

Conference for Undergraduate Health Research



Welcome to the 2023 International Conference for Undergraduate Health Research (CUHR) - Brought to you by the Undergraduate Health Research Exploration (UHRE)

We are excited to have you join us for this 1-day hybrid conference. Below you will find the itinerary for 72 presentations spread over 16 sessions which will be taking place in 4 rooms both virtually and in-person. We want to thank the Faculty of Health at York University for supporting this conference.

We welcome you and your guests to make your way to the appropriate rooms and/or Zoom links with the student presentations starting at 10 AM ET and join us for our keynote speech at 4 PM ET. The keynote speech will take place at Ignat Kaneff Building (IKB) - Moot Court - Osgoode Hall Law School (Keele Campus, York University) and options to join this speech both virtually and in-person are available.

We hope you enjoy the conference!

Sincerely,

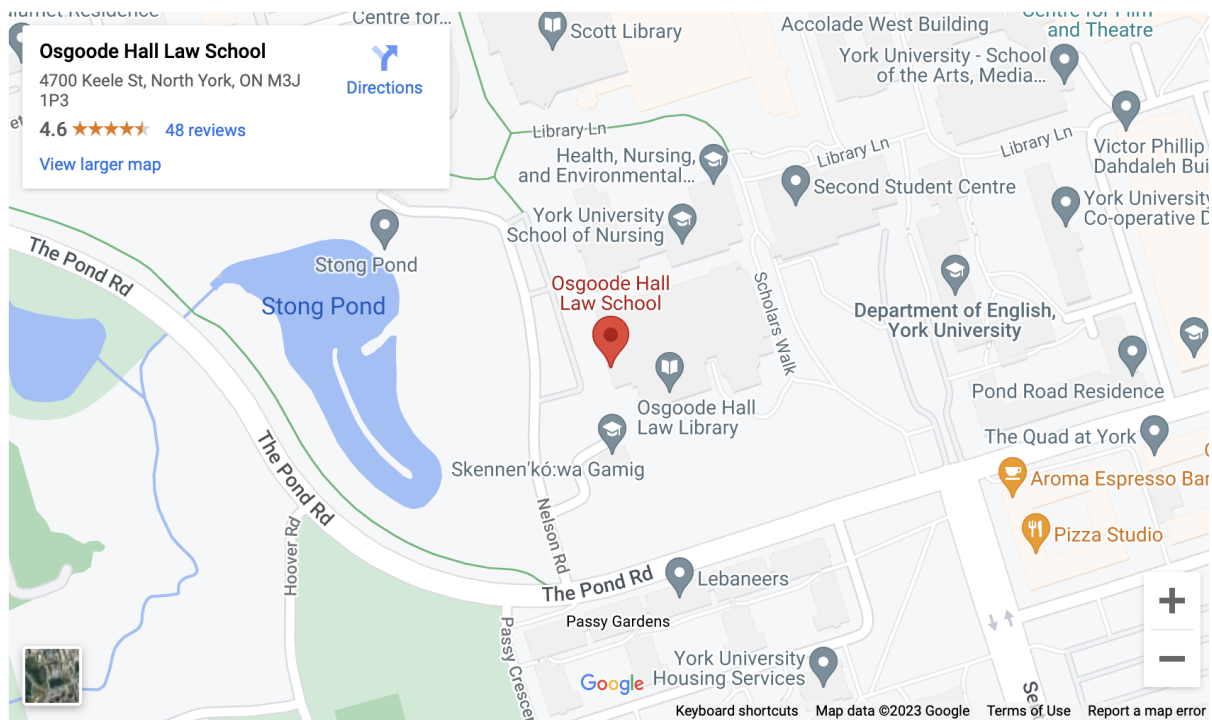
CUHR Organizing Team

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LOCATION

York University Keele Campus - Ignat Kaneff Building
4700 Keele Street
Toronto, ON Canada M3J 1P3



PARKING

Metered parking is available across the York University campus. For further information, please see the YorkU Parking Services webpage, below.

<https://www.yorku.ca/parking/>

Most parking locations can be paid through the HONK Mobile app:

<https://www.honkmobile.com/find-parking/>

CUHR 2023 Timetable

CUHR 2023 TIMETABLE	
9:00 AM – 9:45 AM	Registration
9:45 AM – 9:55 AM	Opening & Housekeeping Items
10:00 AM – 11:00 AM	Presentation Groups 1A, 1B, 1C, 1D
11:00 AM – 11:10 AM	Break
11:10 AM – 12:10 PM	Presentation Groups 2A, 2B, 2C, 2D
12:10 PM – 1:05 PM	Lunch
1:05 PM – 2:20 PM	Presentation Groups 3A, 3B, 3C, 3D
2:20 PM – 2:30 PM	Break 2
2:30 PM – 3:45 PM	Presentation Groups 4A, 4B, 4C, 4D
4:00 PM – 5:00 PM	Closing

SESSION 1A

Location: Ignat Kaneff Building (IKB) Room 1003 - Osgoode Hall Law School (Keele Campus - York University)

Zoom Link: <https://yorku.zoom.us/j/98459990399>

Start	End	Title	Presenter	Presentation Delivery
10:00 AM	10:15 AM	Early Hospital Discharge Following Uncomplicated Birth: A Review of the Literature	Keshini Sriarulnathan	Online
10:15 AM	10:30 AM	Self-Kindness, Mindfulness, and Common Humanity: Effects of Self-Compassion on Wellbeing for Indigenous Participants in Self-Compassion-Related Interventions	Nichaela Garvey	Online
10:30 AM	10:45 AM	Comparison of ingredients and nutrient label of the various brands of tomato paste on the Madina Market	Parentiah Asenso	Online
10:45 AM	11:00 AM	Comparing the Emotional Charge of Bilinguals' Languages Based on Their Linguistic Similarity	Leyao Wang	Online

SESSION 1B

Location: Ignat Kaneff Building (IKB) Room 1004 - Osgoode Hall Law School (Keele Campus, York University)

May 5th, 2023

Zoom Link: <https://yorku.zoom.us/j/93812578523>

Start	End	Title	Presenter	Presentation Delivery
10:00 AM	10:15 AM	Development, Translation and Validation of Satisfaction with Life Questionnaire in Filipino	Veronica Vitug	Online
10:15 AM	10:30 AM	Predilection for Intervention of Text Messaging as an Effective Psychotherapy Tool During COVID-19 Pandemic, among College Students	Anshika Singh	Online
10:30 AM	10:45 AM	The perceived role of mental health support systems in the promotion of health and well-being at higher educational institutions.	Nayaab Baghdadi	Online
10:45 AM	11:00 AM	Effects of Adverse Childhood Experiences on Interpersonal Impairment in University Students	Victoria Radovski	Online

SESSION 1C

Location: Ignat Kaneff Building (IKB) Room 1008 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/91848680854>

Start	End	Title	Presenter	Presentation Delivery
10:00 AM	10:15 AM	The Role of Exercise in Oculomotor Task Performance	Muskan Sehgal	In-Person
10:15 AM	10:30 AM	Effect of head orientation and optic flow gain on quiet stance amplitude	Atara Lipson	In-Person
10:30 AM	10:45 AM	Exploring Standing Balance and Emotional Responses during Virtual-induced Postural Threat	Victoria Fabrizi	In-Person
10:45 AM	11:00 AM	Using thin slicing of client emotions to detect client resistance in psychotherapy	Michelle Park	In-Person

SESSION 1D

Location: Ignat Kaneff Building (IKB) - Moot Court - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93811362817>

Start	End	Title	Presenter	Presentation Delivery
10:00 AM	10:15 AM	Investigating the Role of Pregnancy and the Gut Microbiota on Intestinal ZO-1 integrity	Noah Brittain	In-Person
10:15 AM	10:30 AM	Histological assessment of the costal diaphragm evaluating immune cell infiltration in an experimental autoimmune myositis mouse model.	Parsa Shekarloo	In-Person
10:30 AM	10:45 AM	Establishing pediatric reference intervals for hematological biomarkers of health and disease - A study in the CALIPER cohort of healthy children and adolescents in the Greater Toronto Area	Efigenia Rouvas	In-Person
10:45 AM	11:00 AM	Modeling Mitochondrial Dysfunctions in Bipolar Disorder Using Cerebral Organoids	George Nader	In-Person

SESSION 2A

Location: Ignat Kaneff Building (IKB) Room 1003 - Osgoode Hall Law School (Keele Campus - York University)

Zoom Link: <https://yorku.zoom.us/j/98459990399>

Start	End	Title	Presenter	Presentation Delivery
11:10 AM	11:25 AM	Framing Matters: The Power of Opt-Out Choice Framing in Empowering Women to Compete	Parker Grant	In-Person
11:25 AM	11:40 AM	Perceived Risk of Pesticide Exposure among school workers in San Carlos region, Costa Rica	Alison Stacey	In-Person
11:40 AM	11:55 AM	Developing and Validating the 'Question Generation Task' to Measure Engagement with Stories	Maria Moncaleano	In-Person
11:55 AM	12:10 PM	Rights, Not Rescue: Coloniality of Anti-Trafficking and the Sport Mega-Event	Benton Oliver	In-Person
12:10 PM	1:05 PM	Lunch Break		

SESSION 2B

Location: Ignat Kaneff Building (IKB) Room 1004 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93812578523>

Start	End	Title	Presenter	Presentation
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				Delivery
11:10 AM	11:25 AM	Pointing Fingers: Reactions to incidents of anti-Asian racism during the COVID-19 pandemic	Connie Trang	In-Person
11:25 AM	11:40 AM	Usurping Power: The Effect of Desiring Relationship Power and Apology on the Relation Between Dark Tetrad Sadism and Revenge	Dmytro Rebrov	In-Person
11:40 AM	11:55 AM	Out of the Loop: Investigating the Relationship Between Social Media, Body Image, and Self-Esteem	Olivia Smith	In-Person
11:55 AM	12:10 PM	The Walking Wounded: Moral Injury in Police Officers with Posttraumatic Stress Disorder	Heather Lumsden-Ruegg	In-Person
12:10 PM	1:05 PM	Lunch Break		

SESSION 2C

Location: Ignat Kaneff Building (IKB) Room 1008 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/91848680854>

Start	End	Title	Presenter	Presentation Delivery
11:10 AM	11:25 AM	Symmetry Benefits Working Memory Representations of Object Orientation	Shaya Samet	In-Person
11:25 AM	11:40 AM	How does simulated eye height affect size perception in different postures?	Fatemeh Ghasemi	In-Person
11:40 AM	11:55 AM	Does the dual task effect balance vary according to the type of cognitive distraction being presented	Sadaf Khodaghali	In-Person
11:55 AM	12:10 PM	Investigating the Reliability of Subacromial Space Measures Using Ultrasound	Oriana Culig	Online
12:10 PM	1:05 PM	Lunch Break		

SESSION 2D

Location: Ignat Kaneff Building (IKB) - Moot Court - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93811362817>

Start	End	Title	Presenter	Presentation Delivery
11:10 AM	11:25 AM	Establishing pediatric reference intervals for laboratory biomarkers of blood coagulation in health and disease - A study in the CALIPER cohort of healthy children and adolescents in the Greater Toronto Area	Katherine Ullrich	In-Person
11:25 AM	11:40 AM	The Impact of Post-Exercise Heating on Skeletal Muscle Force Recovery in Humans during an Acute High-Intensity Exercise	Rohin Malekzadeh	In-Person
11:40 AM	11:55 AM	Exploring the sex specific role of high fat diet on adult muscle stem cell fate decisions in mice	Jaryeon Lee	In-Person
12:10 PM	1:05 PM	Lunch Break		

SESSION 3A

Location: Ignat Kaneff Building (IKB) Room 1003 - Osgoode Hall Law School (Keele Campus - York University)

Zoom Link: <https://yorku.zoom.us/j/98459990399>

Start	End	Title	Presenter	Presentation Delivery
1:05 PM	1:20 PM	Inequity in Corrective Eyewear Insurance in Ontario: A Repeated Cross-Sectional Study	Umaima Abbas	In-Person
1:20 PM	1:35 PM	Lessons learned from the application of an electronic data capture tool (REDCap) to develop a database of research accomplishments by oncology nurses	Prabnoor Sidhu	In-Person
1:35 PM	1:50 PM	Gender distribution on bicycle infrastructure types in Toronto: an observational analysis	Allison Spearin	In-Person
1:50 PM	2:05 PM	Examining Code-Switching Tactics of High-Performance Black, Indigenous, and People of Colour (BIPOC) Female Sport Coaches	Wajeeha Rasul	In-Person
2:05 PM	2:20 PM	An environmental scan update to confirm priority neighbourhoods for an intervention targeting older adults living in communities with health inequities	Salwa Siddiqui	In-Person

SESSION 3B

Location: Ignat Kaneff Building (IKB) Room 1004 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93812578523>

Start	End	Title	Presenter	Presentation Delivery
1:05 PM	1:20 PM	"Unmasking the Self: How COVID-19 Changed the Way We See Ourselves"	Tia Kleiner	In-Person
1:20 PM	1:35 PM	Optimal Placement of ActiGraph for the Detection of Physical Activity Among The Pregnant Population	Surabhi Velagala	Online
1:35 PM	1:50 PM	Social anxiety in autistic adults: A qualitative study of postevent processing and safety behaviours	Jan Wozniak	In-Person
1:50 PM	2:05 PM	A Psychometric Evaluation of the Parental Reflective Functioning Questionnaire in a Clinical Sample of Caregivers Who Attended a Emotion-Focused Family Therapy Workshop	Samantha Mason	In-Person
2:05 PM	2:20 PM	COVID-19 Vaccine Hesitancy and Access in Newcomer Populations- A Scoping Review	Orly Aziza	In-Person

SESSION 3C

Location: Ignat Kaneff Building (IKB) Room 1008 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/91848680854>

Start	End	Title	Presenter	Presentation Delivery
1:05 PM	1:20 PM	Construct Validity, Responsiveness, and the Minimally Important Change of the 30-second Chair Stand Test in People with Stroke	Allison Liang	In-Person
1:20 PM	1:35 PM	Exploring the impact that high-intensity exercise may have on mood and arousal in those with high preconceived stress.	Daryoush Akbari	In-Person
1:35 PM	1:50 PM	Active attention in humans: a study into cognitive-sensory interactions in balance control	Sandy Guirguis	In-Person
1:50 PM	2:05 PM	Examining the effects of exercise breaks on	Areesa Lalani	In-Person

		attention and retention in university students with poor mental health		
2:05 PM	2:20 PM	Visuo-motor adaptation through a balance-related task: Forward Leaning	Hasan Mansour	In-Person

SESSION 3D

Location: Ignat Kaneff Building (IKB) - Moot Court - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93811362817>

Start	End	Title	Presenter	Presentation Delivery
1:05 PM	1:20 PM	The effects of endothelial cell Forkhead Box O1 deletion on vascular permeability and lipid accumulation in ischemic skeletal muscle	Nicholas Cheng	In-Person
1:20 PM	1:35 PM	The Effects of Higher Education on Criminal Justice-Involved People Post-Release	Jama Maxie	In-Person
1:35 PM	1:50 PM	Structural Integrity of the Locus Coeruleus and Ventral Tegmental Area is Related to Decision-Making in the Aging Brain	Patrick Hewan	In-person
1:50 PM	2:05 PM	Malnutrition Among the Elderly in Ashaiman	George Opoku	Online
2:05 PM	2:20 PM	The Association Between Maternal Stress Biomarkers and Infant Neurodevelopmental Outcomes: A Structured Review	Prisha Jain	In-Person

SESSION 4A

Location: Ignat Kaneff Building (IKB) Room 1003 - Osgoode Hall Law School (Keele Campus - York University)

Zoom Link: <https://yorku.zoom.us/j/98459990399>

Start	End	Title	Presenter	Presentation Delivery
2:30 PM	2:45 PM	Factors Affecting the Social Valuation of an Urban Green Space in Ermita, Manila	Rizalei Moreno	Online
2:45 PM	3:00 PM	Association between Media Exposure to Family	Niegel	Online

		Planning Messages and Modern Contraceptive Use among Filipino Women	Rozene C. Aguilar	
3:00 PM	3:15 PM	Perceived Reasons for Antenatal Care Practices in the City of Manila: Perspectives of Community Health Workers	Renz Matthew L. Aurellano	Online
3:15 PM	3:30 PM	Past and Future of Medical Device Sounds - Exploring better approaches to auditory alarms in medical devices	Cindy Zhang	In-Person
3:30 PM	3:45 PM	When Husbands/Fathers Come Out as Gay in a Heterosexual Familial Context: A Scoping Review	Benjamin P. Nguyen	In-Person

SESSION 4B

Room Number: Ignat Kaneff Building (IKB) Room 1004 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93812578523>

Start	End	Title	Presenter	Presentation Delivery
2:30 PM	2:45 PM	Covid-19 prevalence and all-cause mortality rate among musculoskeletal patients in Nairobi, Kenya compared to patients with other diagnosis.	Benwillies Nyaanga Onchong'a	Online
2:45 PM	3:00 PM	The Interactive Role of Hurt and Anger on Grudge Holding	Jewy Ferrer	Online
3:00 PM	3:15 PM	A systematic review to determine the effectiveness of mindfulness-based interventions on binge-eating behavior	Nidhi Roshni Rameshan	Online
3:15 PM	3:30 PM	Early Language Environments in Low Socioeconomic Status Families: Children's Language Acquisition and Development	Angelina Heidebrecht	In-Person
3:30 PM	3:45 PM	Episodic Future Thinking and Delay Discounting: The Importance of Vividness and Self-Relevance.	Katriel Read	In-Person

SESSION 4C

Location: Location: Ignat Kaneff Building (IKB) Room 1008 - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/91848680854>

Start	End	Title	Presenter	Presentation Delivery
2:30 PM	2:45 PM	Acute substance use by precariously housed persons and the effects on cognition	Valeria Hernandez	In-person
2:45 PM	3:00 PM	Examining psychometric properties among online neurocognitive assessment batteries: A literature review	Lara Black	Online
3:00 PM	3:15 PM	Using the NeuroBioBehavioural Model to Treat Underlying Causes of Behaviour in Autism Improves Symptoms	Lauren Rudolph	In-Person
3:15 PM	3:30 PM	Neurodiversity and COVID-19	Taylor Alves	In-Person
3:30 PM	3:45 PM	The Opposing Effects of Obesity and Exercise on Colorectal Cancer Development	Aaya Mahdi	Online

SESSION 4D

Location: Ignat Kaneff Building (IKB) - Moot Court - Osgoode Hall Law School (Keele Campus, York University)

Zoom Link: <https://yorku.zoom.us/j/93811362817>

Start	End	Title	Presenter	Presentation Delivery
2:30 PM	2:45 PM	Treating Alzheimer's Disease: A Mass Spectrometry Analysis of Molecules Binding Specifically to Amyloidogenic Tau	Aleeza Qayyum	In-Person
2:45 PM	3:00 PM	Impact of a South Asian Diet on Major Cardiovascular Disease Outcomes: A Systematic Review	Isha Verma	In-Person
3:00 PM	3:15 PM	Mindfulness on the Brain: Exploring the Feasibility and Acceptability of a Mindfulness Training Intervention and its Effects on Alpha Asymmetry and Mood amongst High Ruminators	Sandy Luu	In-Person
3:15 PM	3:30 PM	Is Lovastatin a Preventative Agent for BRCA2 Mutation Carriers?	Jason Youssab	Online
3:30 PM	3:45 PM	Characterization of mitochondrial network morphology in term placenta from active and inactive participants.	Mohamed Aboudlal	Online

* All times are in Eastern Time (ET)

Presentation Abstracts

SESSION 1A

Presenter: Keshini Sriarunathan

Title: Early Hospital Discharge Following Uncomplicated Birth: A Review of the Literature

Abstract: Background: The current rise of COVID-19 coronavirus has impacted the experiences of new parents in Canada with restrictions on hospital visitors and concerns of nosocomial infections. Early hospital discharge has the potential to reduce exposure, promote the transition to parenthood and breastfeeding duration, and reduce healthcare costs due to shorter hospital length of stay. However, little is known about the impact of early discharge on health outcomes for parturients, neonates, or the healthcare system. Aim: This review examines existing literature on early postnatal discharge programs following uncomplicated vaginal births as relevant to the Canadian context to determine how it has impacted the clinical outcomes of parents and newborns, patient satisfaction, and the health system. Methods: A literature search of electronic databases: PubMed, Scopus, ScienceDirect, