

12th Annual Showcase of Health Research 2017

➤ **Friday, February 3, 2017
8:30am to 1:30pm**

Best Western Plus Nor'Wester Hotel
and Conference Centre
Highway 61, Thunder Bay, ON





➤ Since 2006 the Centre for Applied Health Research at St. Joseph's Care Group has hosted what has become the premier annual venue for the dissemination of research relevant to the health of Northwestern Ontarians.

The Centre for Applied Health Research is pleased to host "Making a Difference: 2017 Showcase of Health Research".

This event is made possible through the generous support of the Leadership Team at St. Joseph's Care Group.

2017 Schedule of Events

8:30 am	Registration and Poster Set up - <i>Kaministiquia Room</i>
9:00 am	Welcome and Opening Remarks <i>Michel Bédard</i> , Scientific Director, St. Joseph's Care Group <i>Tracy Buckler</i> , President & CEO, St. Joseph's Care Group
9:15 am	The need for control: Illustrating the role of control group on effect sizes <i>R Scott</i> , <i>L Ozen</i> , <i>S Dubois</i> , <i>M Bédard</i> - Lakehead University, St. Joseph's Care Group
9:35 am	Muslim women's perspectives on birthing in Northwestern Ontario <i>M Alzghoul</i> , <i>H Møller</i> , <i>P Wakewich</i> , <i>K Burnett</i> , <i>M Dowsley</i> - Lakehead University
9:55 am	Emergency department use by long-term care residents 65 years of age and older <i>M Bholra</i> , <i>P Brink</i> - Lakehead University
10:15 am	Take'N 5: A peer support model to manage occupational stress injury of psychological secondary trauma <i>J Vis</i> - Lakehead University
10:35 am	Poster Presentations and Nutritional Break - <i>McGillivray Room</i>
11:05 am	Staff role in end-of-life decision making for people with dementia in long-term care: Barriers and facilitators <i>P Vangel</i> , <i>N Sutherland</i> - Lakehead University
11:25 am	Prevalence of <i>Borrelia burgdorferi</i> in Black-legged ticks submitted through passive surveillance in the Thunder Bay District <i>J Plata</i> , <i>L Sieswarda</i> - Lakehead University, Thunder Bay District Health Unit.

11:45 am	Superior Mental Wellness @ Work: Standard to action project phase 1: Needs assessment and baseline data preliminary findings <i>J Lowey</i> , <i>V Kristman</i> , <i>L Fraser</i> , <i>S Armstrong</i> , <i>J Koski</i> , <i>H Møller</i> - Lakehead University, Thunder Bay District Health Unit, Centre for Addiction and Mental Health
12:05 pm	Navigating in seclusion: The complicated terrain of children's spirituality in trauma, grief and loss <i>H Boynton</i> - University of Calgary
12:25 pm	Poster Presentations and Lunch - <i>McGillivray Room</i>

Poster Presentations

- 1. Interpreting a cultural value: An examination of the Indigenous concept of non-interference**
J Wark, R Neckoway, K Brownlee – Lakehead University
- 2. A supervisor training program for work disability prevention: Preliminary results from a cluster randomized controlled trial**
J Armstrong, V Kristman – Lakehead University
- 3. Supervisor and organizational factors associated with job modifications**
C Chambers-Bédard, J Armstrong, V Kristman – Lakehead University
- 4. Assembling a survey for supervisor and worker perspectives on workplace accommodations for mental health disorders: A pilot study**
C Viel, V Kristman – Lakehead University
- 5. A literature review of decision guiding: Application to mental health programming**
C Barefoot, M Teatero, A Lyon – St. Joseph's Care Group
- 6. Finding the essence of trauma informed care**
E Wall, J Farrell – Lakehead University
- 7. Youth strengths, treatment motivation, treatment readiness, and perceptions of a substance use program**
E Portt, E Rawana, B Person, D Carlson – Lakehead University
- 8. Depression and disruptive behaviour in long-term care homes**
S Fossum, M Stones – Lakehead University
- 9. Screening for depression in an acute regional stroke unit: Adherence rates after protocol implementation**
L Swancar, E French, A Satani – Thunder Bay Regional Health Sciences Center, Northwestern Ontario Regional Stroke Network, McMaster University
- 10. Systematic review of depression as a prognostic factor for mild traumatic brain injury (MTBI): an extension of the results of the International Collaboration on Mild Traumatic Brain Injury Prognosis (ICoMP)**
C McEwen, V Kristman, J Lowey, J Asselstine, J Plata, C Chambers-Bédard, J Armstrong – Lakehead University
- 11. The Rivermead Post-Concussion Questionnaire accurately predicts social, mental, and overall self-reported recovery six months after MTBI in older adults: Results of a pilot prospective study**
J Asselstine, V Kristman – Lakehead University
- 12. The postpartum group project: Improving maternal mental health and reducing stigma**
A Maranzan, M Teatero, R Scofich, H Boynton – Lakehead University, St. Joseph's Care Group, Thunder Bay District Health Unit
- 13. Benchmarking the effectiveness of group Triple P in a community child mental health agency**
C Houlding, N Harris, F Schmidt, S Chomyycz, E Houlding – Lakehead University, University of Ottawa
- 14. CANS as a tool for evaluating program effectiveness in CCTB outpatient services**
C Garrow, A Killen, M Prenger, F Schmidt – Lakehead University, Children's Centre Thunder Bay
- 15. Evaluating clinical change in CCTB outpatient services using the CANS**
M Prenger, A Killen, C Garrow, F Schmidt – Lakehead University, Children's Centre Thunder Bay
- 16. Dissociation between cortical thickness and mirror system responses: A magnetic resonance imaging investigation of structure and function**
M Sachdeva, S Parker, J Lawrence-Dewar – Thunder Bay Regional Health Research Institute
- 17. The Trail Making Test B: Minimizing the risk of false positives severely compromises the test's ability to identify unsafe drivers**
R Wang, S Dubois, B Weaver, S Regalado, M Bédard – Lakehead University, St. Joseph's Care Group, Northern Ontario School of Medicine
- 18. U.S.A. Driver distraction trends (1991 – 2009)**
C Marchese, S Dubois, M Bédard – Lakehead University, St. Joseph's Care Group
- 19. The use of a simulated driving protocol in differentiating between healthy and concussed individuals on measures of dual tasking reaction time and heart rate variability**
D Dumphy, C Zerpa, P Sanzo, B Weaver, M Bédard – Lakehead University, Northern Ontario School of Medicine
- 20. The effect of spring loaded single-tip cane mechanisms in minimizing upper extremity injuries during walking**
A Mohammed, C Zerpa, P Sanzo, D Kivi – Lakehead University

*Presenter in Purple

21. **The influence of neck stiffness, impact location and angle of impact on measures of peak linear acceleration and risk of injury during head collisions when wearing a hockey helmet**
C Zerpa, C Stephen, E Przysucha, S Elyasi - Lakehead University
22. **The effects of dual processing on gait pattern: An analysis of texting and walking**
B Pennock, C Zerpa, P Sanzo - Lakehead University
23. **Preventative ankle bracing reduces vertical jump height but not agility time in jumping athletes**
Z Henderson, P Sanzo, C Zerpa - Lakehead University
24. **Does therapeutic taping affect shoulder strength and surface EMG activity in the completion of various functional movement patterns?**
K Groop, P Sanzo - Lakehead University
25. **The effects of exercise on cognitive function and salivary BDNF in healthy individuals: A pilot study**
J McGeown, P Sanzo, C Zerpa, S Lees, S Niccoli - Lakehead University, Northern Ontario School of Medicine
26. **Exploring motivation to exercise in individuals post total knee replacement surgery**
N Koert van der Linden, J Farrell - Lakehead University
27. **The effects of neurocognitive and physical tasks on breathing in healthy individuals: A proof of concept study**
P Siedlecki, P Sanzo - Lakehead University
28. **The effects of active virtual games on motor proficiency of children with developmental movement problems**
A Werden, E Przysucha - Lakehead University
29. **Motor Learning theories and clinical practice for children with development disabilities**
E Przysucha, D Carlson, C Zerpa - Lakehead University
30. **Can social media affect medication adherence?**
S Mohammed, J Fiaidhi, S Mohammed - Lakehead University, University of Victoria

The need for control: Illustrating the role of control group on effect sizes

- **Rebecca Scott**
Centre for Research on Safe Driving, Lakehead University
- **Lana Ozen**
- **Sacha Dubois**
Centre for Applied Health Research, St. Joseph's Care Group
- **Michel Bédard**
Faculty of Health and Behavioural Sciences, Lakehead University

Background/Objectives: In research, control groups serve to account for improvements unrelated to the intervention (e.g., placebo effect, passage of time). However, given increased logistical and costs considerations associated with control groups they are not always included in research designs. Using existing data we explored the impact of omitting a control group on effect sizes.

