable of binding to the NaV1.2 II-III loop in vitro and mutation of the binding region abolished this interaction. To determine whether ankyrin-B and NaV1.2 interact in vivo, I immunoprecipitated Nav1.2 with ankyrin-B from P60 mouse brain. Lastly, I tested whether various SCN2A de novo human variants within the NaV1.2 II-III loop affected binding between ankyrin-B and NaV1.2 and found E1115K prevented their interaction. Future experiments will be conducted to evaluate neuron excitability in ankyrin-B heterozygous mice. ANK2 and SCN2A are both strongly associated with ASD, thus this work may provide insight to common mechanisms that contribute to ASD.
Abstract
Background: Recent advances in smartphone technology and cost-effective cell phone plans have made smartphones accessible for almost everyone. Healthcare is adapting to keep up with this increase and new advances in mobile health allow the healthcare industry to become more accessible, convenient, and effective for patients; however, mHealth has only recently been utilized as a tool to intervene in risky substance abuse among adolescents. The aim of this presentation is to describe the features and intervention components of MiSARA, a new mobile health app that will deliver tailored substance use intervention content to affected youth.

Methods: The MiSARA app is preceded by the SARA mobile health app, which delivered daily and weekly assessments to users. Previous studies led by our team demonstrated that the SARA app is a feasible and acceptable way to assess substance use correlates and behaviors among youth (ages 16-24). Feedback gathered during these studies guided the development of the MiSARA app, which also includes the capability to deliver intervention content to users.

Results: MiSARA app users are randomized each evening to either receive therapeutic content (e.g., messages, memes, images) or non-therapeutic, engaging content (e.g., a fun fact). Therapeutic content is tailored to recent assessment responses in order to provide the participant with targeted strategies for coping with stress and negative affect, substance-free ways to have fun, and protective behavioral strategies to reduce risky substance use. Additionally, life insights integrate the data gathered about substance use correlates (stress, mood) and present individualized “insights” to the patient. Finally, the app creates a game-like environment via an aquarium with unlockable fish that users can earn for completing daily tasks and surveys.

Conclusions: Findings will illustrate the MiSARA app and highlight the participatory approach used to enhance its acceptability and effectiveness among substance-using youth. Next steps include a pilot study with substance-using youth (ages 16-24) recruited via social media advertisements in June – August 2019.
Poster #: 31
Title: Ethnoracial Differences in Nicotine Use Among Military Sexual Trauma Survivors
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Trainee Status: Postdoctoral Fellow
Topic: Substance Abuse

Abstract
Nicotine use remains a significant public health concern among Veterans with an estimated 29.2% endorsing past 30-day use in a survey conducted from 2010-2015 (Odani et al., 2018). White Latinx (WL) Veterans had the greatest rates of use, followed by Black non-Latinx (BNL) and White non-Latinx (WNL) Veterans (29.1%, 26.3% and 20.2%, respectively). Unfortunately, exposure to military sexual trauma (MST) has been associated with increased substance use problems including tobacco use (Fillio, 2018; Schuyler et al., 2017). Ethnoracial differences of nicotine use among those endorsing MST are, presently, under-researched. This study aimed to (1) describe nicotine use characteristics among BNL, WL, and WNL Veterans with positive MST screens presenting to a Midwestern VHA hospital from 2010-2016 and (2) to evaluate longitudinal changes in nicotine use. Our sample included 1820 Veterans (17.8% BNL, 2.9% WL, 79.3% WNL) endorsing MST who had completed at least one nicotine use screen as well as subsequent annual screens during the study timeframe. Rates of nicotine use during the study period were 62.8%, 46.2%, and 63.2% for BNL, WL, and WNL groups, respectively. Chi-square analysis indicated significant between-group differences in never users, former users, and those who endorsed nicotine use during the study (X² = 12.02, p = .017). The WNL group was significantly more likely than WL to use nicotine during the study. The WNL group also was significantly more likely than BNL to have been former smokers. Among those endorsing nicotine use during the study (n = 1140), 80.9% were users at each time the nicotine screen was repeated while 19.1% either discontinued or lapsed to use after a period of cessation. This research suggests nicotine use among those exposed to MST is notably higher than described among general Veteran and civilian groups and identifies a population at significant risk for myriad health concerns. Further, although the overall nicotine use among WL MST survivors is notably higher than reported with general Veteran WL populations, between-group contrasts found significantly lower comparative use than other ethnoracial groups endorsing MST in this setting. Clinically, our findings suggest those exposed to MST warrant notable attention within nicotine cessation efforts, perhaps particularly when providing care to WNL and BNL survivors.
Abstract
The emergence of sexual behavior (e.g., dating, sexual intercourse) typically occurs in adolescence; however, there is substantial variability in the timing and the diversity of sexual behaviors youth engage in. Across a series of studies using a longitudinal twin sample followed from middle childhood to late adolescence (ages 11, 14, and 17; N = 3762) we demonstrate how the normativeness of sexual behaviors at different ages—that is, the frequency and social approval of sexual behaviors as quantified using Item Response Theory (IRT) models—is related to the heritability and correlates of those behaviors. Variation in more normative sexual behaviors (e.g., dating) was more genetic in origin, and more strongly related to personality traits such as extraversion, largely through shared genetic influences. Alternatively, variation in non-normative sexual behaviors (e.g., worries about being pregnant, early sexual intercourse) was primarily due to shared environmental influences (i.e., environmental influences that increase similarity among relatives). Non-normative behaviors were also more strongly tied to personality traits of low conscientiousness and low agreeableness, antisocial and low prosocial peer affiliations, and substance use, with shared environmental influences largely accounting for these associations. Overall, these results suggest two major paths underlying adolescent sexual development. The first appears to be a largely genetically based pathway for more normative behaviors and their correlates such that for behaviors that are more common and socially approved (i.e., when there are fewer restrictions on behavior) genetically based differences among youth in sexual propensities and related phenotypes are able to manifest themselves. The second is a more environmentally based pathway for non-normative behaviors such that contextual constraints on, or vulnerability processes for, riskier, less socially approved behaviors accounts for the majority of the variability in those behaviors. Importantly, the same environmental risk factors that contributed to non-normative sexual behaviors also accounted for much of the variation in a general propensity towards norm violation and rule breaking, affiliating with antisocial peers, and substance use. This implies that there are features of the environment that may be leveraged to help reduce both riskier sexual behavior and other factors that contribute to various problem behaviors.
Abstract
Disrupted processing of social cues and altered social behaviors are among the core symptoms of autism spectrum disorders (ASDs). Animal models are particularly useful tools for modeling aspects of ASDs, as they can help identify the neurobiological underpinnings of some of these symptoms. One such model is the prenatal valproic acid (VPA) exposure autism-like phenotype. Developing rat fetuses exposed to VPA at embryonic day (E) 12.5 show reduced play behavior, social exploration, and social interactions as juveniles and adults. However, less is known about how VPA-treated rats respond to social cues in infancy. Here, we examined the behavioral response to social odors in infant rats exposed to 500 mg/kg VPA or saline at E12.5. In early infancy, (postnatal day (P) 6-7), pups underwent an odor preference test (OPT) in an arena that contained clean bedding at one end and contained soiled bedding laden with social olfactory cues from the pup’s homecage at the other end. VPA-treated pups spent significantly less time and made fewer entries into the section of the arena that contained soiled bedding than saline-treated pups (p’s < 0.05). When examining these results by sex, we observed that female VPA-treated pups spent significantly less time in the section of the arena that contained soiled bedding than saline-treated pups (p < 0.05), but this effect was not present in male pups (p > 0.05). Both female and male VPA-treated pups made fewer entries into the section of the arena which contained soiled bedding than female and male saline pups. Regardless of sex, VPA and saline-treated pups did not differ in their total distance traveled during the test (p > 0.05), so the differences we observed are unlikely to be due to motor deficits in the VPA-treated pups. When we examined behavior in the OPT in older pups (P13), we did not observe any significant differences between VPA and saline-treated pups. We also did not observe any differences between treatment groups when we analyzed our pups by sex. In accordance with previously published data, our data suggest that in early infancy, VPA-treated pups may have impaired social recognition and/or may be less motivated to approach social odors. This is especially important because early infancy is a period of intense attachment learning, which relies on social cues. Our results may inform about the underlying behavioral characteristics of ASDs, including sex differences reported by clinical studies, and could shed light on potential opportunities for intervention.
Abstract
The effective flow of information between cooperating brain regions may be enhanced by synchronous signaling in each region relative to local field potential (LFP) oscillations. In rodents performing a spatial task, the medial prefrontal cortex (mPFC) and hippocampus (HC) appear to cooperate to accomplish a mixture of navigation and subsequent recall of experience during navigation. It has been shown that the theta oscillations in HC and mPFC synchronize during encoding/behavior, and that ripple oscillations are crucial in post-behavior memory consolidation, with ripples showing replay of previously experienced events. Different regions of the hippocampus are also known to be crucial to different elements of learning and memory, but we do not know how different parts of the hippocampus differentially engage with the mPFC both during and after tasks. In this study we use silicon probes to simultaneously record for the first time from densely sampled neurons in the mPFC, dorsal CA1 and intermediate CA1, throughout the entire process of encoding and consolidation following learning of an alternating maze task. We show that sharp wave ripple events are correlated across both brain regions and also investigate theta rhythm-based coupling of mPFC to each hippocampal region. In the future we will identify if successful completion of the task requires simultaneous coupling of all three regions or coordinated switching between coupled regions. Further, we aim to reveal how hippocampal coupling to mPFC differs between two hippocampal sites. Ultimately, a better understanding of how coherent signaling between hippocampo-cortical structures underlies learning will provide insight into developing treatments for those afflicted with learning and memory disorders.
Major depression is a stress-linked disease with significant morbidity worldwide. The anesthetic drug ketamine is of growing interest in depression treatment since in responsive individuals a single dose has rapidly acting (i.e., within hours) antidepressant effects that can be sustained for at least a week. This combination of fast action and a therapeutic effect that lasts far beyond the drug’s half-life points to a unique mechanism of action. In this reverse translational study, we investigate how and whether the well-documented effects of ketamine in rodents are sensitive to the stress state of the animal. Male C57BL/6J mice (n=8 per stress/drug condition) were given a single injection of vehicle (0.9% saline; i.p.), 10 mg/kg ketamine, or 30 mg/kg ketamine, and were tested in the forced swim test (FST) 24 hours and 7 days later, as well as in the open field test on the eighth day. Unstressed mice had normal group housing, environmental enrichment, and experimenter (5 days) pre-handling, whereas stressed animals were subjected to chronic mild stress, including two-week unpredictable chronic stress (UCS). Ketamine (24 hours post-injection) increased immobility and decreased swimming behavior (depression-like effects) in unstressed animals and did the opposite in UCS animals, where these opposing effects are similar to recent human findings. In summary, chronic stress interacts with ketamine to modulate its effects in the C57BL/6J mouse FST, which reinforces the relevance of this test, and this strain of mice, to human, stress-induced depression.
**Abstract**

Interaction between a pair of neurons is the fundamental building block to construct a complex neural network. The communication can be inspected by cross-correlations. Most of the research focused on short-time scale (<4msec) to examine the functional connectivity between neurons, while little is known about the interaction on longer-time scale (~1sec). We examined cross-correlations between cortical neurons on longer-time scale across sleep states. Surprisingly apart from synchronized pairs, we found anti-synchronized pairs and the effects are augmented during the most synchronized sleep state: slow wave sleep (SWS). For the anti-correlated pairs, the differences of the mean spike time between them during each upstate in SWS are significantly larger than correlated and uncorrelated pairs. We will ask a variety of questions to discover the factors that contribute to the anti-synchronization including the different properties between the cells, the relations of the anti-correlated pairs and the population activity, and how they vary between different sleep states.
Abstract
Background Pavlovian conditioned approach (PCA) paradigms are used to characterize the nature of motivational behaviors in response to stimuli as either directed toward the cue (i.e., sign-tracking) or the site of reward delivery (i.e., goal-tracking). Recent evidence has shown that activity of the endocannabinoid system increases dopaminergic activity in the mesocorticolimbic system and that sign-tracking behaviors are dependent on dopamine. Therefore, we hypothesized that administration of a cannabinoid agonist would increase sign-tracking and decrease goal-tracking behaviors.

Methods In two separate experiments, male adult Sprague Dawley rats (N=47 and N=24, respectively) underwent PCA training. In the first experiment, rats were given a low, medium, or high dose of the cannabinoid agonist CP-55,940 or saline before training. In the second experiment, rats were sacrificed after PCA training and were subjected to in situ hybridization testing for cannabinoid receptor type 1 (CB1) and fatty acid amide hydrolase (FAAH).

Results For all dependent measures, the control vehicle group was significantly different from the high dose group (all ps < .048) during days 4–7, with the high dose group having fewer lever presses, a longer lever press latency, a lower lever press probability, more magazine entries, a shorter magazine entry latency, a higher magazine entry probability, and a lower PCA index. CB1 expression was higher in sign-trackers compared to goal-trackers in the prelimbic cortex. There were no significant differences in CB1 or FAAH expression in the infralimbic cortex, dCA1, dCA3, dorsal dentate gyrus, or amygdala. There was a significant correlation in the prelimbic cortex between PCA index score and CB1 expression as well as between magazine entry latency and CB1 expression. There were no other significant correlations between PCA measures and FAAH or CB1 expression.
Abstract
Objective: The error-related negativity (ERN) is a negative deflection in the event-related potential following an incorrect response that has been proposed as a biomarker of anxiety across the lifespan. This study examined the relation of the ERN to 6 anxiety disorders (AD) in older children and adolescents. Method: The ERN, correct response negativity (CRN), and accuracy were measured during a flanker task to assess performance monitoring in 96 youth with a lifetime diagnosis of an anxiety disorder and 96 matched healthy comparison subjects ages 8 to 18 years. Forty-one patients had a history of generalized anxiety disorder (GAD); 55 patients had a history of other anxiety disorders (OAD). Results: ERN amplitude was significantly increased in patients compared to controls (Cohen d = .43). Compared to controls, ERN amplitudes were significantly increased in cases with either GAD (Cohen d = .60) or OAD (Cohen d = .32). Conclusions: The results provide further evidence of an enlarged ERN in pediatric AD that may represent a transdiagnostic liability index. Studies with larger samples will be necessary to adequately assess performance monitoring in each of the OAD without comorbid GAD.
Abstract
Eye gaze discrimination deficits in schizophrenia (SZ) contribute to chronic functional impairment. Previous work in populations with similar gaze deficits (e.g., autism) has shown that this deficit may originate from abnormal neural oscillation. However, there have been no studies of neural oscillation during gaze discrimination in SZ. The current study tried to address this gap by examining neural oscillation during a gaze discrimination task comprised of face stimuli that varied in gaze direction (direct or averted), emotion (neutral or fearful), and head orientation (forward or deviated). A total of 28 SZ and 34 demographically matched healthy controls (HC) completed the task. Time-frequency analysis of electroencephalography (EEG) using event-related spectral perturbation (ERSP) showed reduced beta-band oscillation (12-30 Hz) in SZ compared with HC for both direct and averted eye gaze. Further analyses will examine interaction between facial stimuli emotion (neutral or fearful), gaze direction, and head orientation, anchoring to our previous findings of abnormal N170 in SZ. These preliminary findings suggest that beta-band oscillation abnormalities may contribute to altered gaze perception in SZ and should be further investigated as a potential treatment target to improve social functioning in SZ.
Abstract
Accruing evidence supports aberrant neural function in adults who stutter (AWS), particularly between and within speech-motor regions that support auditory motor integration. Previous studies mostly examined a-priori regions of interest, but few if any studies investigated whole brain functional network connectivity differences in AWS. Here we used graph theory metrics to examine differences in integration and segregation of functional brain areas in AWS during rest and speech production relative to fluent controls. During speech, AWS demonstrated decreased integration and segregation in the frontoparietal network, specifically increased modularity, decreased global efficiency, and decreased clustering. This suggests aberrant function of the executive control system that controls overt speech production in people who stutter. During rest, the somatomotor-faces, auditory, dorsal attention, and cerebellar networks differentiated the two groups for both integration- and segregation-based graph metrics. Specifically, there was increased path length, decreased global degree, decreased clustering, and increased modularity, suggesting less global and local efficiency of neural information transfer in these networks in AWS. These results corroborate accumulating evidence supporting aberrant auditory-motor integration and the possible influence of attention and the cerebellum connectivity in adults who stutter. These results will need to be tested in larger groups, and especially in young children who stutter to further understand trait (intrinsic) vs. state (speech specific)-based network changes in stuttering. These findings demonstrate how network-based metrics can be used to examine atypical brain function segregation and integration in AWS.
Poster #: 41
Title: Neural correlates of inhibitory control in adolescents with symptoms of food addiction
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Trainee Status: Undergraduate Student
Topic: x-img

Abstract
Aims The neural correlates of food addiction in adults have been investigated using the Yale Food Addiction Scale (YFAS) and functional magnetic resonance imaging (fMRI). However, research using these methods to examine food addiction in adolescents has yet to be conducted. The YFAS is a self-report questionnaire that applies substance use disorder diagnostic criteria to certain foods and was initially developed for adults but has since been adapted for children (YFAS-C). This project aims to investigate the association between inhibitory control, addictive-like eating, and brain regions implicated in executive functioning in adolescents. It is predicted that adolescents endorsing food addiction symptoms will exhibit less activation in regions involved in inhibitory control compared to adolescents endorsing no food addiction symptoms.

Methods Seventy-six right-handed participants, aged 8.2–17.8 years (32 female), were recruited from the Michigan Longitudinal Study. Participants performed a go/no-go task during fMRI and completed the YFAS-C, after which they were categorized into two groups according to their YFAS-C scores (Control group: score=0; YFAS-C group: score ≥1). Inhibitory control was probed with a contrast of correct no-go versus go trials. Results A two-sample t-test comparing the Control and YFAS-C groups revealed a significant difference in three primary clusters, all exclusively in the left hemisphere (Control > YFAS-C; initial threshold of p<.001 uncorrected with a cluster-wise threshold of p<0.05 FWE): middle temporal gyrus/occipital gyrus, precuneus/calcarine sulcus, and inferior frontal gyrus. Specifically, the YFAS-C group showed deactivation in all three clusters. Conclusions Differences in inhibitory control are apparent in adolescents endorsing food addiction symptoms, suggesting that these individuals may be vulnerable to the emergence of food addiction problems later in life. Thus, adolescence may be a key developmental period to investigate the progression of food addiction.
Abstract
Posttraumatic Stress Disorder (PTSD) affects 8.3% of the adult population and 5% of the adolescent population. Although many studies have assessed the influence of sex and trauma type (i.e. assaultive vs. non-assaultive) on PTSD in adults, few have assessed adolescent populations, and even fewer have examined associations between these factors and brain function. Studies on resting-state functional connectivity (rsFC) in PTSD have reported aberrant neurocircuitry in the Default-Mode Network (DMN), Salience Network (SN) and Dorsal-Attention Network (DAN) compared to controls in both adults and adolescents. This study assessed data from the Philadelphia Neurodevelopmental Cohort (PNC) comprising of participants between the ages of 13 and 21 with Posttraumatic Stress Symptoms (PTSS; n = 57) who reported re-experiencing symptoms and distress or impairment after a traumatic event, along with trauma-exposed controls (TEC; n = 58) and non-trauma exposed controls (NTE; n = 101). Seed-based connectivity analysis was conducted using regions in the SN (bilateral amygdala, bilateral anterior insula, dorsal anterior cingulate cortex), DMN (bilateral hippocampus, posterior cingulate cortex, ventromedial prefrontal cortex) and DAN (right middle frontal gyrus, inferior frontal gyrus). The SN showed differential rsFC between assaultive and non-assaultive participants [F(1, 336) = 4.24, p = 0.04]. Both within-network and between-network rsFC differences based on sex were present. Males and females had significantly different rsFC within the DAN [F(1, 211) = 2.83, p = 0.089], post-hoc analysis revealed trend-level support for greater connectivity in males (M = 0.34, SD = 0.26) compared to females [M = 0.28, SD = 0.25, t(204.62) = 1.70, p = 0.09]. Between-network analysis demonstrated differential rsFC when comparing the PTSS and non-PTSS group [F(1,4516) = 3.728, p = 0.053] in all between-network connections along with a greater difference between the PTSS and non-PTSS groups for male participants compared to female participants [F(1,4516) = 2.89, p = (p = 0.089)], supporting the fact that males were driving the between-group effect. Post-hoc analysis confirmed this finding; PTSS males had greater rsFC (M = 0.14, SD = 0.31) compared to non-PTSS males (M = 0.10, SD = 0.32; t(692.41) = 2.25, p = 0.025). Due to the fact that these findings were present in adolescents diagnosed with only one predominant symptom cluster of PTSD, they necessitate future studies to investigate the influences of trauma type and sex on rsFC. While altered neurocircuitry within neural substrates of the disorder (i.e. the DMN, SN and DAN) are predominant in patients with PTSD, analysis without controlling for type of trauma or sex may lead to unaccounted differences between patient groups.
Poster #: 43
Title: Effects of non-invasive brain stimulation on speech fluency and brain activity in adults who stutter
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Topic: x-img

Abstract
Stuttering is a neurodevelopmental speech disorder that persists in 1% of adults. Stuttering runs in families and is not caused by deficits in anxiety, intelligence, or language ability. There are no medications for stuttering; therapy involves learning new ways to speak, but relapse rates are high. Brain functional differences reported in people who stutter include over-activation of frontal motor areas and decreased activity in bilateral posterior superior temporal gyrus (pSTG). These auditory and motor regions are connected via major white matter pathways and, along with subcortical regions such as basal ganglia, support fluent speech production that relies on accurate timing of speech movements. These regions overlap with rhythm processing regions, especially under conditions that require internal generation of timing. In this work, we investigated how High Definition Transcranial Direct Current Stimulation (HD-tDCS), a form of noninvasive electrical stimulation, can be used to augment effects of speech training in adults who stutter. In a pilot study, we first investigated the effects of HD-tDCS on speech fluency and brain activation in 14 adults who stutter. We delivered either active or sham stimulation over left supplementary motor area (SMA), a region involved in initiating precisely timed, overlearned movements, including speech production. During stimulation, participants read aloud in sync with a metronome. Measures of speech fluency and brain activity (fMRI) were collected immediately before and after stimulation. There was no significant difference in brain activity or speech fluency when comparing active and sham stimulation. However, stuttering severity significantly modulated the effect of stimulation, particularly in the right thalamocortical network: active stimulation attenuated the association between stuttering severity and abnormal brain activation, especially in those with more severe stuttering. We are now conducting a randomized controlled clinical trial using intensive HD-tDCS, which has been shown to augment the effects of behavioral treatment in language and motor rehabilitation. In this ongoing clinical trial, participants are randomized into either active or sham stimulation groups, and receive 5 consecutive days of HD-tDCS, with before and after fMRI and fluency assessments. These assessments are repeated 1 month later. Since we know that speaking in sync with externally-paced stimuli (e.g., choral speech; metronome) temporarily alleviates stuttering and is associated with increased auditory cortex activity, we targeted pSTG. We hypothesize that while both groups will see modulation of brain activity and improved speech fluency, only the active HD-tDCS group will continue to show these changes at 1 month follow up.
Abstract
Arousal states are key to healthy functioning of the brain - and they correlate with different neural tasks, such as learning during wake or memory consolidation, or homeostasis during sleep. These brain states are imposed on static structures in the brain such as the cellular layers of the neocortex, which is increasingly being recognized to implement a “laminar code” when responding to inputs, like somatosensory stimuli. Less appreciated is the extent to which these response patterns vary with arousal states and corresponding behavioral/physiological markers. To study these state-varying patterns in greater detail, we designed mouse experiments with simultaneous readouts of both laminar code and brain state at once. Specifically, we measure single-neuron firing and field potentials across layers, pupil dilation imaging, whisker imaging, treadmill running, and Go/No-go task performance. According to preliminary analysis, deep and intermediate layers show mirroring of somatosensory-evoked field potentials, both reaching their voltage peaks 250 ms after stimulus onset. These latency profiles gain specificity with spiking analysis: deep and intermediate firing seem to reach their first post-stimulus peaks at 100 and 250 ms, respectively. Behaviorally, post-training performance over 50 minute task sessions looks divisible into three successive stages: impulsive responding (high rates of both hits and false alarms), optimal responding (higher proportion of hits), and low responding (higher incidence of unattended trials). Interestingly, all aforementioned electrophysiological patterns decay across the same behavioral time course. We expect to further characterize this dynamics through ongoing pupil, whisking, and treadmill analyses with a specific focus on possible alterations in neural laminar codes to better understand how cortical computation change with task and state changes.
Abstract
Background: Post-Traumatic Stress Disorder (PTSD) is a debilitating condition often associated with deficits in regulating emotion, particularly in reappraising negative emotions. These deficits have been associated with differences in neural activation in emotion processing regions (e.g., amygdala) and regulatory regions (medial and dorsolateral prefrontal cortices; mPFC, dLPFC). This study assessed neural mechanisms associated with emotion regulation and appraisal in veterans following treatment for PTSD. Method: Veterans with PTSD were assigned to evidence-based treatments and completed diagnostic evaluation and a series of emotion regulation and appraisal during fMRI scanning prior to and following treatment. The Emotion Regulation Task (ERT) assessed neural activation during passive viewing, maintenance of emotional response, and reappraisal of emotional response to distressing images. The Emotional Faces Assessment Task (EFAT) examined neural activation in response to affective faces. Analyses were conducted to examine relationships between pretreatment neural activation and PTSD symptoms prior to treatment and over time. Pretreatment neural activation in the PTSD group was also compared to combat controls who did not undergo treatment. Results: ERT results for activation during reappraisal vs. emotional maintenance revealed that individuals with PTSD showed greater dmPFC activation than trauma-exposed controls. Within the PTSD group, less pretreatment activation in the amygdala and prefrontal regions of interest was associated with greater PTSD symptom reduction over time. In contrast, the EFAT did not elicit significant results in the amygdala or mPFC. Conclusions: This is one of the first studies to examine neural activation across different treatments for PTSD and provides greater insight into emotion regulation and processing in PTSD.
Poster #: 46
Title: Alcohol Expectancies Mediate the Association between the Neural Response to Emotional Words and Alcohol Consumption
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Topic: x-img

Abstract
Drinking is commonly used to regulate emotional reactivity, with beliefs about the effects of alcohol moderating drinking behavior (Cooper et al., 1995). Neuroimaging researchers have also identified brain regions involved in either the reactivity to or regulation of emotions (e.g., Ochsner et al., 2012). The current study sought to understand how emotional reactivity at a neural level relates to drinking behavior. 168 right-handed subjects (57 females; M age= 19.65) participated in the current study. An affective word task was used to elicit emotional arousal (Heitzeg et al., 2008; Hardee et al., 2017). Whole-brain blood oxygenated level-dependent images were acquired on a 3.0 Tesla GE Signa scanner. Contrasts of interest were negative vs. neutral words (NEGvNEU) and positive vs. neutral words (POSvNEU). Task effect was determined across all subjects using a one-sample t-test and cluster-level FWE correction of p<.05. Participants also reported on their cumulative lifetime alcohol consumption as part of a clinical interview and completed the Alcohol Expectancy Questionnaire (Brown, et al., 1987), which assessed anticipated experiences associated with alcohol use. Activation in the left inferior frontal gyrus (IFG) in the NEGvNEU contrast was significantly associated at the bivariate level with lifetime alcohol consumption (r= -.18, p= .02) and subscales of the AEQ (global positive changes, social assertiveness, tension reduction) regarding alcohol consumption (r’s range from -.26 to -.19, p’s< .05). Follow up mediation analyses (Preacher et al., 2007) revealed that these expectancy subscales fully mediated the observed association between IFG activation to negative words and alcohol consumption (Effect of global positive changes= -209.99, 95% CI [-414.87, -64.92]). Therefore, individuals that are not recruiting their IFG in response to negatively valenced words engage in more drinking and have stronger expectations that drinking will lead to positive experiences. Previous studies have found increased IFG activation when using emotion regulation strategies (Goldin et al., 2008; Grecucci et al., 2013). These findings suggest that individuals that engage in drinking with the expectation that alcohol will lead to positive emotional changes are not naturally recruiting neural areas that are used to modulate emotions.
Abstract
Purpose: Although dual-systems models of brain development posit that the earlier maturation of the reward system in relation to the cognitive control system contributes to risk behaviors in youth, these models often fail to account for within-age group heterogeneity in substance use outcomes. Using a novel approach, the present study identified subgroups of youth based on brain activation during Go/No-Go (GNG; inhibitory control) and Monetary Incentive Delay (MID; reward anticipation) tasks and then examined predictors of these subgroups. Methods: Participants were 145 18-21-year-olds (M=19.80(1.22), 40.0% female, 73.8% with parental alcohol use disorder (FH+)) from the neuroimaging component of the Michigan Longitudinal Study. Latent profile analysis (LPA) was conducted using beta weights from regions of interest identified through whole-brain blood oxygen-level dependent activation during GNG and MID tasks. Subgroup predictors were scan age, sex, FH+ status, lifetime alcoholic drink volume (log transformed), lifetime marijuana use (0=none, 1=moderate(1-50 use days), 2=heavy(50+ use days)), lifetime cigarette use (0=none, 1=moderate(1-400 use days), 2=heavy(400+ use days)), and mean externalizing behavior from 9-14 years old (t-score). Results: The four-class model fit with the data best (BIC: 5396.71, Entropy: 91.90). Groups were: (1) low inhibition/moderate reward (39.7%), (2) moderate inhibition/low reward (22.7%), (3) moderate inhibition/high reward (25.2%), and (4) high inhibition/high reward (12.4%). Logistic regression analyses comparing each group to all other groups showed that Group 2 was more likely older (OR=1.59, p=0.024) and less likely FH+ (OR=0.35, p=0.025). Group 3 was less likely to have moderate marijuana use (OR=0.15, p=0.007) versus no marijuana use and showed a trend toward significance for higher drink volume (OR=1.20, p=0.079). Group 4 was more likely younger (OR=0.55, p=0.021) and had a greater likelihood of moderate (OR=8.23, p=0.02) and heavy marijuana use (OR=12.97, p=0.009). No differences were found between Group 1 versus the other groups. Conclusion: The present study is the first to examine heterogeneity in neural function associated with both inhibitory control and reward responsivity using LPA. Four distinct subgroups were identified, two showing patterns of brain activation associated with higher rates of substance use. Identifying subgroup differences in brain circuitry involved in these brain systems may provide valuable information pertaining to biomarkers underlying alcohol and other drug use in youth.
Abstract
Background Youth who experience puberty earlier than their peers are at a heightened risk for substance use during adolescence. However, little is known about whether pubertal timing interacts with relevant early risk factors, such as family substance use history. Using longitudinal data from youth with and without a family history of alcohol use disorder (AUD), we evaluated whether pubertal timing moderated or mediated familial risk effects on late adolescent substance use. Methods Participants were 568 males and 245 females from the Michigan Longitudinal Study. Pubertal timing was indexed by fitting mixed-effects linear models to repeated measures of self-reported Tanner stage ratings. Multi-level models then tested: (a) whether family history of AUD predicted pubertal timing, and (b) whether family history, pubertal timing, or their interaction predicted alcohol and marijuana use at ages 16-18. Results Family history of AUD was not related to pubertal timing in either males or females. In males, alcohol and marijuana use in late adolescence were predicted by family history and pubertal timing, but not by their interaction. In females, family history predicted alcohol-related outcomes, but there were no main or interaction effects of pubertal timing. Conclusions Pubertal timing does not moderate or mediate the link between family history of AUD and late adolescent substance use. In males, measures of pubertal maturation and familial risk provide unique information for prediction of use. Females displayed no link between pubertal timing and use, which may suggest different risk pathways, or may have been due to the female sample’s smaller size.
Abstract

Background: Many adolescents lack access to mental health evidence-based practices (EBPs), leading to poor public health outcomes. Schools provide promising venues for increasing mental health EBP access as school professionals (SPs; counselors, social workers) can offer EBPs to students in a familiar environment unfettered by common barriers (e.g., insurance, stigma). Just as in clinical settings, supportive organizational implementation climate and leadership may promote EBP uptake in schools and are potentially modifiable through implementation interventions; however, little is known about the role of implementation climate and implementation leadership in encouraging EBP delivery in schools. Study Design: SPs at 115 Michigan high schools enrolled in a statewide trial implementing Cognitive Behavioral Therapy (CBT) in schools received access to web-based CBT resources and minimal implementation support during the trial run-in phase. During this phase, SPs were also asked to report CBT delivery weekly and to complete a survey of CBT knowledge (via 22 objective questions), perceived barriers to CBT adoption, and demographics. SPs also completed the Implementation Leadership Scale (ILS) and Implementation Climate Scale (ICS). We examined relationships between ILS and ICS scores and three early implementation outcomes: (1) perceived barriers to CBT adoption; (2) early adoption of CBT delivery; and (3) CBT knowledge. Principal Findings: Overall, 198/225 SPs (88%) completed run-in phase measures. Average ILS/ICS scores were 1.57 and 1.78, respectively (scale 0 (low) - 4 (high)), lower than found in clinical settings. Sixty-six SPs (33%) reported delivering CBT at least once during the run-in phase. Higher ILS/ICS scores were associated with fewer barriers to CBT delivery (p=0.04, 0.03 respectively), however, ILS/ICS composite scores did not predict early adoption. Controlling for experience and prior CBT training among the 66 early adopters, ILS/ICS scores were not associated with more CBT knowledge nor diverse component delivery. Conclusions: Schools have potential to improve adolescent mental health by increasing access to EBPs, but unmeasured school organizational characteristics may serve as barriers to implementation. While existing measures of implementation leadership and climate offer value in predicting barriers to early mental health EBP adoption, they may fail to capture organizational characteristics that stymie downstream, high-quality EBP implementation in schools.
**Title:** Measurement of suicide outcomes in clinical research: achieving reliability using the C-SSRS across multiple large scale research projects

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**Abstract**

Study objectives: The Columbia Suicide Severity Rating Scale (C-SSRS) is widely used across suicide prevention research to evaluate suicidal thoughts and behaviors. Training is provided by the measure’s creator, yet substantial differences in data collection can occur across raters and research projects. Many research projects have developed methods for categorizing and quantifying these complex events, however materials are often not distributed widely, and thus the reported results can be misleading, even for studies utilizing the same measure. This presentation will address how two research trials have operationalized the C-SSRS decision-making process through the development of threshold tables and will present data on the reliability of utilizing standardized procedures. Methods: Data was collected from two large-scale multi-site randomized controlled trials of suicidal Veterans. Patients were recruited from VA psychiatric inpatient units (N=301) and VA outpatient substance abuse treatment (N=300). Key members of each project met to discuss categorization of suicidal thoughts and behaviors. For the most prevalent attempt methods, thresholds were created to differentiate between the distinctive suicidal behaviors captured in the C-SSRS. Inter-rater reliability was assessed during rating sessions. At each session, the C-SSRS was administered to staff presenting a mock patient case. Cases were designed to encapsulate the typical level of complexity in the population. Raters scored C-SSRS items independently using the thresholds. Ratings were then compared, and agreement for each item was assessed. Results: Reports of suicidal behaviors reported was high across both trials, with 71% of patients in trial one (n=213) and 63% of patients in trial two (n=189) reporting at least one prior attempt. Inter-rater reliability was calculated using total percent agreement among all raters per session. Overall, reliability was high, with percent total agreement across sessions reaching 93.2% (range 85.1%-99.0%). The suicidal ideation section had the highest agreement (96.9%), while the lethality section had the lowest (87.4%). Categorizing suicidal behaviors also remained high at 91.3% agreement. Conclusion: The development of standardized procedures for categorizing suicidal behaviors is an important step towards increasing the reliability of data. Developing guidelines and thresholds allows for both consistent administration and classification of suicide related outcome variables across research projects.
**Poster #:** 51  
**Title:** Parent-Child Group Intervention based on ESDM for Young Children with ASD  
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**Topic:** Child  

**Abstract**  
Background: Despite strong evidence for the positive impact of early intervention that begins immediately following diagnosis (Koegel et al., 2014), access to high quality treatment is quite limited, and this is particularly true for very young children with ASD. One way of increasing access to intervention is to teach intervention strategies to parents immediately after diagnosis. Objectives: The first aim of this project was to adapt an existing evidence based intervention, the Early Start Denver Model (ESDM) (Rogers and Dawson, 2010), to a parent-child group delivery in order to increase access to treatment in the period immediately following diagnosis, and thereby improve child outcomes. The second aim was to examine the progress of the children enrolled in the study. The third aim was to evaluate whether parents learned intervention strategies. Methods: The Parent-Child group ESDM was delivered to 19 young children with ASD, between 24 and 48 months of age, and their caregivers. Each family participating in the study received one 1-hour session per week of the treatment, delivered in a group of 3-5 child-caregiver dyads, for 12 weeks. Social-communication behaviors were measured by the Brief Observation of Social Communication Change (BOSCC) (Lord et al., 2016). Learning of the therapy strategies in the parents was measured by the ESDM Parent Fidelity Measure (Rogers et al., 2012) Results: Preliminary data indicated gains in social-communication behaviors in children as measured by BOSCC. After 12 weeks of intervention the children demonstrated a decrease of 4 points in the BOSCC (t=7.9; p=.01). Changes in the BOSCC’s scores were negatively correlated to age (r= -.53; p<.05), indicating that the youngest children made the most gains in social communication. Parents improved in their therapy strategies as demonstrated by improved scores in the fidelity measure at the end of the intervention. Acceptability of the program was very good as indicated by retention of all participants. Moreover, results from a five-point Likert-based scale survey indicated that the caregivers agreed or strongly agreed that the program was useful and satisfying. Conclusions: Our preliminary results suggest that the ESDM delivered in a parent-child group context may be useful to teach intervention skills to parents and to increase social communication in young children with ASD. Additionally, our results suggest that early intervention is most efficacious when started as early as possible in development.
Poster #: 52

Title: Psychological and neurophysiological risk markers of persistent stuttering in early development: Preliminary results

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Trainee Status: Child

Abstract

Introduction: Persistent developmental stuttering is a speech disorder that affects about 1% of the general population, often with life-long psychosocial and emotional consequences. In adults who stutter, approximately 50% report debilitating social anxiety disorder. While negative emotional reactions commonly result from persistent stuttering, theoretical models suggest that heightened levels of anxiety in children close to symptom onset may predict persistent stuttering. In the present study, we examine whether early anxiety and a neurophysiological index of error-processing, the error-related negativity (ERN), are predictors of persistent stuttering at one-year follow-up in young children who stutter.

Methods: At the initial visit, a detailed speech-language assessment (e.g., TOCS), clinical measures of anxiety (i.e. clinician-interviewed KSADS and parent-report CBCL) and neurophysiological response to errors (i.e. ERN) during a child-friendly go/no-go zoo game were collected. During one-year follow up, stuttering severity and anxiety information will be collected again. We aim to recruit and follow up 30 children who stutter (CWS) and 30 healthy controls (HC), and we are in the process of collecting year 2 follow-up data. Time 1 neurophysiological and behavioral data were reported from 20 CWS and 23 age- and gender-matched controls (mean age=5.32±1.28 years, age range from 3.23-8.0 years, 10 females CWS, 11 female HC).

Results: Overall, there was no group (CWS vs. HC) difference on ERN (ERN at Cz, CWS, -8.65± 7.11 µV; HC, -7.45±7.20 µV, p=0.58), reaction times (CWS: 571ms ± 66; HC: 570 ms ± 112) and accuracy (CWS: 80.9±12.9 %; HC: 79.8±9.2%). However, there was an age x Group interaction at ERN amplitude (p=0.025). ERN was increased with age in CWS, while there was no ERN increase with age in HC. Further analyses are being conducted to examine relationships between anxiety, ERN, and stuttering severity.

Conclusion: Atypical increases in ERN with age in CWS suggested exaggerated error-monitoring system; this accompanies age-related increases in CWS stuttering awareness. We are waiting for longitudinal data (year 2 stuttering severity and anxiety measures) to test how the increased ERN may predict persistence of stuttering and/or higher anxiety level. Ultimately, this research is an important foundation for developing mechanism-based techniques to better identify and treat stuttering.
Poster #: 53
Title: Creams of the Caregiving Crop: Defining and Differentiating Two Adaptive Dementia Caregiving Styles
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Trainee Status: Gero

Abstract
Background: While the corpus of literature on dementia caregivers strongly demonstrates caregiving’s physical and emotional toll, understudied is the manner by which family caregivers actually provide care. Care management can impact the well-being of the caregiver and the quality of care provided to the care recipient with dementia, and caregivers’ different management strategies and internal orientations to care lend themselves to different caregiving styles. We report on preliminary qualitative and quantitative findings of our sample’s most self-efficacious styles. Methods: We conducted in-person interviews with 100 primary family caregivers of a person living with dementia (PLWD). Open ended questions were asked regarding management of care challenges and held values which may undergird care decisions. Using Watkins’ (2017) rigorous and accelerated data reduction (RADaR) technique for analyzing qualitative data, unique styles emerged In addition, we assessed caregiver stress and burden using the Coping Strategy Scale, Caregiver Readiness Scale, Dementia Management Strategies instrument, and Zarit Burden Interview. After assigning caregivers to their styles, we quantitatively assessed the two self-efficacious styles for differences in caregiver burden, level of readiness, dementia management strategies, and coping strategies. Results: The “Roll with the Punches” (RWP) and “Other-Focused” (OF) styles qualitatively emerged as the most well-adapted, self-efficacious caregiving styles (among 5 identified styles). While the RWP style is defined by its variety of management strategies and emotional stability, the OF style is borne from an empathetic, other-focused perspective on caregiving. OF caregivers were notably younger than their RWP counterparts (M = 52.54 vs. 61.48), more likely to use emotion- rather than problem-based caregiver strategies (t = 1.859(32), p = 0.072), and had significantly higher caregiver readiness (t = 2.085(32), p < 0.05). Conversely, both groups had high active management dementia management strategies (sample M = 33.84; OF M = 36.63, RWP M = 35.29). Finally, RWP caregivers had slightly lower burden (M= 17.19) than the overall sample (M = 19.05), while OF had slightly higher (M= 20.15). Implications: While both RWP and OF are sustainably adaptive and efficacious styles, caregivers differ in their orientation to care, which necessitates different interventions to address caregiver burden. Furthermore, most caregivers in our sample fell under different, less sustainable styles with predicted worse outcomes for both caregivers and PLWD. Future research aims to individualize interventions and supports according to caregiver management style and help all caregivers transition to one of the self-efficacious styles.
Abstract
Objective: Most studies of driver ability and physiology use laboratory-based driving simulators. More recently, real-world driving data are collected, but with complex, specially-instrumented vehicles. Neuropsychological variables are seldom obtained for comparison. In this pilot study, we look at the relationship between cognitive and physiological variables recorded through a novel and transportable system for acquiring data using a driver’s own vehicle. Participants and Methods: Participants included 12 older drivers (9 males, 3 females; age=77±6) recruited from the Claude Pepper and Michigan Alzheimer’s Disease centers’ pools of nondemented, community dwelling participants. Cognitive testing was completed with the computer-based NIH Toolbox-Cognition. We utilized a transportable, portable data acquisition system to acquire drivers’ heart rate, respiration, skin conductance, vehicle performance, and videos of the vehicle environment and the driver’s face during naturalistic driving. Machine learning and sensor fusion algorithms automatically segmented trips into sequences of driving scenarios, using Nokia/HERE’s extensive Geographic Information System. This study presents traffic through street, highway, and ramp scenarios. Results: A physiological profile was derived for each driver and correlated with neuropsychological findings. Toolbox Fluid Composite was correlated with physiological arousal during highway (r = -0.67, p<.03) and ramp situations (r = -0.68, p<.04), with measures of executive functioning (card sort; r = -0.66 to -0.79) and processing speed (pattern comparison; r = -0.63 to -0.83) driving these results. Significant correlations were not found for street situations or for any Crystalized Composite variables. Conclusions: Fluid cognitive and driver arousal levels are clearly related in more complex driving scenarios (highway, ramp). In-car advanced technologies may provide important information in predicting at-risk situations and providing real-time medical information.
Poster #: 55  
**Title:** Caring for the caregiver: predictors and consequences of VA mental health provider burnout  
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**Trainee Status:**  
**Topic:** Health Services

**Abstract**  
Objective: Mental health providers (MHPs), including psychiatrists, psychologists and social workers report the 2nd highest level of burnout after primary care physicians. MHP burnout may be associated with negative system-level factors, provider experiences, and patient outcomes. Our overarching goal is to characterize variation in MHP burnout by facility over time, identifying workplace characteristics and practices of high performing facilities to be translated for potential implementation at facilities with room for improvement. Specific Aims: In Aim 1 we will explain facility-level predictors and consequences of VHA MHP burnout. Aim 2 will explore VHA MHP leadership and front-line provider perspectives regarding factors that protect against or exacerbate burnout in facilities with differing levels of burnout. Finally, in Aim 3 we will identify context-sensitive strategies for facilities to reduce VHA MHP burnout.  
Methodology: This mixed methods study will evaluate the factors that influence MHP burnout and their impact on patient outcomes. We will compile annual survey data on workplace conditions and annual staffing and productivity data between FY2014 and FY2017. The All Employee Survey (AES) is an annual organizational census of workplace perceptions and satisfaction, open to all VA employees. The Mental Health Provider Survey (MHPS) is an annual survey to assess provider perceptions about access to and quality of mental health care, and job satisfaction. The Mental Health Outpatient Clinical method identifies and tracks MHP clinical hours and productivity. We will examine provider job satisfaction and patient experience metrics using the Strategic Analytics for Improvement and Learning (SAIL) Mental Health domain, the VHA's quality monitoring system. Linking these data sources, we will quantify predictors of burnout and the impact of burnout on patient outcomes. We will conduct interviews with mental health facility leadership and front-line MHPs, sampled by facility-level MHP burnout. We will create a joint display to interpret quantitative and qualitative findings on predictors and patient outcomes associated with burnout and any strategies used to address burnout. We will present our findings to an expert panel comprised of operational partners, VA clinicians, administrators, and policy leaders, and experts. The expert panel will select context-sensitive best practices to share with facilities and make recommendations about potential interventions. Finally, we will reengage facilities that participated in Aim 2 and conduct focus groups and share results presented in feedback reports. We will broadly disseminate findings, to support the development of actionable policies and approaches to address burnout among VHA MHPs and their patients.
**Abstract**

Background: Efforts to scale up evidence-based integrated behavioral health care to reach vulnerable populations in greater capacity, are often hindered by the inability to identify and successfully address barriers to community-based implementation. Implementation roadmaps, similar to those developed in organizational studies and business communities, can provide a framework of the critical steps investigators should follow in spreading integrated behavioral health care to new organizations. Implementation roadmaps provide guidance to key stakeholders on identifying and addressing barriers, developing metrics for evaluating success, and laying groundwork for long-term implementation sustainability. The Michigan Mental Health Integration Partnership (MIP), a collaboration between the University of Michigan and the Michigan Department of Health and Human Services, improves the lives of low-income Michigan residents by supporting the scale up and spread of best practices that enhance access to care and service delivery for consumers with behavioral health care needs. The current portfolio of MIP projects also provides a real-time laboratory for understanding challenges to sustainable implementation of a broad range of integrated behavioral health care across diverse organizations. The experiences of these projects are leveraged to inform the MIP Implementation Roadmap that will support future projects working to implement integrated behavioral health care.

Methods: More than 20 interviews with project teams and early adopter implementation sites were conducted to apprise a thorough collection of common barriers, challenges, and implementation strategies utilized by six MIP project teams. This collection was then used to identify common critical steps of the implementation process and accompanying metrics for evaluating implementation progress.

Findings: Several barriers and strategies for success were identified by MIP project teams and early adopter implementation sites, including innovative use of web-based tools for facilitating implementation, underestimate of time requirements needed to launch implementation efforts, and the importance of tailoring implementation strategies to meet the needs of specific sites. The resulting MIP Implementation Roadmap includes eleven distinct steps, as well as supplementary outcome metrics to support the implementation efforts of investigators implementing integrated behavioral health care.

Implications for Dissemination and Implementation: The MIP Implementation Roadmap can help substantiate the early stages of implementation by ensuring that projects are collecting key metrics and successfully addressing barriers to provide a foundation for larger scale, sustainable implementation efforts.
**Poster #:** 57

**Title:** Engaging Underserved Communities in Implementation Research: Strategies for Success in the Adaptive School-based Implementation of CBT (ASIC) Trial

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**Trainee Status:**

**Topic:** Health Services

**Abstract**

Research Objective: Implementation studies are often criticized for engaging only early adopter sites, thus limiting study generalizability. Better implementation science requires understanding optimal tactics for engaging stakeholders in implementation research. Adaptive School-based Implementation of CBT (ASIC) is a large-scale randomized trial designed to test different implementation strategies to support school professional (SP) delivery of cognitive-behavioral therapy (CBT) in high schools across Michigan. We analyzed methods used to recruit SPs at more than 100 diverse schools for ASIC participation and describe successful strategies used in this large-scale implementation study across different settings and stages of change. Study Design: Schools were recruited to ASIC over a 6-month period. A post-hoc process evaluation of recruitment was conducted. Metrics collected include quantitative measures (e.g., number of attempts) and qualitative feedback from recruiters on successful recruitment strategies. Following recruitment, data were analyzed to identify patterns in successful recruitment efforts and codify effective strategies for recruiting SPs to ASIC. Principal Findings: With a goal of recruiting 100 school, ASIC reached out to 272 schools identified as candidates and ultimately, SPs at 115 schools were recruited over 6 months. The average SP required 5 contacts before agreeing to participate (range: 1-16). Following early low recruitment numbers, the study team mobilized seven clinicians and research assistants (RAs) with mental health service experience, as well as members of a statewide CBT coaching network to reach out to schools. Leveraging these existing community partnerships served to significantly increase recruitment success, with average number of schools recruited increasing from 6/month prior to coach, clinician, and RA involvement to 39/month after. Further, discussion with SPs about their concerns regarding participation also proved helpful, as most were related to implementation of CBT in their work, rather than study participation. Discussing the experiences of past program participants, as well as program flexibility, helped assuage these concerns. Notably, SPs were generally not persuaded by discussion of study incentives ($330 over 18 months), but rather by empirical evidence related to student mental health improvement. Conclusions: Engagement of community members and personalized recruitment efforts were necessary to overcome barriers to study participation among schools. This resulted in engaging SPs from diverse school settings and exceeding recruitment targets.
Title: Implementing Collaborative Care and Telepsychiatry in Community-Based Health Centers: Patient Outcomes, Fidelity Monitoring, and Sustainability Planning

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Trainee Status: Topic: Health Services

Abstract
Publicly insured and rural populations face a higher prevalence of depression, anxiety, and post-traumatic stress disorder (PTSD), as well as limited access to timely, affordable behavioral health care. Primary care often serves as the main source of behavioral health care for this group, particularly Federally Qualified Health Centers (FQHC). The high level of need often leaves clinics feeling overburdened and under-resourced. In response, Michigan Medicine Psychiatry is engaged in multiple projects to implement two evidence-based integrated behavioral health models throughout Michigan: The Collaborative Care model (CoCM) and Telepsychiatry. CoCM is a population-based model that integrates a behavioral health care manager and psychiatric consultant with the primary care team to provide monitoring, evidence-based interventions, and expert treatment recommendations. Telepsychiatry uses teleconferencing to facilitate direct patient access to psychiatric care from the primary care site. The Michigan Collaborative Care Implementation Support Team (MCCIST) is partnered with three FQHCs and one health system to establish high-fidelity CoCM programs. The Study to Promote Innovation in Rural Integrated Telepsychiatry (SPIRIT) is a multi-state comparative effectiveness trial of Telepsychiatry vs. CoCM for patients that screen positive for bipolar disorder and PTSD in five Michigan FQHCs. Initial project results strengthen existing evidence that both CoCM and Telepsychiatry are effective ways to expand access to behavioral health care. All four MCCIST-supported CoCM programs have exceeded target rates for eight fidelity measures, which assess patient engagement, outcome measure completion, and use of psychiatric recommendations. Of 155 eligible patients offered CoCM, 94% (145) accepted enrollment. Of moderate to severely depressed and/or anxious patients (PHQ-9 or GAD-7 >9) who have completed 2+ outcome measures and been enrolled for 3-6 months (n=67), 37 (55%) have improved depression outcomes and 32 (48%) have improved anxiety outcomes. Averaging across the five SPIRIT sites, 52% and 51% of patients have improved depressive and mania symptoms, respectively, by treatment end (PHQ-9 and SPIRIT Mania Rating Scale [SMRS] decrease ≥5). 12% and 15% of patients have reached remission of depressive and mania symptoms, respectively, by treatment end (PHQ-9 and SMRS <5). 53% of patients have improved PTSD symptoms (PCL-5 decrease ≥10) and 15% of patients have reached remission of PTSD symptoms by treatment end (PCL-5 <19). Early project outcomes are promising, indicating these care models can be successfully implemented in diverse primary care settings with unique operational and patient needs.
Abstract
Over the past 10 years, the number of reported mental health diagnoses among patients in Michigan Community Health Centers (CHCs) has rapidly increased. Many of these patients are publicly insured. Michigan CHCs do not have adequate psychiatrists or psychologists on site to address all cases. As a result, many Michigan Medicaid enrollees do not have access to the specialty mental health care they need. There is a particular need for treatment of PTSD, which is estimated to affect 14-23% of the CHC population. To address this need, we are conducting a pilot study to evaluate the acceptability and feasibility of an evidence-based PTSD intervention, Prolonged Exposure for Primary Care (PE-PC). The intervention is delivered via telehealth to CHCs in order to improve access to treatment and remove barriers to care. We have partnered with three CHCs to screen and enroll patients who screen positive for PTSD. The study sample will include 50 patients from our partnered clinics, aged 18 years or older, who had an initial screening of ≥ 33 on the PTSD checklist for DSM-5 (PCL-5). To date, we have enrolled 14 patients in the protocol. Early outcomes show that participants who engaged in at least one session of PE-PC reported an average symptom reduction of 21 points on the PCL-5 by the end of the treatment period.
The Research Subcommittee of the Department of Psychiatry’s Diversity, Equity, and Inclusion (DEI) Committee supports DEI in research in the Department of Psychiatry. To understand the extent to which principles of DEI are incorporated in research and to assess the DEI needs of investigators, we developed and distributed a survey to Psychiatry faculty and staff in the Fall of 2018. The survey included 10 questions: 7 that had limited responses and 3 which were optional, open-ended questions. There were 76 respondents, of which 18% were research faculty, 7% clinical faculty, 13% research and clinical faculty, 30% research assistants, 25% research coordinators, and 7% who responded “other.” Overall, 70.2% of the respondents believed that DEI was “extremely” or “very” relevant to their research. Over 80% indicated that DEI was incorporated in recruitment; approximately 60% indicated that DEI was incorporated into assessment/data collection, participant accommodation and study design; and less than 50% reported DEI principles being used in data analysis. Over 70% of respondents collect data on race, ethnicity, gender, age, and education and 57% collect data on income. Less than one-third collect data on gender identity, language, or sexual orientation while under 17% collect data on religion or ableism/disability. Approximately 50% reported sample sizes large enough to compare results on race, gender, and age; 40% could compare on education. Less than 17% could compare on gender identity, religion, ability, language, sexuality orientation, or “other.”

Many respondents indicated that they were interested in learning more about incorporating DEI into recruitment (50%), study design (39%), participant accommodation (37%), analysis (32%), and other (4%), while 16% were not interested in DEI learning opportunities. The most notable barriers to DEI in research identified by respondents included a lack of diverse research faculty and staff, and difficulty reaching underrepresented minorities. Respondents suggested additional DEI educational and training events, facilitation of expanded recruitment, and improved transportation to reach underserved populations as ways the department could support incorporating DEI into research. In summary, survey results indicated that many faculty and staff are aware of the importance of DEI in their research and desire to further incorporate it into their work. Implementation steps include planning regular DEI educational trainings, working with other DEI groups at the East Ann Arbor Medical Campus to increase transportation options, such as a bus route from downtown Ypsilanti, and aggregating recruitment resources in order to support faculty and staff to further incorporate DEI into their research projects.
Title: Comparative Effectiveness of a New Clozapine or Other Atypical Antipsychotic Monotherapy for Treatment Resistant Schizophrenia

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Trainee Status: Topic: Health Services

Abstract
Background: Clozapine is the only antipsychotic medication with demonstrated increased effectiveness in reducing symptoms of schizophrenia in patients who have not responded to other antipsychotics (“treatment resistant schizophrenia”). Within the Veterans Health Administration (VHA), 20-30% of patients with schizophrenia have treatment resistant schizophrenia. Goren et al. (2016) suggested that clozapine is underutilized, and projected that VHA would save $22,444 per veteran with treatment resistant schizophrenia over the first year of clozapine therapy, based on a projected average reduction of 18.6 days of inpatient psychiatric care per patient. Previous evaluations of clozapine impact have used estimates or have conducted trials in controlled treatment environments, limiting generalizability. This work represents a real-world evaluation of the effectiveness of a new clozapine monotherapy trial in reducing the number of inpatient psychiatric days for patients with treatment resistant schizophrenia. Methods: A cohort of VHA users with treatment resistant schizophrenia who received a new antipsychotic monotherapy trial during FY 2006-2014 was created from the National Psychosis Registry (NPR), a national administrative database on care for VHA patients with psychotic disorders. The cohort was separated into those who received a new clozapine trial or a different atypical antipsychotic. Propensity scoring was used to account for differences in baseline characteristics between the two groups. Doubly robust estimation accounted for lingering imbalance between the treatment groups and estimates were produced using linear regression. Results: Patients with treatment resistant schizophrenia who received a new clozapine monotherapy had a larger reduction in inpatient psychiatric days relative to those who receive a trial of a different atypical antipsychotic after controlling for patient and clinical factors, given that they adhered to the prescription for the full trial year. Conclusions: Clozapine does indeed reduce inpatient psychiatric days, but only when groups are weighted, balanced, and confounding factors are addressed. The conceptualization of “treatment resistant schizophrenia” may benefit from additional expansion to include additional patient clinical characteristics to better identify patients who are good candidates for a trial of clozapine.
Abstract
Purpose: In recent years, the processes of DNA sequencing and genotyping (the ability to determine an individual’s unique genetic variants) have become considerably more cost effective, allowing for the partial or complete mapping of all nucleic acid base pairs within that individual’s entire genome. The improved efficiency of DNA analysis made possible through saliva extraction likewise allows for the processing of large sample populations and, potentially, genome-wide association studies (GWAS) to determine genetic variations (SNPs) and disease corollaries. When paired with comprehensive medical record information and patient-submitted metrics, these genotypes provide powerful tools for understanding the expression (phenotype) of complex mental health conditions. The UM Mental Health BioBank seeks to become a premiere data source for the research and advancement of personalized mental health treatments and protocols. Methods: The Mental Health BioBank universally approaches adult patients within the University of Michigan Ambulatory Psychiatry Depression Center Clinic. Those who enroll in the project consent to producing a saliva sample for DNA extraction, access to medical record data (including standardized, diagnosis-specific, patient-submitted progress/treatment questionnaires), and permission to be re-contacted for additional or more specialized research studies in future. Consent to the MHB2 project has no expiration date, and genotypes remain on file at the University of Michigan Central Biorepository. The Mental Health BioBank collection is searchable (by diagnostic code, medical condition, or comorbidity) via The University of Michigan Medical School Office of Research’s Data Direct self-service tool. Discussion: The Mental Health BioBank collection currently resides under the umbrella of The Michigan Genomics Initiative (65,000+ active participants across the University of Michigan Health System). To date, the Mental Health BioBank has itself recruited 1651 patients from within the Depression Center clinics (1040 female) toward a current enrollment goal of 5,000. Participants range in age from 18 to 91+. A sample of MiChart documented diagnoses (by ICD-10 code) from this cohort include: Anxiety Generalized [300.00]/Unspecific [300.02]: 1227 patients; Autism Spectrum Disorder [299.00]: 15; Bipolar I Disorder [296.7]: 144; Bipolar II Disorder [296.89]: 69; Depression [311]: 909; OCD [300.3]: 81; Psychosis (Unspecified) [298.9]: 70; PTSD [309.81]: 202; Substance/Polysubstance Abuse [305.90]: 296. With a clinic-based research team consenting patients daily, the Mental Health BioBank seeks to encourage collaboration with other study teams.
Title: Understanding Facility Approaches to Reducing Inappropriate Benzodiazepine Use among Older Veterans

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Trainee Status: Topic: Health Systems

Abstract

Introduction: Benzodiazepines (BZDs)—medications like alprazolam (Xanax) or lorazepam (Ativan)—are a class of drugs used to treat conditions including anxiety and insomnia. BZD use is a concern among older Veterans given its association with falls, fractures, car accidents, and decreased awareness. Despite these concerns, the physical and physiological dependence that develops with long-term BZD use makes it difficult for patients to reduce or discontinue use. Beginning in 2013, the Psychotropic Drug Safety Initiative (PDSI), a VA quality improvement program focused on improving the quality of mental healthcare for Veterans across the VA, began monitoring a number of drug safety measures including BZD use among Veterans 75 years and older. As part of PDSI, 47 VA facilities chose to focus on safer BZD use among Veterans 75+; each facility developed their own strategy to improve prescribing practices surrounding BZD use. We leverage this unique opportunity to understand facility approaches to reducing inappropriate BZD use, identify what was most and least helpful to reduce use, and elucidate the Veteran experience under different strategies.

Methods: Using VA administrative data and mixed models, we ranked facilities on change in BZD use among long-term BZD users (i.e., prescribed >120 days in the preceding 12 months) following the start of PDSI in order to identify high- and low-performing facilities (i.e., which had larger vs. smaller reductions in BZD prescribing). Here we present results from this quantitative stage. Results: Across 140 VA facilities, the average number of long-term BZD users 75+ at a facility was 175.1 (SD=118) and the average daily dose of BZDs in lorazepam-equivalent doses at the start of PDSI was 1.34 mg/day (SD=0.178). Among the facilities that prioritized safer BZD use among Veterans 75+, the average reduction over time post-PDSI was -0.0725 (SE=0.0036)—or a quarterly reduction of 0.07mg per day—compared to -0.0645 (SE=0.003) among the facilities that did not prioritize the measure (p-value corresponding to interaction between time and if facility prioritized safer prescribing=0.07). Results suggested variation in reduction over time across facilities (p-value from likelihood ratio test comparing model with and without random effect for facility-level slope<0.01). Conclusions: Among facilities that prioritized BZD reduction, there was significant variation in their success based on our Aim 1 analyses. For the second project Aim, we will interview clinicians, pharmacists, and other employees at high- and low-performing facilities, selected to represent a diversity of facility size and geography. Following qualitative data collection, we will combine results of the quantitative analysis with information collected during interviews to identify best practices to reduce inappropriate BZD use among older adults.
Abstract

Studies of non-Veteran and older US Veteran populations suggest increased risk of suicide behavior in formerly incarcerated individuals. The Veterans Health Administration (VHA) offers two Veterans Justice Programs to help justice-involved Veterans: Veterans Justice Outreach (VJO) and Health Care for Re-Entry Veterans (HCRV). This study examined suicide attempt and mortality risks for Veteran VHA users with Veterans Justice Program involvement as compared to other Veteran VHA users. Methods: Using VA electronic health records, we identified 5,401,192 Veterans who received VA inpatient or outpatient services in 2012 and were alive as of the start of 2013. Justice-involvement was characterized by any encounter with a Veterans Justice Program in 2012, as captured by program-specific outpatient stop codes. Mortality data came from prior VA National Death Index searches; suicide attempt data came from electronic health records and from the VHA’s Suicide Prevention Applications Network (SPAN). Suicide rates by Veterans Justice Program involvement were calculated for 2013 through 2016, whichever came first. We conducted proportional hazards regression to assess risks of suicide mortality 2013-2016 and suicide attempts 2013-2018, adjusting for demographic and clinical variables. Results: In 2012, HCRV services were received by 6,948 Veterans and VJO services by 26,049 Veterans, while 5,368,813 Veterans did not receive these services. Justice-involved Veterans were more likely to be male, younger, non-white, unmarried, homeless, and to have had a mental health or substance use disorder diagnosis or prior suicide attempt. Unadjusted rates of suicide for 2013-2016 were 55.9/100,000 person-years for recipients of HCRV services and 102.5/100,000 among VJO recipients versus 36.6/100,000 among other Veteran VHA patients. In adjusted analyses, Veterans with VJO encounters had greater risk of suicide (HR=1.3, p<0.05) and greater risk of suicide attempt (HR=1.1, p<0.05) compared to the rest of the Veteran VHA user population. Veterans who had HCRV encounters had a significantly elevated risk of suicide attempt (HR=1.5, p<0.001) but not suicide death, adjusting for covariates. Conclusions: Veterans who encounter the criminal justice system and receive Veterans Justice Program services have a high prevalence of suicide risk factors. In multivariable proportional hazards regression, receipt of VJO encounters was associated with elevated risk of suicide, and in separate models receipt of each Veterans Justice Program was associated with increased risk of suicide attempts.
Abstract
The Veterans Crisis Line (VCL) is an important component of the Veterans Affairs suicide prevention efforts. Little is known regarding suicide mortality following VCL calls. This analysis examined suicide risks following VCL calls for those callers who were identified and had received Veterans Health Administration (VHA) health services at some point in the two years prior to an initial documented VCL call. Methods: VA Office for Suicide Prevention data sources were used to identify recent VHA users who called the VCL between 1/1/2010-12/31/2015 and for whom individual identifiers were documented. These included 158,927 individuals, who had completed 379,783 calls. Using suicide mortality data from the VA Suicide Data Repository, we assessed the number of suicide deaths, and rates per 100,000, within 1, 3, 6, and 12 months of the initial documented VCL call, overall and by sex. Results: Among VCL callers with prior VHA use, we observed suicide rates of 797, 520, 389, and 301 per 100,000 in the subsequent 1, 3, 6, and 12 months, respectively. We observed suicide attempt rates of 10,181, 5,854, 4,251, and 3,172 per 100,000 in the subsequent 1, 3, 6, and 12 months, respectively. The average age of callers was 49.9, 86.5% were male, and 68.6% had had at least one mental health encounter in the year prior to their call. 81.3% of calls resulted in a referral to their facility’s Suicide Prevention Coordinator. Conclusions: These findings document substantial risk of suicide among VCL callers, indicating that VCL is reaching the intended population. Rates of suicide mortality and attempts were particularly high in the first month after an initial VCL call, and although suicide rates decreased over the 12 months, they remained elevated compared to the overall VHA patient population.
Abstract
Prior work suggests elevated risk of suicide following discharge from VA CLCs. Little is known regarding suicide risks among another long-term care population, recipients of VHA HBPC services. This study assessed suicide mortality through 2016 among VHA HBPC users in 2013 and compared risks to those of: 1) individuals discharged from VHA CLCs (previously known as nursing homes) in 2013 who had not received HBPC, and 2) VHA users in 2013 received neither HBPC nor CLC care in 2013. Methods: Per records in the VHA Corporate Data Warehouse, in 2013 there were 69,118 HBPC users (with at least one HBPC encounter), 17,380 live discharges from VHA CLCs who had not received HBPC, and 5,717,829 VHA users who had not received HBPC and were not live CLC discharges in 2013. Risks for suicide were assessed through 2016 or until death, whichever came first. Suicide rates were calculated by cohort, overall and by sex and age strata. Standardized mortality ratios (SMRs) were calculated to compare suicide rates of HBPC and CLC cohorts to the VHA cohort. In hierarchical models, we conducted proportional hazard regressions comparing suicide risk of HBPC recipients to those of discharged CLC residents, adjusting for demographic and clinical variables. Similar analyses compared HBPC patients and CLC residents to the overall VHA user cohort. Results: 94.8% of HBPC recipients were male; average age was 73.6 (SD=15.8); and there were 94 suicides in this cohort. The unadjusted suicide rate for HBPC recipients was 52.12 per 100,000 person-years, compared to an unadjusted rate of 68.23 per 100,000 person-years for the CLC discharge cohort and 38.89 per 100,000 person-years for the VHA user cohort. The age and sex-adjusted SMR for HBPC recipients relative to general VHA users was 1.28 (95% CI=1.04,1.56), and for CLC discharged patients relative to general VHA users was 1.81 (95% CI=1.23,2.5). HBPC recipients had greater suicide risk than individuals in the general VHA patient population in unadjusted analysis (Hazard ratio=1.34, p<0.05), and this elevated risk became non-significant when further adjusting for mental health diagnoses. CLC discharged patients had greater suicide risk than individuals in the general VHA patient population in unadjusted analyses (Hazard ratio=1.75, p<0.01), however, this became non-significant when adjusting for mental health diagnoses. Conclusions: In unadjusted analyses, suicide risk was elevated among VHA HBPC recipients and among VHA CLC residents compared to the general VHA patient population. These results suggest that, compared to the general VHA population, HBPC recipients and CLC discharged residents were at relatively high risk for suicide, which appears attributable to their relatively high rates of mental illness.
Abstract
REACH VET is a VA program that applies principles of predictive medicine to prevent suicide. It uses data from the VA’s electronic health record to identify individuals in the top 0.1% risk tier at their facility and REACH VET disseminates information about patients’ risks to coordinators and providers through a dashboard which guides outreach, reevaluations and care enhancements. This national evaluation examines program effects using health system and available mortality data. Methods: Using a difference-in-differences design, we compared changes in utilization and care processes for VHA patients identified for REACH VET (in the local top 0.1% risk tier) in the subsequent versus the previous 6 months to differences observed for a comparable cohort prior to REACH VET implementation (assessed as of 9/30/2010) and for a concurrent cohort who were at high risk (below the top 0.1% but above the top 0.5% risk strata) yet were not identified for REACH VET. A similar cohort was generated for the pre-REACH VET period. Analyses were conducted for individuals who entered REACH VET between March and September 2017, in two periods: March-May and June-September, to assess early and later program effects. Measures included indicators of treatment engagement, suicide safety plan documentation, services utilization, and documented suicide attempts. All-cause mortality was assessed using the VA Vital Status File. Results: The number of Veterans identified in a REACH VET top 0.1% risk tier ranged from 6334 in March 2017 to 6790 in September 2017. Program performance was high, with 85% having a REACH VET coordinator assigned and with 74% having successful outreach. As compared to a comparable pre-REACH VET cohort, the 6-month pre-post changes for the REACH VET cohort were significantly greater for receipt of outpatient mental health visit days (an increase of 2.9 visit days vs. a decline of 0.6); there was greater documentation of suicide safety plans (30.3% had a plan documented over the first 6 months, versus 20.0% in the comparison cohort), and there was significantly lower all-cause mortality over 6 months for the REACH VET cohort (2.2%) versus the comparison cohort prior to REACH VET implementation (2.9%). Conclusions: VA has made a substantial investment of staff and clinical resources to enhance access, quality and suicide prevention for high risk Veterans in VHA care. This preliminary assessment suggests that program implementation has been substantial and has been associated with greater treatment engagement, suicide safety plan documentation, and lower all-cause mortality. Future analyses will include assessment of impact on suicide mortality.
**Abstract**
Introduction: Bipolar disorder (BD) is associated with a range of social cognitive deficits. Our prior behavioral work demonstrated that eye gaze perception in BD is characterized by a self-referential bias when gaze direction is ambiguous. This study investigated the neural correlates of altered gaze processing in BD. Methods: Fourteen participants with BD and 21 healthy controls (HC) completed a gaze perception task during BOLD fMRI. Participants viewed faces with 9 different gaze angles, from direct to averted in gradual increments. They were asked to determine whether the face is making eye contact with them (yes/no) or the gender of the face (m/f) as a control task. Results: The two groups showed no differences in overall eye-contact endorsement rate ($t = -0.74$, $p = .467$) and gender identification accuracy ($t = -0.04$, $p = .967$). Compared with HC, the BD group showed reduced signal in the medial prefrontal cortex (mPFC) when processing gaze vs. gender ($[-6, 56, 11]$, $k = 189$, FEW-corrected $p = .017$). Such reduction was correlated with higher depressive symptoms ($\rho = -0.54$, $p = .047$), psychological distress ($\rho = -0.54$, $p = .044$), poorer reasoning & problem-solving ($\rho = 0.71$, $p = .004$), and poorer emotional intelligence (experiential EQ) ($\rho = 0.64$, $p = .015$). Conclusions: The results suggest that aberrant deactivation of the mPFC may underlie the self-referential bias observed in BP when processing social cues. It bears clinical and functional relevance, and should be further investigated as a target for treatment to improve outcome.
**Poster #:** 69  
**Title:** Increased Default Mode Network (DMN) Connectivity with Attention Networks with a Novel Mindfulness-based Intervention for Combat PTSD: Seed Based and Whole Brain Connectomics Analyses.  
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**Trainee Status:**  
**Topic:** Imaging

**Abstract**  
Background: Mindfulness, involving present-moment attention to bodily sensations, has been incorporated into psychotherapies for psychiatric disorders, and is associated with acute and enduring alterations in cross-network connectivity between default mode network (DMN) and attention networks. PTSD has also been associated with DMN-attention network dysregulation.  
Methods: Male military veterans with PTSD (N = 32) deployed to Iraq or Afghanistan and healthy age-and-gender-matched community healthy controls (N = 20) underwent fMRI to assess resting-state functional connectivity (rsFC). Connectomes were estimated during unconstrained resting state and during a mindful interoception task; joint independent components analysis (jICA) examined shared and unique aspects of mindfulness- and PTSD-associated connectivity patterns.  
Results: Compared to unconstrained rest, mindfulness showed decreased connectivity within DMN, and increased connectivity (decreased anti-correlation) between anterior DMN and dorsal attention network (DAN), and frontoparital control network (FPCN) and DAN (p = 7.0 x 10-6). PTSD patients had significantly decreased expression of this same connectivity component during the mindfulness condition compared to healthy volunteers (p=.009), and level of change in this component from rest to mindfulness was correlated with PTSD avoidant symptoms (p=.007).  
Conclusions: In this multivariate, whole-brain connectomic analysis, we demonstrate overlap between brain networks engaged during a mindfulness task and brain networks exhibiting baseline abnormalities in PTSD. In particular, both participants ia mindful state and PTSD participants at rest exhibited increased connectivity between DMN, DAN, and FPCN networks, suggestive of increased interoceptive awareness and effortful regulation of attention. It is possible the therapeutic benefits of mindfulness in PTSD are produced by re-engagement of the same core neural circuits that are dysregulated in the disorder.
Poster #: 70
Title: Neural correlates of inhibitory control in adolescents with symptoms of food addiction
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Trainee Status: Imaging

Abstract
Aims The neural correlates of food addiction in adults have been investigated using the Yale Food Addiction Scale (YFAS) and functional magnetic resonance imaging (fMRI). However, research using these methods to examine food addiction in adolescents has yet to be conducted. The YFAS is a self-report questionnaire that applies substance use disorder diagnostic criteria to certain foods and was initially developed for adults but has since been adapted for children (YFAS-C). This project aims to investigate the association between inhibitory control, addictive-like eating, and brain regions implicated in executive functioning in adolescents. It is predicted that adolescents endorsing food addiction symptoms will exhibit less activation in regions involved in inhibitory control compared to adolescents endorsing no food addiction symptoms.

Methods Seventy-six right-handed participants, aged 8.2–17.8 years (32 female), were recruited from the Michigan Longitudinal Study. Participants performed a go/no-go task during fMRI and completed the YFAS-C, after which they were categorized into two groups according to their YFAS-C scores (Control group: score=0; YFAS-C group: score ≥1). Inhibitory control was probed with a contrast of correct no-go versus go trials. Results A two-sample t-test comparing the Control and YFAS-C groups revealed a significant difference in three primary clusters, all exclusively in the left hemisphere (Control > YFAS-C; initial threshold of p<.001 uncorrected with a cluster-wise threshold of p<0.05 FWE): middle temporal gyrus/occipital gyrus, precuneus/calcarine sulcus, and inferior frontal gyrus. Specifically, the YFAS-C group showed deactivation in all three clusters. Conclusions Differences in inhibitory control are apparent in adolescents endorsing food addiction symptoms, suggesting that these individuals may be vulnerable to the emergence of food addiction problems later in life. Thus, adolescence may be a key developmental period to investigate the progression of food addiction.
Abstract
Objective: Rumination is often cited as a risk factor for suicide, yet few studies of rumination have utilized clinical samples, and no studies have examined its prospective association with suicide attempts. The purpose of this study was to examine concurrent and prospective associations of brooding and reflection (the two components of rumination) with suicidal ideation and suicide attempts among a high-risk clinical sample. Method: Participants were 286 adolescents and young adults (77% Caucasian, 59% female) ages 13-25 seeking psychiatric emergency services. A majority (71%) were presenting with a primary complaint of suicidal ideation or recent suicide attempt. Participants completed a baseline assessment at the index visit; 226 participants (79%) completed a 4-month follow-up assessment of suicidal thoughts and behaviors. Results: Brooding was associated with lifetime history of one or more suicide attempts, but not concurrent suicidal ideation. Reflection was not associated with lifetime suicide attempts or recent suicide attempt. Furthermore, prospective associations of brooding and reflection with suicidal ideation and suicide attempts were weak-to-small in magnitude and statistically nonsignificant. Conclusions: Rumination appears to have a limited association with suicide-related outcomes within a high-risk clinical sample. Additional longitudinal studies utilizing clinical samples are critically needed to better understand these associations.
Abstract
This study examined suicide risk among sexual and gender minority college students, relative to heterosexual and cisgender peers, and explored within-group differences in risk among sexual and gender minority groups. Participants were 41,412 college students (62% female, 37% male, 1% transgender/genderqueer) at four US universities who completed a brief screen for suicide risk, including measures of depression, alcohol misuse, past-year suicidal ideation (SI), and lifetime suicide attempt (SA). Sexual orientation identifications were: heterosexual (77%), mostly heterosexual (9%), bisexual (5%), gay/lesbian (3%), pansexual (2%), asexual, queer, mostly gay/lesbian, other sexual minority (1% each). Relative to their cisgender female and male counterparts, respective odds of SI and SA were higher among female-assigned transgender/genderqueer (OR=4.7; 4.8) and male-assigned transgender/genderqueer (OR = 4.7; 8.4) students. Adjusting for age, gender, race, and university, every sexual minority group had significantly greater odds of depression (AOR range = 1.76-3.35), past-year SI (AOR range = 2.41-4.59), and lifetime SA (AOR range = 2.35-5.46; excluding asexual) relative to heterosexual peers. Students identifying as pansexual, bisexual, queer, or mostly gay/lesbian had greater adjusted odds of endorsing 2+ suicide risk factors relative to students identifying as mostly heterosexual, gay/lesbian, asexual, or ‘other sexual minority’. These findings suggest that there is significant variation in suicide risk among sexual orientation minority subgroups, yet standard assessments often fail to adequately delineate groups. Differentiated interventions for subgroups within the sexual minority community are indicated. We did not find significant differences in suicide risk among gender minority groups (i.e., transgender vs. genderqueer/non-binary).
Title: Suicide Prevention Gatekeeper Training in the Child Welfare Workforce: Knowledge, Attitudes, and Practice Patterns Prior to and Following safeTALK Training

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Trainee Status: Injury and Violence Prevention

Abstract
Research Aims Youth involved in child welfare are at elevated risk for suicidal ideation (He et al, 2015), attempt, and death by suicide (Katz et al, 2011). Gatekeeper training has promising benefits, including associations with reduced suicide deaths (Walrath et al, 2015) and attempts (Garraza et al, 2015) in the year following training. The child welfare workforce are natural gatekeepers due to their contact with vulnerable youth, but few examples exist of partnerships between suicide prevention advocates and child welfare. The present study aims to 1) explore need for training among child welfare staff; 2) assess the immediate impact of safeTALK training on suicide prevention knowledge and attitudes and 3) examine changes in practice patterns at 6-month follow-up. Participants 248 child welfare staff ages 21-64 years attended a state-funded safeTALK training. Most identified as female (81%). Participants identified as Caucasian/White (n=151, 66%), African American/Black (n=52, 23%), Biracial (n=12, 5%), Other (n=4, 2%), and Hispanic/Latino (n=10, 4%). They represented a variety of professional roles. Measures and Procedures All participants completed a 4 hour safeTALK training developed by LivingWorks Education. Participants completed surveys prior to and immediately following the training, as well as a 6 month online follow-up. Measures were based on the Gatekeeper Training Survey (Wyman et al, 2008) and included Knowledge, Preparedness, Self-efficacy, and Reluctance subscales and practice pattern (e.g., Identification and Referral of youth) subscales. Results Aim 1: At pretest, 60% of participants indicated they had a professional experience with suicide. In regards to training exposure, 26% of respondents indicated they had no previous suicide prevention training. Aim 2: From baseline to posttest, perceptions of suicide knowledge, preparedness, and self-efficacy increased significantly, and reluctance to intervene with at-risk youth significantly decreased. Aim 3: 103 participated in the follow-up (42%). The number of youth identified as at risk based on behavior increased significantly at follow-up, as well as the number of youth referred to a mental health professional for suicide related concerns. Conclusion Youth involved in the child welfare system are highly vulnerable. Child welfare staff are in a unique position to identify and connect youth at risk to prevention services. Partnerships between suicide prevention advocates and child welfare leadership can support comprehensive policy development and improved collaboration between youth-serving agencies. Results from this study help advance our understanding of the impact of gatekeeper training on specific populations and inform continuing education for child welfare agencies.
Title: Short-term impact of Crisis Line Facilitation in Veterans hospitalized for a suicidal crisis

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Trainee Status:

Topic: Injury and Violence Prevention

Abstract

Background: The Veterans Crisis Line (VCL) has the potential to reduce suicidal behaviors, but it is likely underutilized by high-risk Veterans. We developed a brief motivational interviewing-based intervention, called Crisis Line Facilitation (CLF), designed to increase use of the VCL. CLF culminates in the Veteran calling the VCL with the therapist to practice the logistics of calling the VCL and have direct experiences that may counter any negative perceptions of the CVL. Little is known about how Veterans experience the CLF intervention and what predicts greater perceived helpfulness of this intervention.

Methods: Veterans Health Administration patients psychiatrically hospitalized for a suicidal crisis who had not made contact with the VCL in the past year were recruited for participation in a randomized trial of CLF versus Enhanced Usual Care (EUC). Both CLF and EUC were delivered prior to discharge from inpatient psychiatric care. All participants were given a short pre- and post-intervention survey including questions related to their feelings regarding using the VCL. Levels of confidence and comfort were compared within and between arms at both pre- and post-intervention time points.

Results: Pre-intervention questionnaire analysis showed no significant difference in confidence or comfort between the CLF (comfort: M=5.4, SD=2.4) (confidence: M =5.2, SD =3.4) and EUC (comfort: M=5.5, SD=3.7) (confidence: M=5.2, SD=3.9) conditions (p=0.91 and 0.83 respectively). Both groups reported significant increases in ratings of comfort and confidence with contacting the VCL at post-treatment (CLF comfort: M=7.9, SD=2.3, confidence: M=7.6, SD=2.4, p<0.0001, <0.0001) (EUC comfort: M=6.2, SD=3.4, confidence: M=5.9, SD=3.6, p=0.0013, <0.0001). Importantly, those who received CLF report a significantly larger increase in comfort and confidence in using the VCL (p<0.0001, <0.0001).

Conclusions: Veterans receiving inpatient psychiatric treatment for a recent suicidal crisis are a high-risk group and creative strategies are needed to encourage appropriate future help-seeking. The present results indicate that CLF, a brief intervention delivered during an inpatient psychiatric stay, significantly increased short-term self-reported ratings of comfort with, and confidence in, using the VCL relative to a control condition. Additional follow-up assessments are ongoing and future analyses will determine whether receipt of CLF, compared to EUC, is associated in greater utilization of the VCL and in a lower frequency of suicidal behaviors over the 12-month follow-up interval. In the meantime, the present results are encouraging and indicate the VCL has an impact on improving short-term perceptions of crisis lines as a resource to utilize in times of crisis.
Abstract

Background: Compared to the general population, Veterans are nearly twice as likely to experience an accidental opioid overdose. Veterans who are prescribed high doses of opioids over long periods of time are at increased risk, with one study finding over four times the risk of unintended overdose death for chronic pain veterans prescribed 50 morphine equivalent milligram (MEM) or greater compared to dosages of 1 to <20 MEM. In response to this risk, the VA implemented a nationwide program of Overdose Education and Naloxone Distribution (OEND) in November 2015 to help prevent and treat overdose. This program involves educating Veterans on opioid overdose and prescribing naloxone kits. By November 2017, the VA had dispensed over 100,000 naloxone prescriptions. Implementation of the OEND program in Michigan resulted in 4,550 statewide prescriptions of naloxone being dispensed by April 2018. The Prescription Opioid Safety Trial (POST) is an ongoing pragmatic randomized controlled trial exploring the effectiveness of a motivational interviewing-based intervention to increase safety in Veterans with long term opioid prescriptions. This poster explores the impact of the national OEND program on our participant population, specifically the extent to which naloxone is reaching the veterans at greater risk, who are taking ≥50 MEM.

Methods: Participants enrolled in POST have been taking at least 20 MEMs for at least three months prior to enrollment and have received or are currently receiving services in the Ann Arbor Veteran Affairs (VA) primary care clinic. Cross-sectional survey data was collected from participants at baseline. The percentage of participants receiving an opioid prescription of 50 milligram equivalent of morphine or greater was calculated. Percentage of veterans receiving OEND were calculated using an OEND scale.

Results: Data was analyzed for 271 participants. Eighty-four participants (31%) received an opioid prescription with a MEM of 50 or greater. Eighty-four participants (31%) reported “yes” to receiving information on Overdose Education and Naloxone Distribution (OEND) in the past 6 months. Of the 84 people who received OEND, 66 (79%) indicated they received OEND from the VA and 26 participants (10%) self-reported receiving a naloxone prescription. Conclusion: Participants receiving opioid prescriptions for 50 MEM or greater account for a smaller portion of the VA primary care opioid prescriptions. A relatively small portion of our participants (31%) received OEND, and a lower percentage of participants (10%) self-reported receiving naloxone. This suggests VA policy directives on OEND have not had a large impact on the primary care population in our study, with a large portion of our participants receiving no OEND.
Abstract

Background: Few suicide prevention interventions have been shown to be effective for high-risk adults, and even fewer have been widely adopted by health systems. Novel approaches to suicide prevention are needed to address increasing rates of suicide deaths. Key risk factors for suicide, and related ideation and attempts, include hopelessness and poor social support. Peer mentors are individuals who have lived experience with a mental health condition, have achieved stable recovery, and who incorporate their personal experiences into providing support, and thus may be well suited to potentially increase a sense of hope and belongingness among others currently experiencing mental health challenges. Methods: We describe the methodology of a randomized controlled hybrid effectiveness-implementation trial of a peer specialist intervention known as PREVAIL (Peers for Valued Living), which is delivered by Peer Support Specialists who are certified by the state of Michigan, have at least one year of professional peer experience, and participate in a 3-day study intervention training. The study will recruit 490 participants admitted to inpatient psychiatry following suicidal ideation or a suicide attempt. Patients are excluded from study participation if they are unable to consent to research or participate meaningfully in a peer relationship due to unstable psychosis, cognitive impairment, violence, or severe personality disorder. Participants randomized to the intervention arm will receive 3 months of one-on-one peer support that includes semi-structured conversations designed to increase hope and belongingness. Primary outcomes assessed at 3 and 6 months include suicidal ideation (Beck Suicide Scale) and suicide attempts (Columbia Suicide Severity Rating Scale). Secondary outcomes include medically serious suicide attempts according to medical record review and self-reported self-efficacy to avoid suicide. Hope, hopelessness, and social support will be assessed as potential mediators. We also describe our protocols for suicide risk management, supervision, and fidelity monitoring in the context of an intervention delivered by peers, as well as our methodology for assessing facilitators and barriers to implementation. Results: Study enrollment will continue until 2021. We describe progress to date, including recruitment and retention rates. Discussion: If effective, the PREVAIL intervention would represent the first rigorously studied peer specialist-based mentorship program to reduce suicidal thoughts or behaviors among a high-risk population. The hybrid effectiveness-implementation design also aims to facilitate real-world implementation if the intervention is shown to be effective.
Poster #: 77
Title: Reduced Risk Propensity during the Euthymic Phase of Bipolar Disorder: A Protective Mechanism?
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Trainee Status: Mood

Abstract
Bipolar disorder (BD) is associated with excessive goal-directed, pleasure-seeking, and risk-taking behaviors that manifest in its clinical presentation. Recent investigations have examined these dynamics in acute mood episodes, but it remains unclear whether aberrations in risk-taking are also present during the euthymic phase. This study examined risk propensity in sub-acute stages of BD using a sample of 33 participants with BD, currently euthymic, and 34 controls. Participants completed the Balloon Analogue Risk Task (BART), a computerized risk-taking assessment, and self-ratings. For each participant, a sigmoid function was fitted to the data, i.e., percentage of trials the participant pumped the balloon (y-axis) against the number of pumps (x-axis), to calculate two key constructs: certainty (slope) and risk propensity (threshold at 50% probability). The two groups were not different in certainty, but BD (34.01 ± 11.16) showed significantly reduced risk propensity compared with controls (40.07 ± 11.57), t(64) = 2.162, p = .034. Within the BP group, lower risk propensity correlated with higher behavioral activation to reward (rho = -.351, p = .045) and also higher behavioral inhibition (rho = -.407, p = .019). The results suggest that avoiding reward-related risk-taking may be a mood-regulating strategy for bipolar patients who are sensitive to reward but capable to inhibit such impulse. This finding informs personalized treatment strategies. Future research should confirm this finding using longitudinal and experimental methods.
Abstract
Bipolar disorder places a great burden on patients and their families. Along with mood, bipolar disorder affects sleep, circadian rhythm, and cognitive function. Patients can benefit from the use of digital health technology to monitor their patterns; therefore, it is important to study how to best engage individuals with bipolar disorder to use these tools. Participants were 50 individuals with bipolar disorder who used an activity tracker and a self-report smartphone app to track their daily patterns, and completed weekly interviews assessing manic and depressive symptoms. Outcome measures test engagement strategies with objective measures of adherence between an activity tracker and a self-report app, as well as subjective measures of patient preference. Engagement is also measured between two randomized groups, one was instructed to review their recorded and tracked symptoms weekly with an interviewer, and the other was not. Limitations and future directions are discussed.
Using IV Ketamine More Effectively: Safety and Efficacy of 100-minute versus 40-minute intra-venous infusions for Refractory Unipolar or Bipolar Depression

Sagar Parikh on behalf of Bio-K team

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Abstract

Meta-analytic data demonstrate that IV ketamine is effective for treatment-refractory depression (TRD), usually using 40-minute infusions. Biological or clinical predictors of response have not been identified. The mammalian target of rapamycin (mTOR) signaling pathway serves as a central regulator of cell metabolism, growth, proliferation and survival, and is implicated in ketamine treatment. To examine mTOR response and evaluate other biomarkers, we are conducting a multi-site clinical trial of IV ketamine for TRD—both unipolar and bipolar—administering 3 acute infusions. We use remission (MADRS < 9) to define remitters and non-remitters to ketamine. Both 100-minute and 40-minute infusions have been administered, providing an opportunity to compare side effects, safety, and tolerability. In addition, preliminary comparison of efficacy between the infusions is also possible. To date, nearly 50 of a proposed 100 subjects have completed the 3 acute phase infusions and some have had additional maintenance infusions, yielding over 100 individual infusions of 100-minutes and approximately 60 individual infusions of 40 minutes. Comparison of side effects between the two infusion types reveals significant differences, with the 100-minute infusion much more tolerable. Preliminary efficacy data suggests lower response after a single 100-minute infusion compared to a single 40-minute infusion, but similar response after 3 infusions. In addition, supplemental analysis on 30 infusions given to 10 patients at the Michigan site is provided. These unique data on side effects, overall safety and tolerability, along with preliminary efficacy data, provide an opportunity to consider the merits of 100-minute infusions as an alternative treatment which is safer and easier to use by psychiatrists.
Poster #: 80
Title: Incorporating Treatment Outcomes into Quality Measurement of Depression Care
Authors: Curtis D; Ganoczy D; Walters H; Van Sparrentak M; Jagusch J; Garlick J; Hofer T; Kim H; Piette J; Valenstein M; Vijan S; Zivin K; Pfeiffer P
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Trainee Status: Mood
Topic: Mood

Abstract
Depression is a leading cause of death and disability, and is almost twice as prevalent in patients of Veterans Health Administration (VHA) than the general population. In 2012, the VHA spent 9.8 billion dollars for patients with depression, including 2.5 billion dollars in direct mental health care costs. Treatments for patients include antidepressant medications and psychotherapy, however the VHA does not currently measure the comprehensive quality of these treatments. Factors such as VHA clinic structures affect the quality of treatments and the Institute of Medicine recommends incorporating patient-reported outcomes into quality improvement. The MOMENT (Mobile Outcomes MeasuremENT) Study is a prospective longitudinal study of VHA patients from 29 Midwest VHA clinics with active symptoms of depression that administers five surveys over the course of one year. This study addresses some of the challenges of collecting patient-reported depression symptom outcomes by administering the Patient Health Questionnaire (PHQ-9) through three methods: paper surveys, online links sent through text messages (SMS), and an automated, telephone-based interactive voice response (IVR) system. Patients self-report mood, anxiety, pain, social support, physical functioning, treatment history, treatment adherence, and treatment adequacy. Survey data is merged with VHA electronic medical records, and depression outcomes are measured at both individual and clinic-levels. Preliminary results show that, on average, participants across all sites experience moderately severe depressive symptoms (PHQ-9 = 16.3) at baseline, but symptoms significantly improve at the three month (PHQ-9 = 14.4) and six-month (PHQ-9 = 13.5) time points. Lower levels of anxiety and pain and great social support and functioning at baseline are associated with lower depression scores at three and six months. IVR and SMS-based methods are feasible and acceptable for collecting patient-reported depression outcomes. As the study progresses, researchers aim to determine the association between facility characteristics and depression care processes and outcomes.
Poster #: 81
Title: Characterization of exosomes isolated from bipolar patient plasma and iPSC: role in neuronal plasticity.
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Trainee Status: Topic: Mood

Abstract
Bipolar I Disorder (BP) is a serious, recurrent mood disorder that is characterized by alternating episodes of mania and depression. To begin to identify novel approaches and pathways associated with BP, we have differentiated BP and undiagnosed control (C) induced pluripotent stem cells (iPSC) to astrocytes and performed RNA-seq. In comparing differentially expressed genes using hierarchical cluster analysis, “Exosome” was the most highly significant cluster identified. Astrocytes have been shown to release exosomes in culture and importantly, miRNAs have been shown to be differentially expressed in exosomes derived from BP vs C postmortem brain tissue. However, little is known regarding what transcripts and proteins are carried from astrocytes to neurons, how they regulate biological functions of the recipient cell, and in turn how that may be altered in mood disorders. Astrocyte-derived exosomes have been suggested to promote neuronal plasticity, as well as to remove toxic proteins in brain, and alterations in function or content may be involved in neurodevelopmental, neuropathological and neuropsychiatric conditions. To examine the characteristics of BP patient and Control exosomes, their cargo and interactions with neural precursor cells, astrocytes were differentiated from BP and C iPSC lines. Immunocytochemical analysis demonstrated that differentiated astrocytes expressed CD44, S100b, and GFAP. Supernatants from these cultures were collected, exosomes were isolated using differential ultra-centrifugation, and analyzed using NanoSight technology, demonstrating that the mean size of exosomes derived from the bipolar media was significantly smaller than that of control astrocytes, but concentrations were similar. Western blot analysis demonstrated the presence of exosomal markers: CD63, HSP70, CD9, and CD81, and proteomic analyses of both spontaneously secreted exosomes and following stimulated release are in progress. Checkerboard analyses of exosome contribution to neuronal differentiation is being carried out by addition of BP and C astrocyte derived exosomes to BP and C neural progenitor cells (NPC). Neurite outgrowth, miRNA array, electrophysiology, and immunocytochemistry/RTqPCR for differentiation makers are being carried out on recipient cells. Utilizing PKH26 to fluorescently label exosomes demonstrates uptake by recipient NPC in both live cell imaging and immunocytochemical analysis. Additionally, proteomic analysis of exosomes isolated from peripheral blood of patients who contributed fibroblasts for stem cell derivation is currently underway. Given the current interest in clearing toxic proteins from the brain of patients with various neurodegenerative conditions, exosomes may present a unique target in BP.
Title: Analyzing the use of sentiment intensity as a predictor of hospitalizations in Bipolar patients.

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Trainee Status: Mood

Abstract
Background: Individuals with bipolar disorder have a high risk of suicide as well as a heightened risk for engaging in impulsive and risky acts other than suicide such as violent outbursts, domestic abuse, substance abuse, etc. Real-time prediction of susceptibility for hospitalization due to psychiatric disturbances remains a challenge with these patients due to the nature of the disorder. In this work, we integrate data across notes and diagnosis — and focus on learning rich representations of this data to predict whether the participant should be flagged or alerted for hospitalizations due to psychiatric disturbances. In particular, we use the sentiment scores as extracted feature from the notes and combine it with the DSMIV diagnosis to use it in different classification models and compare them for predicting the need of hospitalization. Method: In this analysis, we integrated the clinical summary notes from the baseline diagnostic interviews and DSMIV from 1215 participants enrolled in the Heinz C. Prechter Bipolar Research Program. For the purpose of feature extraction from notes, we obtained a score of negative, positive and neutral sentiments along with the compound/valence value for each document using the VADER (Valence Aware Dictionary and sEntiment Reasoner) which is a lexicon and rule-based sentiment analysis tool that is specifically attuned to sentiments expressed in multiple domains. Using the extracted sentiment scores from each document with their age at the time of interview and their DSMIV we investigate if classical classification techniques are able to label a participant that needs to be hospitalized. Result: We achieve state-of-the-art results on this predictive tasks using random forest classifiers and Naïve Bayes classifiers. The classification technique achieves an accuracy score of more than 80% and an F-score of over 0.80 if the DSMIV and the participant age is known at the time of the interview. Further, we compare the extracted sentimental features with the HAM-D (Hamilton Depression Rating Scale) score aggregate and see a positive correlation (Pearson Correlation Coefficient of 0.4 with a p-value 0.5e-43) which provides assurance and bolsters the strong impact of the use of extracted negative sentiment score in the classifiers in predicting the need of hospitalization due to mood and other psychiatric disturbances. Further Use: The results from this work can be further expanded and applied in speech annotations, texts from bipolar participants or in between the duration of two consecutive annual visits to flag or send an alert message if the participant needs hospitalizations.
Abstract
The Infant Mental Health-Home Visiting (IMH-HV) program is a Medicaid-funded intervention provided by the Community Mental Health Services Program for high-risk families from pregnancy through child age 3 years that promotes positive parenting and development for young children. The Michigan Collaborative for Infant Mental Health Research has collected data across Michigan to evaluate effectiveness of the practice. In the current study, we focus on changes in parenting. Our sample consists of 78 female caregivers who received IMH-HV intervention over a 1-year period. Caregivers and children (mean age = 9.9 months) were assessed shortly after entry into services, and 6 and 12 months later. Assessment included measures of infant development, caregiver mental health and parenting. The current study uses the sum of two subscales of the Home Observation for Measurement of the Environment (HOME), based on observations in the home, to examine two domains of parenting: 1) refraining from harshness and 2) responsiveness to the child. IMH-HV services are delivered to families at any point from pregnancy through child age three; length of treatment varies according to factors including child age at entry, family need and treatment objectives, and factors influencing parent/caregiver attendance. Weekly IMH-HV sessions are typically 1.5 to 2 hours in length. Following each home visit, clinicians reported the date and length of visit, which was used to calculate the total number of visits between baseline and 6 months and between 6 and 12 months. The total number of visits in the time preceding the assessment was used as a time-varying predictor in a linear mixed model. Demographic risk was measured by young maternal age at childbirth, crowding in the home, very low income, low education, being unmarried and racial/ethnic status. Psychological risk was measured by maternal psychopathology and history of childhood trauma. A linear mixed model for longitudinal analysis allowing for individual level variance was estimated using SAS 9.4 PROC MIXED with unstructured covariance structure and restricted maximum likelihood estimation. Random effects of intercept and time were included in the model. Results of the mixed model showed that higher number of home visits preceding an assessment was related to more responsive and less harsh parenting as evidenced by higher HOME scores (estimate = .044, p = .0031), even after controlling for demographic and psychological risk. These data provide evidence that higher exposure to treatment in the IMH-HV model is related to improved parenting capacity to provide emotional support to their child. This model is implemented in a real-world setting, strengthening the evidence that IMH-HV is effective for high-risk families.
Abstract
The literature base for religiousness/spirituality (R/S) indicates a positive association of R/S and mental health. We sought to analyze the relationships between R/S, depression (MDD), and quality of life (QoL) in postpartum women with trauma histories. Our sample consisted of a subset of postpartum women recruited to a larger longitudinal study (N=105). At 4 months postpartum, participants completed the Childhood Trauma Questionnaire (CTQ). At 6 months, participants completed the BMMRS (measuring R/S), the PDSS (measuring MDD), and a demographics questionnaire. At 12 & 15 months, we collected PDSS and QoL reports. We used linear regression with BMMRS scores, cumulative demographic risk, and CTQ scores to predict MDD and QoL. Total CTQ symptoms, forgiveness and organizational religiousness were significant predictors of MDD and QoL up to 15 months postpartum. Further analyses indicated forgiveness to self and others were significant while forgiveness by God was not in predicting MDD and QoL. These results are discussed in light of the study's population of postpartum women with histories of trauma. Moreover, we discuss the findings of forgiveness to self and others as unique contributors to more adaptive outcomes.
Abstract
Selma Fraiberg developed Infant Mental Health Home-Visiting (IMH-HV) in the early 1970s at a time when more was becoming known about the importance of early childhood development and the value of intervening early to strengthen early caregiving relationships to promote better child outcomes. The program is widely implemented across Michigan and has been subject to preliminary evaluation within the state in the 1990s, demonstrating promising results. However, recently enacted legislative standards (P.A. No. 291-Voluntary Home Visiting Programs) require additional evaluation with measurement of impact on key benchmarks (as described above) in order to sustain eligibility for state-funded reimbursement for services. In order to fulfill legislative requirements, the University of Michigan collaborated with the Michigan Department of Health and Human Services (MDHHS), eight universities making up the Michigan Collaborative for Infant Mental Health Research (MCIMHR), agencies in the community, and family partners to conduct two quasi-experimental studies. These studies’ primary objective is to evaluate effectiveness of the IMH-HV model on maternal and child outcomes. For the second study, the UM research team worked with Community Mental Health agencies across the state to identify pregnant women or parents with infants/toddlers aged 0-24 months who had recently initiated IMH-HV services. All project participants received baseline, bi-weekly, and follow-up assessments across a 12-month period of treatment intervention to assess program impacts on parenting, mental health, child health and other key benchmark domains. The purpose of this poster is to describe 4 papers currently in submission to the Infant Mental Health Home Visiting Journal regarding Study 2 and the evolution of the IMH-HV model. It will provide an overview of results found thus far and summary of next steps in ongoing evaluation and dissemination.
Poster #: 86
Title: Effectiveness of Pharmacogenetic Testing for Antidepressants in the VA - the Precision Medicine in Mental Health Care (PRIME Care) trial
Authors: Garlick J. Inouye I. Jagusch J. Walter H. Blow F. Pfeiffer P. and Oslin D.
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Trainee Status: 
Topic: Pharmacology

Abstract
Background: At least 1 in 7 Veterans is currently suffering from a depressive disorder. Untreated or poorly treated depression is implicated in 75% of suicides. At least 10% of new Rx fail because of side effects, and each unsuccessful course of antidepressants (AD) is associated with at least a 10% risk of dropping out of care. The odds for successful treatment decrease and risk of intolerable side effects increases with each failed trial. Pharmacogenetic (PGx) Testing looks at genes that affect drug metabolism and drug action. For the PRIME Care study we are using a commercially available battery that includes 8 genes that influence AD response to see if the test improves clinical outcomes. The study’s primary hypotheses are 1) Provider/patient dyads in the intervention group will use fewer contraindicated medications based on established PGx criteria; and 2) Veterans with MDD whose care is guided by the results of the PGx battery will have higher rates of depression remission. Participants and Methods: The PRIME Care study is a multi-site RCT (n=2,000 depressed patients enrolled at 22 VA sites). Patient/provider dyads are randomized to either the Immediate Results Group or the Delayed Results Group. The Immediate Result groups will receive the PGx results 2-3 days after randomization, and the Delayed Results groups receives their results after 6-months of treatment as usual. Outcomes are measured over 6-months from randomization by a Central Outcome Group. Recruitment Update: As of 4/15/19, a total of 521 providers have been consented nationally to the PRIME care study. The total number of Veterans referred across the 22 sites is 1508, of that 969 have been randomized. The Ann Arbor site has 44 providers consented, 125 referrals, and 76 randomized Veterans. The baseline characteristics for subjects randomized by 3/22/19 (n=941) are as follows: The average age was 48 (+ 15), 69% Caucasian and 16% African American, 75% male, and the average PHQ-9 score was 17.3 (SD 4.2). Discussion: The PRIME Care Study is at its midpoint and is on track to randomize 2000 Veterans into this pragmatic trial. This study will provide scientific evidence to determine whether PGx testing should be implemented throughout the Veterans Health Administration. Recently published research on PRIME Care consented providers (Hull et al.) indicates that mental health providers “were more likely to indicate that they felt well-informed about genetic testing and comfortable ordering a PGx test whereas primary care providers were more comfortable ordering genetic tests for disease susceptibility.”Reference:Hull, L.E., Lynch K.G. & Oslin D.W. VA Primary Care and Mental Health Providers’ Comfort with Genetic Testing: Survey Results from the PRIME Care Study, J GEN INTERN MED (2019).
Abstract
Purpose: Alcohol use as low as 2 drinks/day is linked to an increased risk of complications following surgery. This study examined surgical healthcare providers’ and surgical patients’ perspectives on alcohol-associated surgical risk. Of particular interest was assessing the current alcohol-related care practices during the perioperative period, identifying areas for improvement, and assessing patients’ and providers’ attitudes toward changing alcohol-related clinical practices. Methods: Qualitative interviews were conducted on 20 surgical patients and 9 surgical healthcare providers. All data were collected from a large academic medical center in the mid-western United States. Patients were between the ages 18-75, scheduled for an elective surgery, and scored ≥ 4/5 for women/men on the Alcohol Use Disorders Identification Test, Consumption questions (AUDIT-C). Providers were included if they provided or oversaw care for surgical patients within the designated health system. Data were coded using thematic analysis within a grounded theory approach. Results: Patient participants were 25% female, with a median age of 56.5 years old, and were predominantly white/Caucasian race (85%). Provider participants included surgeons and advance practice professionals, and were 44% female with a median age of 42 years old. Themes identified included limited knowledge of alcohol-related surgical risk; inconsistent alcohol screening before surgery; lack of alcohol intervention before surgery; and variable interest in enhancing alcohol-related standard of care. Among patients, none had been informed of alcohol-related surgical risk by their provider; however, all were interested in learning more about alcohol and surgical health. Providers were largely unaware of alcohol-related surgical risk outside of a few specific areas (e.g. alcohol withdrawal). There was little consistency in alcohol screening standards and intervention protocols across clinics. Providers considered improving alcohol-related clinical practices a low priority. Conclusions: This research highlights several areas that could improve alcohol-related surgical standard of care such as exposing surgical healthcare providers to research on alcohol-related surgical risk, instituting universal alcohol screening practices to enhance provider awareness of patient alcohol use, and exploring alcohol intervention options that are effective and feasible. Support: This research was supported by a grant awarded by National Institute of Alcohol Abuse and Alcoholism (K23 AA023869).
Abstract
Departments of Psychiatry, Emergency Medicine, and Biostatistics, University of Michigan, Ann Arbor, MI, USA, 48109. Purpose. Alcohol use and violent behaviors (physical aggression) are prevalent among adolescents, with enormous impact on morbidity and mortality. Preliminary baseline data are presented from an ongoing sequential, multiple assignment, randomized trial (SMART) testing adaptive interventions, with intensity of dose varying based on response. Methods. Thus far, 13% of youth (ages 14-20) screened positive for binge drinking and violent behaviors, with 60 participants enrolled in the SMART (mean age 18.4; 27% male, 35% African American, 58% receive public assistance). Results. At baseline, average weekly consumption was 11.8 (SD=20.8) and average days of any violence was 1.3 (SD=2.3). Further, 79% reported marijuana use, 16.1% carried a firearm and about half screened positive for depression (45.2%) and anxiety (53.2%). Common drinking motives were to make social gatherings more fun (83.3%) to have a good time (76.6%), and to forget about problems (60%); whereas, motives for avoiding drinking were to focus on school/work/my future (48.3%), no alcohol/ money (35.4%), and to stay healthy (35.4%). Common fighting motives were to protect myself, family or friends (53.3%), in bad mood (38.3%), and someone was talking trash (36.6%); whereas, motives for avoiding fighting were to focus on school/work/my future (48.3%), stay out of trouble with law (38.7%), and be a good role model (35.4%). Common protective behavioral strategies to reduce drinking were leave at a set time (45.0%), do something else (43.3%), and tell friends not drinking (35%); common strategies to avoid fighting were stay away from places it is likely (60.0%), walk away from someone instigating a fight (46.6%), and avoid certain people (41.6%). Hierarchical regression analyses were conducted to examine associations between psychosocial factors (step 1) and violence (step 2) in relation to average weekly consumption. In step 1, variables significantly associated with average weekly consumption included greater impulsivity, greater sensation seeking, and fewer prosocial leisure activities; excitement, anxiety and age were not significant. In step 2, the only variables that were significant were greater sensation seeking and more violence days. Conclusions. Findings underscore the need to address impulsivity and sensation seeking, as well as prosocial leisure activities, in adaptive interventions for comorbid alcohol misuse and violent behaviors among adolescents and emerging adults. (Funding Support: NIAAA AA024755.)
Abstract
Background: A high proportion of patients seen in Emergency Departments (EDs) have problematic or hazardous alcohol use. Problematic drinking is a significant problem in Veterans Health Administration (VHA) EDs compared to other community hospitals. Alcohol use affects Veterans of all ages and despite significant investment in the VHA, many high-risk Veterans are not changing alcohol use patterns. Recent data shows that telephone monitoring and brief interventions (BIs) are helpful in overcoming barriers to substance use treatment. The VHA has a large network of peer specialists across the country. Peer specialists could server a vital role in delivering alcohol BIs and monitoring support to Veterans with problematic alcohol use.
Objectives: Aim 1: Determine if peer-delivered alcohol intervention and mentorship promotes reduction in problematic drinking compared to enhanced usual care. Aim 2: Determine if peer-delivered alcohol intervention and mentorship improves the rate that Veterans go to primary care or specialty alcohol treatment services, if needed, compared to enhanced usual care. Aim 3: Explore what parts of peer-delivered intervention influence change and understand the barriers and facilitators of peer-delivered alcohol intervention implementation in the VHA.
Methods: This is a randomized clinical trial. Participants who indicate problematic drinking per the self-repot AUDIT-C will be recruited from the VA Ann Arbor Healthcare System (VAAAHS). They will be randomized to the Brief Advice (BA) group to receive enhanced routine care or the Alcohol Peer Mentor (APM) group to meet with a Veteran peer. Participants in the APM group will meet with a peer in the ED and for 6 follow-up booster sessions to discuss strengths and goals related to alcohol use and other aspects of daily life. Results: This study is not yet concluded.
Conclusions: This is one of the first attempts to directly test the effect of peer-delivered alcohol intervention and mentorship in the VHA. Developing this intervention has the potential to have a significant and substantial impact on helping Veterans with more serious alcohol problems.
Title: Characteristics Associated With High Intensity Drinking Among Adolescent and Emerging Adult Risky Drinkers

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Abstract

Purpose: The NIAAA Strategic Plan highlights recent increases in drinking episodes involving the consumption of 8+ drinks for females and 10+ for males (i.e., High Intensity Drinking; HID). In young people, HID increases risk for negative consequences, including a two-fold increase in the rate of alcohol use disorder relative to non-HID binge drinkers. To inform HID-focused interventions, we explored correlates of HID among adolescents and emerging adults (ages 16-24) who screened positive on the AUDIT-C for past 3-month risky drinking. Methods: Participants were 774 risky drinkers (AUDIT-C positive; M age=20.9, SD=2.6; 57% female; 74% White and 26% Minority) recruited via social media who enrolled in an online RCT targeting risky drinking. Using baseline data, we used unadjusted analyses comparing participants with no past-month HID vs. any HID on substance use-related variables. Next, we conducted a Poisson regression to examine cross-sectional associations of total HID days with: age, sex, past 30-day total cannabis use days, motivation and self-efficacy to cut back alcohol use, and average past 3-month frequency of using alcohol with nominated important social network members. Results: HID was reported by 31% of participants who had M=2.7 (SD=2.1) past-month HID days. Those with HID had significantly higher severity on substance-related variables (e.g., AUDIT-C score, total drinking days, drinking consequences, DUI frequency). Significant (p<.05) unadjusted comparisons included: age (No HID M=20.7 vs. HID M=21.5 yrs.), sex (males more likely to have HID, 51% vs. 39% with No HID), motivation (No HID M=2.7, HID M=3.4), self-efficacy (No HID M=8.7, HID M=7.9), cannabis use days (No HID M=3.8, HID M=6.1), and drinking with peers (No HID M=2.3, HID M=2.7). Using these variables in the Poisson model, cannabis use was not related to total HID days, but the following were (p<.05): age (IRR=1.11), male sex (IRR=1.30), motivation (IRR=1.10), self-efficacy (IRR=0.87), frequency of drinking with peers (IRR=1.53). Conclusions: Young risky drinkers with HID, compared to those without HID, had higher motivation yet lower self-efficacy to reduce alcohol use; they also had greater frequency of drinking with important peers. Our findings suggest that interventions for HID might consider motivational interviewing-based approaches to increase self-efficacy alongside a social network strategy to address peer influences. Supported by: AA024175
Abstract
Aims: Emerging adults (EAs, ages 18-25) in urban, resource-poor locations experience disparities in access to prevention interventions for drug use and sexual risk behaviors. The Emergency Department (ED) visit provides a teachable moment for initiating brief interventions (BIs) that can be extended into daily life with mobile approaches. We describe the development and acceptability of an ED-based in-person motivational BI for drug use and sexual risk behaviors extended via daily mobile boosters tailored to drug use motives. Methods: We developed the BI by focus testing with 8 EAs and crowdsourcing development of boosters delivered via a mobile app. We recruited and randomized 63 EAs (eligibility: ages 18-25, past 28-day drug use and condomless sex, smartphone, unmarried) from Hurley Medical Center's ED to receive: BI+boosters (n=31) or enhanced usual care (n=32). Results: Participants were M=21.7 years-old, 66.7% female, 47.6% Black/African American, 38.1% White/Caucasian, and 14.3% other backgrounds. For the in-person BI: 87.5% found it somewhat/very helpful to talk about their substance use and also 87.5% found it somewhat/very helpful to talk about their sexual relationships. Among 22 intervention participants, 77.3% liked the boosters, 81.8% would very much/definitely recommend the program, 81.8% said the program was somewhat/very helpful in helping them focus areas of importance to them, 90.9% said the messages were somewhat/very helpful. Conclusions: A motivational BI with tailored mobile boosters for drug use and sexual HIV risk behaviors among EAs from an urban ED was well-received. Future analyses will examine ratings of specific message types and preliminary efficacy data of the intervention relative to control.
**Abstract**

Aim Using a paradigm called Pavlovian conditioned approach (PCA), animal researchers have demonstrated that there are individual differences in the extent to which drug-associated cues acquire incentive motivational properties: “Sign-trackers” tend to approach and engage the reward-associated cue, whereas “goal-trackers” tend to approach and engage the site of reward delivery. Animals that are more reactive to the reward-associated cue also show greater drug-seeking reinstatement, increased preference for drugs over food, and faster acquisition of drug self-administration relative to goal-trackers. This paradigm has not been applied extensively in humans, however. Here we present preliminary data from an adapted PCA paradigm involving eye-tracking to measure sign- and goal-tracking in humans.

Methods Eleven healthy young adults (mean age=21.9 years, SD=2.2; 5 female) completed a mechanical PCA task while wearing eye-tracking hardware. On each of 63 trials, a lever appeared for 3 seconds on a variable-time 20-second schedule. After lever retraction, a token was delivered into the reward magazine on one-third of trials. Eye gaze location during lever presentation was used to categorize participants as sign-trackers, goal-trackers, or intermediate responders following the formula \[
\frac{(\text{lever gaze} - \text{magazine gaze})}{(\text{lever gaze} + \text{magazine gaze})}\].

Results The mean number of lever presses per trial was 1.77 (SD=1.84, min=0.00, max=5.21). The mean percent time of eye gaze directed at the magazine was 24.80% (SD=20.44, min=3.59, max=60.96). The mean percent time of eye gaze directed at the lever was 46.70% (SD=22.48, min=14.88, max=86.62). Six participants were categorized as sign-trackers (mean=.714, SD=.096), two as goal-trackers (mean=-.482, SD=.110), and three as intermediate responders (mean=.145, SD=.169).

Conclusion This is one of the first demonstrations of an adapted animal PCA task in humans. Results showed adequate variance for further testing of personality, behavioral, and substance use variables. This paradigm has the potential to inform investigations of addiction risk from a behavioral perspective.

Support This research was supported by the National Institute on Drug Abuse (P50 DA037844; T32 DA007268) and the University of Michigan (Mcubed, Third Century Initiative).
Abstract
Alcohol use among Veterans on medical-surgical units is a critical concern as risky alcohol use can exacerbate medical conditions, leading to re-hospitalizations, worsening symptoms, and poor medical-adherence. Despite the prevalence of this problem, there are currently no evidence-based strategies to improve outcomes in this patient population. Shared decision making aids have been applied to similar problems in other populations and have the potential to be effective; however, they have not been directly applied to address risky alcohol use in Veterans. This ongoing study aims to help Veterans who are patients in medical-surgical units and report risky drinking, by increasing their awareness and engagement of evidence-based addiction treatment after discharge. Participants are being recruited from two VHA facilities (Ann Arbor and Palo Alto). Participants are randomized into Usual Care or the intervention group. The intervention incorporates Motivational Interviewing, Telemonitoring, and includes the utilization of a shared decision-making tool with a goal to increase Veterans’ use of alcohol-related resources and improve drinking and medical outcomes. Aim 1 focuses on the process of refining the Decision Aid, including provider and patient feedback on this clinical tool. Qualitative interviews were conducted with 19 inpatient medical-surgical staff and 15 medical-surgical patients. In addition, the Decision Aid was presented to the local Veteran Research Engagement Council who also provided input on the design and structure of the tool. The Decision Aid was adapted from tools being used in other settings outside of the VA and refined based on provider and Veteran feedback. The resulting Decision Aid contains prompts to guide discussions of three different treatment options (medication management, counseling/psychotherapy and mutual help groups). Stakeholders were generally positive about the decision tool and their feedback underscored the importance of collaborative discussions of treatment options with Veterans seen on medical-surgical units. Shared decision making is becoming an important component of delivering Veteran Centered Care but few structured tools exist to guide the shared decision making process in Veterans with risky alcohol use. Although formal testing of the resulting tool are ongoing, this study aim describes how behavioral health decision aids can be developed in collaboration with Veterans and treatment providers to improve communication about help-seeking with key at-risk groups of Veterans.
Abstract
Background: Although more than 1 million Veterans regularly use cannabis (i.e., have used cannabis within the past month), only limited research has investigated cannabis use among Veterans Health Administration (VHA) patients. Furthermore, existing health records do not ascertain use that is below the threshold of a cannabis use disorder, suggesting that a substantial portion of patients who regularly use cannabis are not documented or monitored by their VHA providers. This absence of data is concerning given the links between cannabis use and adverse physical, mental health, and social outcomes. Such consequences may be even more pronounced among certain population subgroups, including those with psychiatric illnesses, which are overrepresented in the VHA patient population. Despite potential harms, some patients who use cannabis report that it is beneficial for the management of chronic pain, posttraumatic stress disorder (PTSD), and other illnesses, and 23 States and the District of Columbia have legalized the use of cannabis for individuals with qualifying medical conditions. Research is needed to characterize and understand patterns of cannabis use and how they relate to health, functioning, and service utilization among VHA primary care patients. Objectives: 1) To characterize cannabis use among a representative sample of VHA primary care patients; 2) To examine the extent to which cannabis use is associated with psychoactive medication use (e.g., opiates and other psychotropics), substance use, substance use disorder symptoms, mental health symptoms (e.g., PTSD), pain, functioning, and treatment utilization among a cross-sectional sample of patients with regular cannabis and those with no past-year use; 3) To identify cannabis use and cannabis use disorder symptom trajectories at 6- and 12-months following an initial primary care visit; 4) To longitudinally estimate associations between cannabis trajectory groups and psychoactive medication use (e.g., opiates and other psychotropics), substance use, substance use disorder symptoms, mental health symptoms (e.g., PTSD), pain, functioning, and treatment utilization. Methods: To achieve these objectives, the proposed project will screen Veterans receiving primary care at 3 VAMCs in Michigan. Through screening the project will identify a group of 500 patients with regular cannabis use, defined as at least monthly use during the past year complete an in-depth cross-sectional baseline interview. Following screening and baseline, the 500 patients with regular cannabis use will comprise a cohort that will be re-assessed at 6- and 12-months follow-up to identify cannabis use and cannabis use disorder symptom trajectories and related health, functioning, and service utilization outcomes.
Mobile health (mHealth) apps provide unique opportunities to collect real-time data from adolescents and emerging adults to inform future delivery of just-in-time adaptive interventions (JITAIs). To date, however, the utility of this approach is limited by low rates of engagement with daily assessments and lack of collection of daily markers of substance use, which could prompt future JITAIs content to reduce risky substance use. This paper presents secondary data analyses from a micro-randomized trial of engagement strategies for daily assessments, examining markers of same day alcohol and marijuana use. Youth (age: 14-24, M=20.4, SD=2.1) recruited in the emergency department that reported past month marijuana use and/or binge drinking participated (N=55) in this 30-day study using the SARA app (Android/iOS). SARA uses a game-like aquarium environment to prompt completion of daily assessments (e.g., stress, hope) and weekly surveys (e.g., daily substance use). Correlations and hierarchical linear hurdle models (HLM, adjusted for age and gender) were used to separately assess the association between daily questions and alcohol and marijuana use. Despite significant correlations with stress, free time, fun, and optimism with presence and amount of marijuana use, no significant associations were detected in HLMs predicting marijuana use. Presence and amount of alcohol use were significantly correlated with stress, emotional valence, fun, loneliness, and excitement; presence of alcohol use was also correlated with amount of free time and emotional arousal. Using HLM, presence of alcohol use was significantly predicted by emotional arousal (AOR=1.10, p=0.04) and valence (AOR =1.12, p=0.03), and by more free time (AOR=1.00, p=0.02) and excitement (AOR=1.34, p=0.01); amount of alcohol use was predicted by excitement (=0.19, p=0.04). The initial finding that same day drinking is related to positive emotional states, and is more likely on exciting days with free time, suggests that JITAIs may benefit from providing behavioral skills for drinking less, and alternative enjoyable activities to drinking. Future work will develop/test the efficacy of JITAIs to reduce risky alcohol use among this population. (Supported by the Michigan Institute for Data Science, the University of Michigan Injury Prevention Center CDC R49 CE002099, NIDA P50 DA039838, NIAAA R01 AA023187, and T32AA007477)
Abstract
Purpose: Social media (SM) provides an innovative platform for peer-like, e-health coaches to deliver motivational interviewing (MI)-based interventions for risky drinking among adolescents and emerging adults. We examined transcripts (comments, replies, images) from a group-delivered SM MI intervention from an ongoing randomized controlled trial (RCT). The purpose of this poster is to describe the MI performance of the coaches (using adapted fidelity coding for online MI) and the content of interactions (topics discussed, qualitatively coded). Methods: Participants (n=281, over 4 waves of enrollment) were recruited via SM ads; those who screened positive on the AUDIT-C (score: >3 females, >4 males for ages 16-17; >4 females, >5 males for ages 18-24) were randomized to an 8-week secret Facebook group intervention (with or without incentives for participation). Undergraduate and bachelor’s-level e-health coaches, supervised and assisted by master’s-level therapists, posted SM messages using MI strategies paired with engaging media (e.g., images) to evoke and reply to participant responses. Qualitative, descriptive data analyses were conducted for a selection of transcripts (e.g., coach and participant statuses/comments/replies). Specifically, 16 days of transcripts were randomly selected (2 days per week) and coded using an adapted version of the MITI and MISC (e.g., behavior counts for adherent and non-adherent behaviors). Also, interactions were coded based on topics discussed. Results: In these intervention groups (involving n=281 participants), there was a total of 6855 posts coded, 4055 from participants and 2800 from e-health coaches. When examining coach interactions, non-adherent confronting/persuading only occurred 2 times; adherent behaviors, affirmations (899 times) and support (744 times) occurred frequently. Most (85%) reflections were complex (50% = “good” per MITI 4.2). The reflection-to-question ratio was good (M=3.04, good=2 per MITI 4.2), which may be unique to SM interventions where questions are used to prompt discussion. When examining participant interactions with e-health coaches and/or each other, common content discussed included: alcohol, marijuana and other drugs, relationships, living situations, stressors, and positive coping strategies. Conclusions: Preliminary data suggest that peer-like staff can be trained to deliver MI consistent interventions. Future papers will examine MI fidelity among the total sample, as well as how these interactions affect intervention efficacy. Supported by: NIAAA AA024175.
Abstract
Background: Cannabis use is an urgent public health problem among emerging adults (EAs; ages 18-25). With increased cannabis access expected due to legalization of recreational cannabis, it is important that timely, engaging interventions are developed to mitigate adverse consequences. Efficacious brief interventions (BIs) for cannabis delivered in Emergency Departments (EDs) need significant updates to extend the effects and address recent changes in perceptions, access, and route of administration (e.g., edibles, vaping, dabs). Social media (SM) use is highly prevalent in EAs, with using Snapchat for private messaging, providing a dynamic platform for engaging interventions. We are using a participatory approach to iteratively develop an intervention for EAs’ cannabis use: a BI + 4 weeks of Snapchat-based health coaching. Method: This project began in 8/2018 and we are currently refining prior efficacious cannabis BIs that were conducted at Hurley Medical Center (HMC) for use (i.e., updating the content for EAs and new cannabis policies). We are using crowd-sourcing to identify engaging content for Snapchat peer health coaching. In Spring 2019 we are obtaining Snapchat content feedback from community member EAs to then incorporate in final revisions of the content. In Summer 2019 we will recruit 20 EAs at HMC ED who use cannabis weekly to focus test the intervention, rate Snapchat content, and test feasibility. We will then refine the intervention, complete additional focus testing, and finalize the intervention for evaluation in a randomized controlled trial. Results: We will describe results from crowdsourcing and intervention refinement and present the intervention design for use in focus testing (including preliminary focus testing results, if available). Conclusions: The development of an adaptable, scalable, and efficacious intervention for EAs’ cannabis use, meeting them where they are at, on SM, is a critical next step in public health efforts to reduce cannabis use/consequences. This study could have significant impact by altering cannabis use trajectories of EAs in Flint and providing preliminary data for interventions to be delivered nationally.
Poster #: 99  
Title: MARIJUANA AND ALCOHOL USE AMONG NATIONAL GUARD SOLDIERS ACROSS THE URBAN-RURAL CONTINUUM  
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Trainee Status:  
Topic: Substance Abuse  

Abstract  
Aims: The National Guard provides critical support both domestically and abroad with soldiers dispersed throughout America and spanning the urban-rural continuum. To determine if location-dependent interventions are needed, we compared prevalence and severity of marijuana and alcohol use among National Guard members across localities. Methods: Michigan National Guard members were enrolled (N=2746) during drill weekends as part of a larger trial. Soldiers were screened for marijuana (ASSIST; prevalence=5%) and alcohol use (AUDIT; prevalence=82%). Urban-rural locality, based on Rural Urban Commuting Areas, and substance use was assessed with hurdle models to separately evaluate prevalence and severity. Covariates including demographic, mental health, and National Guard characteristics measures were considered using an exhaustive Bayesian Information Criterion model selection routine. Results: The selected covariates for marijuana use were age and depression (PHQ-9) and age, gender, depression, and PTSD (PCL-5) for alcohol use. Prevalence of marijuana and alcohol use was predicted by locality (AOR=0.91, CI=0.84,0.99, p=0.03; AOR=0.96, 95% CI=0.93,1.00, p=0.04, respectively) with higher prevalence in urban areas. Neither severity of marijuana nor alcohol use was predicted by a main effect of locality. However, the interaction of locality and depression predicted marijuana use severity (RR=1.01, CI=1.01,1.01, p<0.001) and the interaction of locality and age predicted severity of alcohol use (RR=1.00, CI=1.00,1.00, p<0.01). Conclusions: Prevalence of marijuana and alcohol in the National Guard is disparately problematic across localities with higher prevalence in more central, highly populated areas. The most severe marijuana use is in rural soldiers with depression whereas alcohol use is highest in younger soldiers residing in urban areas. Findings may inform future work considering accessibility and utilization of treatment for Guard members across the urban-rural continuum. Next steps include investigating a web-based intervention to reduce substance misuse, and assessing if locality moderates outcomes.
Abstract
Background: We are developing and implementing an online toolkit packaging an efficacious overdose prevention intervention initially delivered in an Emergency Department setting for dissemination across community settings. The intervention involved a ~30-minute motivational interviewing-based session that resulted in a 40.5% decrease in overdose risk behavior versus a control group that had a 14.7% decrease (Bohnert et al., 2016). With the OPT-IN Project, health and human service professionals will be trained in the behavioral intervention plus naloxone distribution via an online toolkit and facilitation. The purpose of this presentation is to describe the methods for translation and preliminary data regarding implementation of this efficacious intervention for use across settings.

Methods/Approach: We interviewed 16 stakeholders to gain feedback to translate the intervention for use in a range of settings. Following development of the toolkit, we then interviewed 15 stakeholders to gain feedback on the layout and usability of the toolkit, for further refinement. We also collected data from a historical control group (N=32), prior to training staff at 2 implementation sites using the toolkit. After training, staff at the site use the online “toolkit” to deliver the interventions to their clients. Participants receiving the intervention are compared to historical controls on overdose risk behaviors and outcomes.

Results: We have created the online toolkit and supplemental training materials. Six staff members at Site 1 have been trained. Training for Site 2 is forthcoming. Key themes from stakeholder feedback include positive responses regarding the ease and simplicity of the layout of the toolkit. The presentation will review our planned implementation strategy using the RE-AIM framework. To date, the majority of the participants in the historical control have identified as male and white, and have high pain levels (6+ out of 10). The majority (70%+) have prescription opioid misuse compared to their use of street opioids (e.g., heroin; 30%). Lifetime overdose history was also high with 73.6% at Site 1 and 91.8% at Site 2. Conclusions: The data from the historical control participants support the need for a tailored discussion around opioid safety and naloxone distribution. The interviews have provided beneficial feedback in updating the online toolkit and intervention to better serve the community partners. Furthermore, implementation outcomes will inform adaptations needed for implementation at different community agencies, including identifying and addressing barriers to implementation and variations in delivery. Funded by: The Center for Disease Control and Prevention, and the University of Michigan Injury Center (Sponsor Grant # R49 CE002099).