Methods: We used depression symptom data (Beck Depression Inventory - II, BDI-II) from a multi-site, crossover, Mindfulness-Based Cognitive Therapy, randomized control trial. An overall effect size (Cohen's D) was generated based on the full parallel design (Intervention versus Control in one single analysis). Separate Intervention and Control effect sizes were then generated to simulate a pre-post design. Control participants were further stratified by study completion status as follows: No Crossover; Crossover but did not finish (DNF); Crossover Complete.

Results: The overall effect size for the parallel design BDI-II total score was 0.56 (n=76). Pre-post effect sizes were: Intervention alone (n= 38; d= 0.70); No Crossover (n= 7, d= 0.38); Crossover DNF (n= 8; d= 0.75); Crossover Complete (n= 23; d= -0.02).

Conclusion: Using a pre-post design without a control group resulted in an inflated effect size for the Intervention group. Further, small to medium effect sizes were observed in Control participants that dropped out prior to crossover completion indicating some control participants improved without receiving the intervention. These observations illustrate: 1) control groups are essential to generate effect sizes; and 2) the importance of analyzing all participant data regardless of completion status.

Muslim women's perspectives on birthing in Northwestern Ontario

- **Manal Alzghoul**
School of Nursing, Lakehead University
- **Helle Møller**
Department of Health Sciences, Lakehead University
- **Pamela Wakewich**
Centre for Rural and Northern Health Research, Lakehead University
- **Kristin Burnett**
Department of Indigenous Learning, Lakehead University
- **Martha Dowsley**
Departments of Geography and Anthropology, Lakehead University

Background/Objectives: Muslim women in Canada report experiences of racism, discrimination and care that does not respect cultural and religious norms. These factors contribute to decreased health care and service access and unfavourable maternal and child health outcomes. As part of a larger study exploring the birthing options, preferences, choices and experiences of diverse women in north Western Ontario this paper reports on the birth experiences of Muslim women.

Methods: Employing purposive sampling we recruited and interviewed 11 Muslim mothers from several different countries of origin using in-depth semi-structured interviews. Data were managed with Nvivo software and analyzed using thematic analysis.

Results: Muslim women's experiences of maternity care were generally favourable. Positive factors included care-provider awareness of and respect for religious/cultural beliefs and practices including the need for female care-providers and modesty in clinical encounters. However, Muslim women's access to choice of care-provider was limited due to a lack of personal awareness of range of maternity care options and limited information about choices provided by primary care providers. Additionally, cultural barriers to prenatal care were identified.

Conclusion: This study contributes to a nascent body of literature on Muslim Women's health care experiences in Canada. It captures the unique experiences of Muslim women in North Western Ontario. We hope the findings from this study will help improve services, access to services and provide health care providers with greater insight into the needs of Muslim women resulting in equity in access to quality services care and experiences.

Emergency department use by long-term care residents 65 years of age and older

- **Mark Bhola**
Department of Health Sciences, Lakehead University
- **Peter Brink**
Department of Health Sciences, Lakehead University

Background/Objectives: Little is known the extent to which emergency department (ED) services are used by long-term care (LTC) residences. However, older adults generally have shown to be higher consumers of ED than those in younger age groups. Earlier research has shown that nearly a quarter of those residents had visited the emergency department at least once in the previous six months. Furthermore, LTC residents often require a higher-level of care due to comorbidities that often include dementia and heart conditions. The study examined the factors associated with emergency department use by long-term care residents.

Methods: Information about the health of all Ontario LTC residents between April 1, 2010- March 31, 2011 was provided by the Canadian Institute for Health Information, using the Resident Assessment Instrument 2.0

Results: Health care records from 90,947 LTC residents were examined. Approximately 21% of those residents were admitted to the ED once, 14% were admitted two or more times. Factors associated with ED admission include resident functional status, diagnoses, health conditions, and medical history. Factors that reduce the likelihood of emergency department admission include higher levels of cognitive impairment and younger age.

Conclusion: Emergency department use by older adults living in long-term care continues to represent a significant challenge to nursing staff in the health care system. Studies such as this represent an important first step in developing policies and making evidence based decisions to improve the care of LTC residents.

Take'N 5: A peer support model to manage occupational stress injury of psychological secondary trauma

➤ **Jo-Ann Vis**
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Background/Objectives: Occupational stress injury resulting from secondary trauma exposure in the workplace impacts a variety of front-line workers and first responders due to the re-occurrence of exposure to traumatic events. Research has demonstrated that peer support is a significant component in reducing trauma effects, yet employees often do not have the education about trauma, nor tools to effectively support a peer should one need to do so.

Methods: Two separate front line employee groups were involved in a peer mental health wellness program aimed to mitigate the effects of occupational stress injury due to secondary trauma exposure. A mixed method design included survey questions and qualitative focus group interviews.

Results: Survey and focus group results indicate that education concerning secondary trauma exposure, coping strategies, availability of resources and the Take'N 5 peer support guide provide employees with tools to assess and respond to effects of secondary trauma.

Conclusion: Education regarding secondary trauma, coping strategies and a peer support guide appear to be useful interlocking components of a peer mental health wellness program for front line workers routinely exposed to trauma events. Results support existing research that peer support is a key component in mitigating secondary trauma exposure.

Staff role in end-of-life decision making for people with dementia in long-term care: Barriers and facilitators

➤ **Paula Vangel**
Department of Health Sciences, Lakehead University

➤ **Nisha Sutherland**
School of Nursing, Lakehead University

Background/Objectives: Decision making for late-stage complications on behalf of people with dementia in long-term-care (LTC) may result in aggressive treatment and unnecessary suffering, potentially denying residents with dementia access to palliative care, an approach focused on quality of life, rather than cure. Although direct care staff spends the most time with residents, few have recognized the role of personal support workers (PSWs), registered nurses (RNs), and registered practical nurses (RPNs) in end-of-life decision making. The purpose of this study was to examine the barriers and facilitators to staff's role in end-of-life decision making for residents with dementia in LTC.

Methods: A qualitative descriptive method was employed to seek a theoretical understanding of staff's subjective experiences and shared realities of their role in decision making. Data collection took place in two long-term care facilities through semi-structured interviews with PSWs (n=9), RPNs (n=8), and RNs (n=4). We used thematic analysis, identifying codes through line-by-line readings and then constantly comparing codes with data to develop themes.

Results: Barriers to staff's role in decision making included: an emphasis on biomedical knowledge, a focus on obtaining end-of-life orders, a discomfort discussing death, varied understandings of palliative care and heavy workloads. The facilitators included: close relationships, team work, learning opportunities, and a passion for the work.

Conclusion: LTC protocols that privilege biomedical knowledge shape staff's role in decision making. Staff personal knowledge of the resident must be recognized in end-of-life decision making if we want to promote quality palliative care for people with dementia in LTC.

Prevalence of *Borrelia burgdorferi* in Black-legged ticks submitted through passive surveillance in the Thunder Bay District

- **Jennifer Plata**
Department of Health Sciences, Lakehead University
- **Lee Sieswerda**
Environmental Health, Thunder Bay District Health Unit

Background/Objectives: Lyme disease is a serious infection caused by *Borrelia burgdorferi*. It is transmitted to humans by Black-legged ticks (BLTs), which can be found in the Thunder Bay District. The objective of this study was to use passive surveillance data to describe the prevalence of BLTs and *B. burgdorferi* in BLTs.

Methods: Data from January 1, 2005 to December 31, 2016 were analyzed. Travel-related BLT acquisition was excluded. A Poisson regression model was fit for the proportion of arthropods that were BLTs and a piece-wise Poisson regression model was fit for the *B. burgdorferi*-positive BLTs over time.

Results: The estimated prevalence of BLTs in the Thunder Bay District is 6% and there appears to be an increasing presence of BLTs among ticks submitted through passive surveillance in the Thunder Bay District (IRR: 1.06; 95%CI: 1.01, 1.1). *B. burgdorferi*-positive BLTs are present in the Thunder Bay District, with an estimated prevalence of *B. burgdorferi* in BLTs of approximately 7%. The piece-wise regression model with a knot at 2012 showed a significant trend in the proportion of BLTs that were *Borrelia*-positive over time.

Conclusion: *B. burgdorferi*-positive BLTs have been present in Thunder Bay for at least the past seven years. However, in order to be classified as a risk area for Lyme disease, Public Health Ontario requires BLTs to be found via active surveillance, which has not yet occurred in the Thunder Bay District. This failure to classify Thunder Bay as a risk area has significant implications for the diagnosis of Lyme disease.

Superior Mental Wellness @ Work: Standard to Action project phase 1: Needs assessment and baseline data preliminary findings

- **Jessica Lowey**
Department of Health Sciences, Lakehead University
- **Vicki Kristman**
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- **Lynda Fraser**
Healthy Living Team, Thunder Bay District Health Unit
- **Susan Armstrong**
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- **Jessica Koski**
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- **Helle Møller**
Department of Health Sciences, Lakehead University

Background/Objectives: Compared to the Ontario average, Thunder Bay and District residents have higher rates of injuries, suicides, addictions and chronic disease. There is a strong need for support to address mental health (MH) in Northern Ontario workplaces, specifically in the implementation of the Canadian National Standard for Psychological Health and Safety in the Workplace (The Standard). The Superior Mental Wellness @ Work: Standard to Action project provides leaders from worksites with the practical supports they need to implement The Standard. The objectives of this preliminary phase of the project were to 1) assess the needs, perceived by worksite leaders, of workplace MH topics that need to be addressed in the community, and 2) gather baseline data to support project evaluation.

Methods: Worksite leaders within Thunder Bay and District were invited to participate in an electronic needs assessment and baseline survey. Descriptive statistical analysis was used to interpret the survey results.

Results: Of the 316 invited, baseline data was collected from 88 worksites. Over 50 percent of participants were employed within health care, educational, and scientific/technical services. When asked, 75 percent of participants rated MH within their workplace as positive. Approximately 44 percent of respondents indicated employee MH was a workplace issue in need of support. Over 62 percent of worksite employees indicated having little to no familiarity with The Standard and 65 percent indicated their workplace had no MH policy in place.

Conclusion: These results provide the foundation for the subsequent project phases. After the implementation of training and outreach interventions, a final intervention evaluation will be conducted to determine their effectiveness in improving MH awareness, and access to MH-related resources and support within Thunder Bay and District.

Navigating in seclusion: The complicated terrain of children's spirituality in trauma, grief and loss

➤ **Heather Boynton**
Faculty of Social Work, University of Calgary

Background/Objectives: Spirituality is an important area in social work. Research with older individuals has identified how spirituality is an important factor in trauma, grief and loss and is a source of strength and a resource in coping. However, limited knowledge exists pertaining to preadolescents, therefore this study investigated children's spirituality in outpatient counselling.

Methods: This research project employed a constructivist grounded theory methodology. Semi-structured interviews were conducted with six children, five parents, and seven clinicians at a counselling centre in Northwestern Ontario.

Results: The theoretical model was navigating in seclusion, which consisted of positive and negative experiences, and socially oppressive forces. Two major dialectical meaning constructions, it's normal and important, and it's weird and taboo, influenced several complicated and intertwined processes. Children were found to have extremely robust spiritual lives with abundant experiences, relationships, abilities, activities, and practices, and yet children's spirituality was not socially accepted and validated.

Conclusion: This study addresses the gap in the literature, and the contributions extend the literature regarding children's conceptualization of spirituality, spiritual capacities, relationships, activities, practices, and spiritual development. The grief task and process models are enhanced through identifying a need for resolving spiritual struggles and supporting spiritual meaning making. The findings corroborate previous literature illuminating that social workers lack training and competence in spiritually sensitive practice, and it highlights a critical need for support and education.

Interpreting a cultural value: An examination of the Indigenous concept of non-interference

➤ **Joe Wark**
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➤ **Raymond Neckoway**
School of Social Work, Lakehead University

➤ **Keith Brownlee**
School of Social Work, Lakehead University

Background/Objectives: Non-interference has been cited as one of the most pervasive principles of behaviour among Indigenous peoples of North America. Policy and government documents as well as academic writers largely state that non-interference is a principal consideration when offering services to Indigenous peoples, especially in a medical setting.

Methods: A broad review of the literature on Indigenous non-interference was conducted. The authors analyzed and compared articles from anthropological, legal, medical, psychological, social work, and Indigenous learning sources.

Results: The literature predominantly portrays Indigenous non-interference as a rigid behavioural trait that overrides all other cultural values in interpersonal interactions. Even the most prominent attempts to characterize non-interference proffer only a rudimentary definition of what is a single aspect of a sophisticated culture. This viewpoint is in contrast to the body of literature as a whole that suggests that Indigenous peoples prefer subtle, indirect interference that is respectful and maintains relationships. The literature revealed non-interference to be a complex cultural concept that is fluid and influenced by context.

Conclusion: Professionals who work with Indigenous peoples should be aware of the relational aspects of non-interference. Rather than forbidding interfering behaviours from professionals, Indigenous peoples value relationships that are caring and respectful.

A supervisor training program for work disability prevention: Preliminary results from a cluster randomized controlled trial

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Department of Health Sciences, Lakehead University
- **Vicki Kristman**
Department of Health Sciences, Lakehead University

Background/Objectives: Supervisors of injured workers play a key role in preventing prolonged work absences. Providing supervisors with tools to improve their response to workplace injuries or illnesses may improve disability outcomes. The primary objective of this study was to examine the effectiveness of the Supervisor/Manager Accommodation Recognition & Training (SMART) Program on reducing the total duration of workers' lost-time claims. Here, we provide preliminary results from two Canadian worksites (Ontario & British Columbia).

Methods: Within each organization, work units were randomly selected to have their supervisors receive the SMART training program. Work units not assigned to the training program served as the control group for the study. Work disability outcome data were extracted for each of the work units one-year prior to and one-year post training for comparison purposes.

Results: Preliminary findings indicate that the SMART program did not reduce the total duration of workers' lost-time claims at the Ontario site with the average number of lost time days per incident increasing by half a day (4.5 days per incident in 2014 to 5.1 days per incident in 2015). Disability outcome data from the British Columbia worksite is enroute at this time (November 2016).

Conclusion: While the SMART training program did not reduce workers' lost-time claims at the Ontario site, supervisors across this organization may already be effectively accommodating their workers when injured or sick. With additional data from the British Columbia worksite, further analyses will better indicate whether SMART can improve disability outcomes.

Supervisor and organizational factors associated with job modifications

- **Catherine Chambers-Bédard**
Department of Health Sciences, Lakehead University
- **Joshua Armstrong**
Department of Health Sciences, Lakehead University
- **Vicki Kristman**
Department of Health Sciences, Lakehead University

Background/Objectives: Job accommodations improve return to work for injured workers. The Job Accommodation Scale (JAS) is a valid, 21-item, self-reported measure of employer support for job accommodations for low back injured workers. Researchers have evaluated how supervisor and organizational factors relate to JAS scores. However, the relationship between these factors and JAS sub-scores (reflecting specific accommodation types) is unknown and the focus of this study.

Methods: Supervisors from 19 employers completed an online survey concerning job accommodations. The survey included demographic information, type of job supervised, supervisor and organizational factors, and a hypothetical situation of a worker with low back pain for whom supervisors rated their likelihood of implementing the 21 JAS accommodations. The 21 items were factor analyzed, revealing five job accommodation types: physical workload, work environment, work schedule, alternate duties, and assistance. We used five separate multiple linear regression models to explore which supervisor and organizational factors are associated with each accommodation construct.

Results: Data were available for 796 supervisors who had supervised at least one worker. Significant factors associated with accommodation included organizational policies and practices, which were positively associated with all accommodation types; supervisor autonomy, which was positively associated with four of five factors; and employee social capital, which was negatively associated with three of the five factors.

Conclusion: We explored the associations between supervisor and organizational factors and the types of workplace accommodation offered. This may allow for the development of interventions to improve the availability of particular workplace accommodations for low back injured workers.

Assembling a survey for supervisor and worker perspectives on workplace accommodations for mental health disorders: A pilot study

- **Chris Viel**
Department of Health Sciences, Lakehead University
- **Vicki Kristman**
Department of Health Sciences, Lakehead University

Background/Objectives: Mental health disorders (MHD) are an issue that affects every workplace in Canada. People with MHD function better in the workplace when they are provided with appropriate work accommodations. However, there is little understanding of how social, organizational, and interpersonal factors influence the decision-making of supervisors to develop and provide work accommodation.

Methods: An Advisory Board committee consisting of research team members, a graduate student, interested stakeholders (Canadian Mental Health Association, Workplace Safety and Prevention Services, SAFE Work Manitoba), and a representative from the Workers Compensation Board of Manitoba met to assemble a survey to identify supervisors and workers perspective on workplace mental health accommodations. Before the surveys will be used for data collection, a pilot study was performed to determine the functionality and reliability of the survey questions.

Results: Pilot participants (supervisors (n=2); employees (n=5)) were interviewed for approximately one hour to gain feedback of the surveys. Both employees (4/5) and supervisors (2/2) found it difficult to answer questions regarding what accommodations were available in the workplace due to the novelty of workplace mental health awareness. Among supervisors, there was also a misinterpretation on workplace mental health training, and what they would consider “adequate” training.

Conclusion: After reviewing both the worker and supervisor survey, there is a need to clarify if participants should be answering questions regarding accommodations through direct experience or based on assumption. Overall, both surveys proved to be effective at gathering information of how social, organizational, and interpersonal factors influence the decision-making of supervisors to develop and provide work accommodation. Following a review of the Advisory Board, these survey tools will be ready to move forward to data collection.

A literature review of decision guiding: Application to mental health programming

- **Clair Barefoot**
Mental Health Outpatient Programs, St. Joseph's Care Group
- **Missy Teatero**
Mental Health Outpatient Programs, St. Joseph's Care Group
- **Ashley Lyon**
Mental Health Outpatient Programs, St. Joseph's Care Group

Background/Objectives: Decision guiding has been a valuable model for facilitating medical treatment decisions. However, there is less research applying this model to mental health decisions (Stacey et al., 2016). This review aims to discuss the application of decision guiding in mental health programs, to identify knowledge gaps and areas for future research.

Methods: A systematic literature search identified relevant papers through PsycInfo, Oxford Journals Online, ProQuest Dissertations and Theses Global, Sage Journals, and Science Direct.

Results: Decision aids, completed online or with a health care professional, are being developed to address diverse decisions including: use of psychiatric medication (Bentley, Key Price, & Cummings, 2014), leaving domestic violence situations (Tarzia et al., 2016), disclosing mental health diagnoses (Henderson et al., 2016), and choosing treatment for depression (Rogojanski, 2013). St. Joseph's Care Group's Mental Health Outpatient Programs (MHOP) appears to be inaugural in adapting a decision guide model to a general community clinic.

Conclusion: Although the types of decisions are diverse, themes similar to those identified in medical settings have emerged in the mental health field (e.g., client centered care, a focus on reciprocity in decision making, psychoeducation, readiness to change, pros and cons evaluations, and treatment planning). While promising, further research, such as evaluations of patient and clinician experiences, are needed to inform further decision guide development and are currently being conducted at MHOP.

Finding the essence of trauma informed care

- **Elizabeth Wall**
School of Kinesiology, Lakehead University
- **Joey Farrell**
School of Kinesiology, Lakehead University

Background/Objectives: Research has recognized an extensive evidence base in the prevalence of trauma, with 50-75% of the population having substantial exposure to traumatic events (Breslau, 2002). Thus many human services have instituted an approach called trauma-informed care (TIC). TIC is a model of practice developed for health care providers (HCPs) to build competencies and clinical guidelines that support delivery of care that is sensitive to trauma (SAMHSA, 2014). Ko et al. (2008) claim that TIC establishes a comprehensive framework that develops collaboration across services. Literature on TIC describes its principles; however, a coherent standard of practice has not been determined (Klinic, 2013) and research has yet to establish what it means to practice TIC (Green et al., 2015). What it means to be trauma-informed is explored from the perspective of HCPs practicing TIC.

Methods: HCPs (n=5) who are experts in TIC and currently implementing TIC into their practices were recruited. Using a phenomenological approach to gather information, a three-part interview was conducted. The first interview focused on life history; the second interview gathered details of their experiences; and the third interview involved the participants' reflection on the meaning of TIC. Interviews were transcribed and reviewed to determine common themes.

Results: Four themes emerged from the data: (a) altering environments; (b) understanding behaviour through the connection of past experiences; (c) creating compassion; and (d) collaboration between the individual and the HCP.

Conclusion: Practicing TIC seeks to understand the unique experiences that have shaped behaviour by creating an environment based in safety and trustworthiness, showing compassion and collaborating with the individual to create a treatment plan.

Youth strengths, treatment motivation, treatment readiness, and perceptions of a substance use program

- **Erika Portt**
Department of Psychology, Lakehead University
- **Edward Rawana**
Department of Psychology, Lakehead University
- **Brandi Person**
Department of Psychology, Lakehead University
- **Darbey Carlson**
Department of Psychology, Lakehead University

Background/Objectives: Treatment dropout is often a challenge among youth substance use programs. Completing treatment is generally associated with more positive outcomes, so it is important to understand youth's perceptions of treatment and the variables that contribute to staying in a treatment program. A preliminary study within an ongoing project was conducted to examine strengths and motivation of youth attending a substance use program as well as how these variables relate to perceived treatment helpfulness and treatment retention.

Methods: Twenty-six youth attending a residential substance use program have participated to date, and the study is ongoing. Participants completed a measure of strengths, motivation and treatment readiness, and rated how helpful treatment was each week. Program data such as length of stay in the program was also obtained.

Results: Preliminary descriptive data will be presented on participants' strengths, motivation and readiness for treatment, and perceived helpfulness of the substance use program for both those who completed treatment and those who did not complete treatment. Ratings on a weekly helpfulness scale ranging from 0 ("not helpful at all") to 10 ("very helpful") showed that youth generally found the program to be helpful (mean= 7.0, SD = 1.68). The top strengths among youth who completed treatment were strengths in the following areas: home, keeping clean and healthy, goals and dreams.

Conclusion: Ongoing research is needed in order to better understand the factors that contribute to treatment retention and perceived treatment helpfulness among youth. Lessons learned from the preliminary data collection will be discussed.

Depression and disruptive behaviour in long-term care homes

- **Shauna Fossum**
Faculty of Health and Behavioural Sciences, Lakehead University
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Background/Objectives: Previous research has indicated that there is a significant relationship between depression and disruptive behaviour in residents of long-term care; however, the direction of this relationship is unclear. Numerous studies have indicated that depression leads to disruptive behaviour in this population, while others have indicated that disruptive behaviour leads to depression. This study sought to understand the directional nature of this relationship.

Methods: Using data from the Resident Assessment Instrument (RAI 2.0), participants included a one-year incidence sample of 76,536 resident assessment records collected from 631 long-term care homes over 13 months (N = 20,414). Depression was measured using the Depression Rating Scale (DRS), while disruptive behaviour was measured using the Aggressive Behaviour Scale (ABS). In order to examine the lead-lag relationship between the DRS and ABS, Generalized Linear Mixed Models (GLMMs) were used.

Results: Depression was significantly predicted by previous, concurrent and subsequent disruptive behaviour. Likewise, disruptive behaviour was significantly predicted by previous, concurrent and subsequent depression. All fixed coefficients for the GLMMs were statistically significant ($p < .001$). Additionally, a high proportion of residents (29.88%) displayed significant depressive symptoms at some point during the assessment period. Likewise, 8.91% of residents displayed significant levels of disruptive behaviour.

Conclusion: These results indicate that depression and disruptive behaviour in residents appear to be co-existing rather than causally related conditions. Both depression and disruptive behaviour in long-term care are significant conditions that warrant treatment and attention from staff in order to improve quality of life for residents.

Screening for depression in an acute regional stroke unit: Adherence rates after protocol implementation

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Background/Objectives: Canadian Stroke Best Practice Recommendations state that patients with stroke are at high risk for Post-Stroke Depression (PSD) and should be screened using a validated tool. In April 2015, the Regional Stroke Unit-Thunder Bay Regional Health Sciences Center (TBRHSC) implemented a depression screening protocol using the Patient Health Questionnaire (PHQ)-2/9. The objective was to assess the rate of depression screening and identify factors influencing adherence.

Methods: A retrospective chart review was performed following implementation of protocol. Rate of depression screening completion was calculated as percentage of total number of stroke patients with completed screen (PHQ-2/9). Subsequent analyses determined the relationship between length of stay (LOS), admission date and screening completion.

Results: During study period, 312 patients were referred. Excluded from the analysis were 72 patient records with non-stroke diagnoses. Of 240 records reviewed, 56% (n=134) had a complete depression screen, 44% (n=106) did not. Patients with LOS less than five days and admitted during July and August had highest frequency of incomplete screens.

Conclusion: Adherence to screening protocols was lower than recommended practice guidelines. Pressure to decrease hospital LOS and limited coverage for staff absences appeared to negatively impact adherence. It is recommended that factors influencing adherence be explored. Improving coordination of team roles for screening and provision of education to stroke team members may improve adherence.

Systematic review of depression as a prognostic factor for mild traumatic brain injury (MTBI): An extension of the results of the International Collaboration on Mild Traumatic Brain Injury Prognosis (ICoMP)

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Background/Objectives: Mild Traumatic Brain Injury (MTBI), otherwise known as concussion, is an injury frequently sustained during sports activities, traffic collisions and falls. In 2012, ICoMP systematically reviewed literature on MTBI prognosis, but at that time depression was not included in analysis. This paper will extend the MTBI prognosis review initiated by ICoMP, analyzing Depression as an outcome of MTBI.

Methods: MEDLINE, PsychINFO, Embase, CINAHL and SPORTDiscus were searched from 2001 to 2016 using ICoMP search protocols with an additional search screen for depression. Inclusion criteria focused the results to controlled trials, case-controls or cohort studies with a minimum of 30 MTBI cases that assessed depression as an outcome. Each eligible study was then assessed by two independent reviewers for scientific admissibility using Scottish Intercollegiate Guidelines Network criteria. A third reviewer resolved cases of impasse. Evidence from relevant, methodologically sound studies was collectively analyzed.

Results: In total, 10,155 records were detected, and after screening, 96 were full text reviewed. Twelve of these studies met inclusion criteria and of those relevant studies, reviewers concluded that six were scientifically admissible. Three of these studies detected no association, two detected some association, and one study had inconclusive findings.

Conclusion: The limited literature available on this topic suggests there may be no association between MTBI and the development of depression. However, this evidence is insufficient and more methodologically sound research is necessary. Researchers specifically call for studies with larger sample sizes, stronger measures of depression as an outcome, and more consistent definition of MTBI.

The Rivermead Post-Concussion Questionnaire accurately predicts social, mental, and overall self-reported recovery six months after mTBI in older adults: Results of a pilot prospective study

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Background/Objectives: Post-concussion syndrome (PCS) refers to the adverse group of symptoms following a mild traumatic brain injury (mTBI). The Rivermead post-concussion syndrome questionnaire (RPQ) is the preferred clinical choice in assessing baseline PCS symptomatology however, it is unclear if this tool is associated with future disability. Therefore, the goal of this study was to determine the association between the baseline RPQ score and future disability in older adults with mTBI. We also assessed various analytic definitions of the RPQ for their association with future disability.

Methods: This study used a prospective cohort design, using the RPQ to measure baseline PCS symptomatology. Disability at six months was measured using the Glasgow Outcome Scale-Extended (GOSE) (social functioning), SF-12 (physical and mental health components), and self-reported recovery.

Results: Using linear regression, we found strong relationships between baseline RPQ and the GOSE ($\beta = -0.610$, 95% CI [-0.851 to -0.370]), SF-12 mental component ($\beta = -0.314$, 95% CI [-0.602 to -0.025]), and self-reported recovery [OR= 6.878, 95% CI [2.106 to 22.461]]. No association was found between the RPQ and the SF-12 (physical component) at follow-up with any of the RPQ definitions. Further, differences between each RPQ definition and outcome measures did not vary considerably from one another.

Conclusion: A poor RPQ score may be associated with a worse prognosis at six months follow-up, when specifically referring to psychosocial, emotional and mental well-being. While the RPQ remains a valid tool in assessing a patient's post-concussive symptoms following an mTBI, it may not be appropriate for predicting long-term physical disability.

The Postpartum Group Project: Improving maternal mental health and reducing stigma

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Background/Objectives: Approximately 10% - 15% of new mothers experience a postpartum mood disorder (PPMD), yet not all women receive treatment; barriers such as access, stigma, and childcare need to be addressed. Group psychotherapy is an evidence-based treatment approach which could address these factors. The Postpartum Group Project developed from an identified need for maternal mental health care resources in the Thunder Bay community.

Methods: Through inter-agency collaboration a psychotherapy group has been developed for women experiencing PPMD. The treatment consists of an 8-week interpersonal psychotherapy group (2 hours/week) facilitated by two mental health counsellors. Participants are invited to complete validated measures of depressive symptoms, loneliness, quality of life, and self-stigma at three time points. Thus far, data from 6 treatment groups are available and have been pooled for analysis.

Results: Our clinical sample ($n = 26$; mean age = 30.8 years, $SD = 6.6$) presented at 1-11 months postpartum. Participants' scores on the Beck Depression Inventory - II significantly reduced across the course of treatment [$F(2, 24) = 6.3, p < .00$], with scores moving from the moderate range (26.8, $SD = 9.3$) to the mild range (17.9, $SD = 11.9$). A similar trend was observed for scores on the Self-Stigma of Depression Scale with the largest improvement on the Self-Blame subscale ($t[19] = 2.8, p < .05$).

Conclusion: This intervention has resulted in significant improvements in maternal mental health care. Women's depressive symptoms decreased over the course of group interpersonal psychotherapy, along with a decrease in self-stigma of depression.

Benchmarking the effectiveness of group Triple P in a community child mental health agency

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Background/Objectives: Triple P parenting is an empirically supported parenting intervention with widespread implementation in community agencies. Benchmarking can be used to evaluate whether community agencies achieve outcomes commensurate with those expected, based on results from published trials of the interventions.

Methods: The present study applied a benchmarking strategy to evaluate the outcomes of parents of youth (2 -12 years) who completed Group Triple P at a community children's mental health agency in Canada. Meta-analytic technique was used to aggregate results of 6 randomised control trials of Group Triple P to establish treatment and natural remission benchmarks for outcomes across a number of constructs. These benchmarks were based on pre-post effect sizes for child behaviour, parent psychopathology and co-parenting. Outcomes of the community sample were compared to treatment and natural history benchmarks.

Results: The community sample attained levels of improvement commensurate with treatment efficacy benchmarks for parent mental health and child behaviour. The community sample achieved results significantly better than natural remission for co-parenting, but there was no evidence that improvement was clinically equivalent to the treatment benchmark.

Conclusion: Results indicate it is possible for parents receiving Group Triple P in community samples to attain levels of improvement commensurate with efficacy studies.

CANS as a tool for evaluating program effectiveness in CCTB outpatient services

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Background/Objectives: The Child and Adolescent Needs and Strength (CANS) instrument provides a functional clinical assessment on a broad range of child and parent symptoms which assists with both treatment planning and outcome measurement of child therapy.

Methods: One-hundred and twenty-eight outpatient clients at CCTB, aged 6-18 (57% female, 43% male), were scored on the CANS at the outset of services. Information on 77 child (e.g., emotion-regulation skills, social skills, mental health, educational,...) and parent (e.g., parenting skills, mental health, substance abuse,...) functional items were collected. These clinical profiles were analyzed by gender, age, and service intensity in order to provide direction on how to adjust service delivery.

Results: Independent-sample t-tests compared CANS scores for gender, age (6-11.99 years and 12-18 years), and outpatient versus Day Treatment clients. The strength items of self-management, peer relations, and self-expression were significantly different across gender ($p < .05$) and age ($p < .05$). Clinical items for anger control, over reactive, and anxiety differed significantly between outpatient and Day Treatment services ($p < .01$), gender ($p < .01$), and age ($p < .05$). Domains assessing behavioural needs, emotional needs, and substance use ($p < .01$) differed significantly by age. The behavioural needs, emotional needs, social skills, risk behaviours, and youth strengths differed significantly for gender ($p < .01$). As expected, all domains, excluding substance use, were significantly different between outpatient and Day Treatment services ($p < .05$).

Conclusion: Use of these CANS clinical profiles provided clear direction regarding service priorities by age, gender, and service intensity and how CCTB services should be adjusted to best meet the needs of clients.

Evaluating clinical change in CCTB outpatient services using the CANS

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Background/Objectives: The Childhood and Adolescent Needs and Strengths (CANS) tool is used at Children's Center Thunder Bay (CCTB) to make judgements about services and monitor outcomes. The CANS tool consists of 77 need and strength items rated as 0 (no immediate need/centerpiece strength), 1 (watchful prevention/useful strength), 2 (action/strength to be built), or 3 (immediate action/no strength identified), which are grouped into fourteen domains that span several aspects of child and family wellbeing.

Methods: Fifty-two (50% male; 50% female) outpatient clients, aged 6-18, were scored on the CANS upon admission and discharge. CANS domains were assessed for internal consistency, and items were rearranged to ensure a Cronbach's Alpha value of at least 0.7. Individual CANS items were transformed into clinical and non-clinical scores, where original 0 and 1 values became 0 (non-clinical), and original 2 and 3 values became 1 (clinical). Initial and discharge clinical domain scores were assessed for statistical change.

Results: All domain scores showed significant change ($p < .05$; one-tailed), except Family/Caregiver Needs and Strengths ($n=51$). As well, high frequency individual CANS items at pre-treatment (Self-Management, Self-Expression, Over-reactive, Anger Control, Impulse Control, Anxiety, and Moodiness) showed significant change ($p < .05$; one-tailed) after treatment. In addition to statistical effects, clinically meaningful measures of change, including Effect Size (ES) and Reliable Change Indices (RCI), will be reported.

Conclusion: These results highlight intervention strengths as well as weaknesses which will require future improvement. Recommendations for service changes are provided.

Dissociation between cortical thickness and mirror system responses: A magnetic resonance imaging investigation of structure and function

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Background/Objectives: Mirror neuron systems (MNS), primarily located in the brain's Inferior Frontal Gyrus (IFG) and Inferior Parietal Lobule (IPL), respond both when a person executes an action and during observation of someone else executing a similar action. Our lab has previously found increased fMRI signal change in MNS regions in middle-aged adults (Group 1: 41-60 years) compared to younger adults (Group 2: 18-40 years) and older adults (Group 3: 61-80 years). This study furthers the investigation by considering the influence of cortical thickness on MNS activity (percent signal change) in IFG and IPL.

Methods: Anatomical MRI data (n = 26) from a previous fMRI study (SM Parker, 2015) were analyzed using Freesurfer software to measure cortical thickness (MGH, USA). Mean measures of cortical thickness for the IFG and IPL in each hemisphere were exported to SPSS and differences between groups were assessed using a general linear model.

Results: Cortical thinning was observed with aging, as demonstrated by the significant decrease in thickness measurements from Group 1 to Group 3 ($p < 0.05$).

Conclusion: We found cortical thinning in the IFG and IPL increased with each age group. This decline with age was not found in our previous examination of functional activity. Further work is needed to establish the relationship between the structural integrity of the brain tissue and its functional response.

The Trail Making Test B: Minimizing the risk of false positives severely compromises the test's ability to identify unsafe drivers

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Background/Objectives: The Trail Making Test – Part B (TMT-B) is a widely used screening measure to predict driving performance in senior drivers. However, there is a lack of reported data describing the diagnostic properties of the TMT-B to identify unsafe drivers while minimizing the risk of inappropriately labeling safe drivers as unsafe. Our objective was to determine the sensitivity of the TMT-B to identify unsafe drivers at high levels of specificity (90%, 95%, 100%).

Methods: Sensitivity values at high specificity levels were extracted from published ROC curves assessing the discrimination of the TMT-B for driving performance. Correlations between sensitivity/specificity and TMT-B completion time cut-offs were assessed using Pearson's r .

Results: Only four of the 45 retrieved articles: a) included TMT-B sensitivity and specificity scores; b) utilized an on-road driving test as the gold standard; c) reported ROC curves allowing for sensitivity estimation at high specificities.

Mean extracted sensitivities were 32.7%, 22.4% and 10.9% at specificities of 90%, 95%, and 100% respectively. Higher cut-offs in time to completion for TMT-B were associated with higher specificity ($r=.85$) and lower cut-off points generally associated with a higher level of sensitivity ($r=.84$).

Conclusion: When risk of mislabeling safe drivers as unsafe was minimized the TMT-B's ability to detect unsafe drivers was severely compromised. While failing to identify unsafe drivers is a safety concern, ensuring high levels of specificity will minimize the risk of misclassifying safe drivers as unsafe, thus, preventing seniors from suffering an overall reduction in quality of life as a result of inappropriately losing their driving privileges.

U.S.A. Driver distraction trends (1991 - 2009)

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Background/Objectives: Distracted driving occurs when the driver engages in a secondary activity that affects the performance of the primary task of driving, and is associated with driver errors and increased crash risk. This study examines the prevalence of distracted driving in fatal collisions.

Methods: Distraction was first recorded as a potential unsafe driver action in 1991, and as a unique variable from 2010 onward. This analysis calculates prevalence of distracted driving in drivers of passenger type vehicles between 1991-2009 by age and sex. Adjusted prevalence estimate assuming enforcement activity remains constant since the initial year in which distraction was recorded (1991) will also be presented.

Results: Between 1991-2009 there were 865,144 drivers, aged 16 and older, of passenger type vehicles involved in a fatal crash; 7,305 drivers were coded as distracted, almost all with cell-phone use (98.6%). Unadjusted annual prevalence estimates of distracted driving ranged between 0.04% and 0.3% of all drivers between 1991-2001 and then increased to 1.4-3.0% between 2002-2009. Peaks occurred in years 2003 (3.0%) and 2009 (2.4%). The proportion of distracted drivers peaked at 18 years old (1.2%), fluctuated around 1.0% until age 60 at which point it steadily decreased. After adjusting for fatal crash involvement by sex, prevalence trends displayed female drivers (below age 40) having higher proportions of distracted driving compared to males.

Conclusion: Further research should be conducted on various driver distractions, both over time and in recent years. The impact of distracted driving on crash risk in collisions should also be investigated.

The use of a simulated driving protocol in differentiating between healthy and concussed individuals on measures of dual tasking, reaction time and heart rate variability

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Background/Objectives: Five out of every 1,000 Canadians experience a mild traumatic brain injury (mTBI) each year. The literature, however, lacks information on the use of simulated driving protocols to assess readiness to return to safe driving after suffering a mTBI or concussion. The purpose of this study was to examine the use of a dual tasking (the ability to perform two activities at the same time) driving protocol in differentiating between healthy and concussed participants on measures of reaction time and heart rate variability (HRV).

Methods: Ten healthy and 10 concussed participants were exposed to multiple dual tasking reaction time scenarios including pedestrian, vehicle, and cyclist incursions using a STISIM Model 400 driving simulator. ANOVAs were performed to examine the interaction effect between group and scenario on dual tasking reaction time and HRV.

Results: No significant interactions were found between group and driving scenario on either dual tasking reaction time or HRV. Dual tasking reaction time differences were found between groups, $F(1, 18) = 23.145$, $p < .0001$, $\eta^2 = .563$ with concussed participants having longer reaction times than healthy controls. No significant differences were found between groups, $F(1, 18) = 2.526$, $p = 1.29$, $\eta^2 = .140$ or between driving scenarios, $F(2.956, 53.207) = 0.573$, $p = .633$, $\eta^2 = .030$ on HRV measures.

Conclusion: The findings support existing literature and suggest that the driving protocol used in this study seems to differentiate between healthy and concussed groups when exposed to dual tasking reaction time driving scenarios. No significant findings in HRV measures suggest that healthy and concussed participants seem to have experienced similar levels of arousal across driving scenarios. Future research will be conducted with a larger sample size and additional dual tasking driving scenarios.

The effect of spring loaded single-tip cane mechanisms in minimizing upper extremity injuries during walking

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Background/Objectives: Canes are often prescribed to improve people's mobility, alleviate pain from injury or clinical pathology, and help people maintain balance while performing activities of daily living. It has been reported, however, that 30-50% of people abandon their cane devices after receiving it due to musculoskeletal pain and injuries in the upper extremity. Based on this concern, the purpose of this study was to determine the effect of commercial spring loaded single-tip cane use on electrical muscle activation (EMG) in the upper limb during ambulation.

Methods: Healthy participants (n=21) were fitted with three types of canes (traditional, Miracle Cane®, and Stander Cane®) and a T-Scope knee brace to simulate an injury. Each participant performed a gait cycle and EMG data were collected in the upper extremity muscles (i.e., flexor carpi radialis, extensor carpi radialis longus, brachioradialis, triceps brachii, infraspinatus, and pectoralis major).

Results: Statistically significant differences were found in upper extremity EMG muscle activation between cane types, $F(2, 280) = 18.45$, $p < .05$, $\eta^2 = 0.12$, in which the Miracle Cane® produced less EMG output than all other canes.

Conclusion: The results of the current study add to the existing literature and indicate that the Miracle Cane® instrumented with a spring loaded mechanism may decrease the likelihood of upper extremity musculoskeletal injuries by decreasing upper arm muscle activation and joint loading. Further research needs to be completed to assess differences between these types of canes in injured individuals who regularly use canes.

The influence of neck stiffness, impact location and angle of impact on measures of peak linear acceleration and risk of injury during head collisions when wearing a hockey helmet

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Background/Objectives: A Group Medical Visit (GMV) is a treatment format whereby health providers meet with a group of patients at the same time. GMVs are frequently utilized for the purpose of managing psychotropic medications. This study examined patient satisfaction with GMVs as well as quality of life and mental health symptomatology among patients attending GMVs.

Methods: Patients attending an ongoing GMV for medication management were invited to complete a weekly patient satisfaction questionnaire at each visit. A psychiatrist and nurse led the GMVs. The number of patients attending the GMV varied with each appointment. All patients who attend the GMVs were also invited to receive a package of questionnaires by mail that assessed quality of life, mental health symptomatology, satisfaction with individual psychiatric appointments, and satisfaction with GMVs.

Results: Twenty-six patients completed the weekly patient satisfaction questionnaire, with eight participants completing it more than once. The average response to the weekly questionnaire item, "overall, I felt the quality of care and services today were" was 4.08 (SD=1.00) on a Likert-type scale ranging from 1 to 5, with 5 indicating higher satisfaction. Four patients completed the questionnaire packages sent by mail. Descriptive statistics of this data are presented.

Conclusion: Item averages on weekly questionnaires ranged from good to very good levels of satisfaction. This study provides preliminary information regarding patients' perspectives of GMVs. Satisfaction with the GMVs could not be statistically compared to satisfaction with individual appointments due to sample size limitations, necessitating further research into this growing approach to practice.

The effects of dual processing on gait pattern: An analysis of texting and walking

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Background/Objectives: Texting and walking is a common dual-task performed in today's society. Performing this type of dual-task, however, may increase injury risk due to dual-task interference and potential alterations in normal human gait patterns. Based on these concerns, the purpose of this study was to examine the effect of texting while walking on gait pattern in healthy young adults.

Methods: Twenty participants were recruited for this study. Participants walked across a force platform during three conditions: undistracted walking, walking while receiving a text, and walking while sending a text. Dependent variables measured were average claw back, average braking and propulsive forces, and normalized velocity. Independent variables were walking condition and type of force (braking/propulsion).

Results: Results indicate no significant difference among the three conditions on average claw back. There was a marginally significant interaction effect between the type of force and texting condition when measuring the braking and propulsive ground reaction forces, $F(2,84)=2.58, p=0.082, \eta^2=0.058$. There was also a statistically significant difference in normalized velocity between undistracted walking and walking while sending a text, $F(2,42)=14.63, p < 0.05, = 0.411$.

Conclusion: Results suggest that the dual-processing involved with texting while walking has a negative effect on some gait characteristics more than others; specifically, normalized velocity was the most affected, while braking and propulsive forces were moderately affected, and claw back was not significantly affected. The outcomes of this study may set a foundation for future research examining the risks associated with texting while walking and the effect of dual-tasks on gait pattern.

Preventative ankle bracing reduces vertical jump height but not agility time in jumping athletes

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Background/Objectives: Preventative ankle bracing is commonly used in sport to reduce the risk of injury. The research on the clinical utility of ankle bracing at reducing the risk of injury is far from conclusive and contradictory. Additionally, the research on the potential impact on physical performance measures is conflicting. The purpose of this study was to examine the effect of the ASO EVO[®] and Active Ankle T1[®] ankle braces on vertical jump height and agility time in varsity jumping sport athletes.

Methods: Fourteen participants (6 male, 8 female; 6 basketball, 8 volleyball; age $M=20.92, SD=1.94$ years, height $M=177.42, SD=7.48$ cm; weight $M=79.13, SD=12.54$ kg) had their vertical jump height and agility time assessed with no brace and when wearing the ASO EVO[®] and Active Ankle T1[®] Brace. A one-way repeated measures ANOVA was used to examine the effect of brace type on vertical jump height and agility test time ($p < .05$).

Results: There was no significant difference between conditions with respect to agility time. There was a statistically significant reduction in vertical jump height when wearing an ankle brace $F(1.66, 21.63) = 4.175, p=0.035$. Post-hoc analysis revealed a significant mean height decrease when wearing the Active Ankle T1[®] Brace ($p=0.01$) compared to wearing no brace.

Conclusion: Ankle bracing does not affect agility performance. Vertical jump height may be reduced when wearing certain types of ankle braces. Athletes, coaches, and healthcare providers considering the use of preventative ankle bracing must realize the potential for bracing to reduce vertical jump height thus impacting on performance.

Does therapeutic taping affect shoulder strength and surface EMG activity in the completion of various functional movement patterns?

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Background/Objectives: Kinesio tape (KT) is commonly used to treat various shoulder injuries; however, the exact effect remains unclear. Therefore, this study compared the effects of KT to no tape on: 1) isometric flexor, abductor, and external rotator muscle strength; 2) electromyography (EMG) activity of the teres minor (TM), infraspinatus (IS), and supraspinatus (SS) during strength testing; and 3) EMG activity when reaching into flexed, abducted, and externally rotated positions.

Methods: Thirty healthy individuals (18 male, 12 female) participated. Participants performed three maximum voluntary contractions for resisted shoulder abduction and external rotation followed by three repetitions of reaching into flexion, abduction, and external rotation without tape. A facilitory KT technique was applied to the shoulder and the individuals performed the same tasks described previously. The mean force (kg) was measured using a Lafayette Manual Muscle Tester and mean absolute EMG muscle activity (mV) was recorded using a wireless EMG.

Results: There was a significant decrease in EMG activity with KT in the TM ($t(21)=2.018$, $p=.05$) and SS ($t(21)=2.19$, $p=.04$) muscles during shoulder flexion and an increase in IS ($t(21)=2.532$, $p=.02$) during external rotation. There were no significant differences for shoulder strength or EMG activity for any other muscles during strength or functional movement testing.

Conclusion: The application of KT reduced TM and SS EMG activity during shoulder flexion and increased IS EMG activity during external rotation. If rotator cuff injury is present, KT application may assist with using alternate compensatory muscles during functional movements or in protecting overactive and painful muscles.

The effects of exercise on cognitive function and salivary BDNF in healthy individuals: A pilot study

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Background/Objectives: The purpose of this pilot study was to explore the effects of implementing a four week exercise program on neurocognitive function and salivary brain-derived neurotrophic factor (BDNF) in healthy individuals and to explore the feasibility of future implementation in a concussed population.

Methods: Ten healthy, physically active participants (3 females, 7 males; age $M=22.9$ years; $SD=2.28$; height $M=171.20$ cm; $SD=6.91$; and body mass $M=74.94$ kg; $SD=12.29$) were included. Subjects completed two assessments (pre- and post-exercise program) in which salivary BDNF concentrations and the Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT) battery were measured and scored. Twelve supervised sessions over the course of four weeks consisted of progressive aerobic and balance retraining exercises. The intensity and difficulty of the exercises were individualized and progressed using weekly pre-determined parameters and progressions. The data were analysed using descriptive statistics and Paired Sample t-Tests with an alpha level set at .05.

Results: Statistically significant changes in reaction time ($t(9)=-2.472$, $p=.035$) were found. No statistically significant changes in salivary-BDNF or other neurocognitive ImPACT measures (visual motor speed, $t(9)=1.26$, $p=.24$; verbal memory, $t(9)=-.27$, $p=.79$; visual memory, $t(9)=.60$, $p=.56$) were evident.

Conclusion: The CHOICES Program displayed significant and positive outcomes by decreasing anxiety and contributing to positive life choices. The implications of these results for future services will be discussed.

Exploring motivation to exercise in individuals post total knee replacement surgery

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Background/Objectives: Over the past 25 years the prevalence of TKRs has increased (Kurtz et al., 2005). TKRs alleviate pain and restore normal range of motion with most patients completing immediate physical rehabilitation. Despite improvements from initial TKR rehabilitation, overall physical activity levels often do not continue to increase (Arnold et al., 2016). The self-determination theory suggests that antecedents to intrinsic motivation can be clarified by the basic psychological needs of autonomy, competence, and relatedness (Ryan & Deci, 2002). Since physical activity has most likely declined prior to TKR due joint pain and loss of mobility, the goal is for patients who have had a TKR to progressively return, minimally, to their pre TKR physical activity levels. This study explores intrinsic motivation to be physically active post initial physical rehabilitation in patients who have had a TKR, using the basic psychological needs as guiding principles.

Methods: Individuals who were 3 to 12 months post TKR were recruited and interviewed. Questions focused on the role that the basic psychological needs of autonomy, competency, and relatedness had relative to the individual's motivation to be physically active. Interviews were transcribed and reviewed to determine common themes.

Results: Participants (n=2) indicated pain was an inhibitor to exercise prior to TKR. Post TKR physical rehabilitation, participants deepened their motivation to regularly participate in exercise or PA. Participants indicated the multiple health benefits of PA including: increased balance, energy, strength, and flexibility. Participants used previous connections with friends and family as motivation to participate in exercise and PA.

Conclusion: This study aims to explore motivation to be physically active after post initial physical rehabilitation in patients who have had a TKR. A reduction in knee pain influenced the participants to engage in regular exercise and PA. Relatedness was established as participants viewed exercising and being physically active with other individuals an imperial motivator.

The effects of neurocognitive and physical tasks on breathing in healthy individuals: A proof of concept study

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Background/Objectives: Many Canadians experience breathing related problems impacting on overall health. Recent findings suggest that breathing may also be linked to prolonged deficits following concussion; however, research within this population is limited. The purpose of this study was to explore the effects of a neurocognitive test (ImpACT testing) versus a physical task (walking at different speeds and elevations) on end-tidal carbon dioxide (ETCO₂) and respiratory rate in a healthy population and to determine the feasibility of completing a similar protocol in the future on a concussed population.

Methods: Respiratory rate and ETCO₂ were recorded on 11 healthy participants (7 males, 4 females) before and during the completion of neurocognitive testing using the ImpACT test battery and during four walking trials that varied in walking speed and treadmill elevation. The data was analyzed with a rejection criteria set at an alpha level $p < .05$.

Results: Statistically significant increases were observed in respiratory rate ($t(10) = -5.52, p = .001$) during the ImpACT; ETCO₂ ($F(4,7) = 14.18, p = .002$) during all four walking trials; and respiratory rate ($F(4,7) = 7.02, p = .01$) during three walking trials (slow walking 5% grade, slow walking -5% grade, and fast walking 0% grade). No significant changes were observed in ETCO₂ during the ImpACT or in respiratory rate during slow walking 0% grade.

Conclusion: Neurocognitive and physical tasks impact ETCO₂ and respiratory rate in a healthy population. These changes may be due to cognitive loading and increased physical demands on the cardiorespiratory system. Therefore, future investigations are warranted when completing similar neurocognitive and physical tasks in a concussed population.

The effects of active virtual games on motor proficiency of children with developmental movement problems

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Background/Objectives: Research has shown that participation in active virtual motion video games may have a positive impact on movement status and willingness to take part in physical activities in typically and atypically functioning children. However, it remains unclear whether this is true for children diagnosed with Developmental Coordination Disorder (DCD). The objective of this study was to examine the effects of playing active virtual motion (Xbox Kinect) on balance control, agility and performance of core movement skills in children with DCD. The secondary objective was to infer whether participation in such games was enjoyable, based on the perception of the child, and if this approach was effective according to the child's parents.

Methods: One male (age 12) and one female (age 8) participated in a six-week intervention. The status of aiming and catching, balance, running speed/agility, and strength were examined using standardized tests (MABC & Bruiniks), before, during and at the end of the six-week period.

Results: Both participants improved their balance and ball skills scores, however running speed/agility, and strength scores remained relatively unchanged. From the qualitative data it was inferred that both participants enjoyed the games. Also, parents viewed the experiences as positive and possibly transferable to real-life physical activities. Also, they were willing to implement the games within the home-setting.

Conclusion: The study showed that this approach has the potential to enhance some aspects of psycho-motor status of children with DCD. Future research should involve longer intervention period, larger sample, and more accurate measures of motor performance.

Motor learning theories and clinical practice for children with developmental disabilities

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Background/Objectives: In the area of adapted physical activity, clinical research should be fundamentally evidence-based. However, often the rehabilitation approaches implemented by the clinicians are not theoretically driven. In 1975, Richard Schmidt (1975) introduced variability of practice hypothesis, which represents a corner-stone of motor learning literature. Numerous research studies confirmed that implementation of variable practice, involving manipulation of different task constraints, enhanced performance of individuals of different skill levels, across many different functional tasks. The purpose of this study was to determine if implementation of this type of practice would enhance coordination and control of one-handed catching in children exhibiting symptoms of Developmental Coordination Disorder (DCD).

Methods: Three boys and one girl (mean age = 10.5, SD = 1.29 years) were exposed to 12 variable practice sessions over 6 weeks, with kinematic analysis occurring prior, at the mid point, and immediately following the the intervention. Following a one-week delay, a retention and transfer tests were administered to test for permanency and generalizability of the changes. The variable practice was implemented by changing the speed and trajectory of the balls projected by a tennis ball machine, during 40 trials in each session.

Results: It was revealed that children were able to intercept more balls when compared to pre-test. Also, their movements were less restricted as evidenced by significantly less coupling between the shoulder and elbow joints. This was accompanied by decrease in intra-individual variability, which is also an indicator of learning. In addition, relative time to peak velocity also increased indicating that their actions become more ballistic.

Conclusion: Although sample was small, this study provides tentative support for the use of this motor learning approach in clinical practice.

Can social media affect medication adherence?

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Background/Objectives: Effective medical treatment is essential to patients' quality of life, however, it all depends upon patients' adherence to the recommended treatment regimens. Patient non-adherence can be a threat to health and well being as well as a cause of significant economic burden. Reasons for non adherence include misunderstanding, forgetting, or ignoring healthcare advice. While most previous studies have focused on the use of intervention strategies to improve the adherence of patients (e.g., providing more information to enhance patient understanding of the regimen, providing clear and effective communication between health professionals and their patients), there are no attempts in the literature to study the effect of social media on medication adherence. Social media in general comprises an array of websites (e.g. patientlikeme.com, drugs.com, Twitter) that enable people to interact through discussion, photos, video or audio. Through such websites, patients are given the opportunity to tell the story of their unique illness experiences with recommendations on regimes of treatment. The latest statistics on social media show that around 42% of online adults use multiple social networking sites.

Methods: This unique study uses very large dataset collected from variety of websites (patientlikeme.com, drugs.com and Twitter.com) related to the use of certain common prescription drugs targeting a treatment regime for cardiovascular conditions, diabetes, and asthma. NodeXL was used for collecting the dataset. However, a variety of natural language techniques were used to identify the features affecting medication adherence (like patient characteristics and patient conditions) along with specific machine learning techniques and reference databases to identify cases tagged as non-compliance. The measure used for identifying non-compliance is based on a variant of the Medication Possession ratio (MPR) where on average any MPR <80% is considered non adherent.

Results: More than 95,000 patient stories have been collected from three websites related to groups of common prescribed drugs. The stories reveal more than 30% noncompliance to the prescribed drug regime. A variety of visualization and analytics results on our findings is displayed with the help of Gephi and NetworkX toolkits.

Conclusion: Social media is playing a coaching role in the process of disease management and medication adherence. This role should be considered as important, and added to the variety of other interventions that address medication non-compliance.

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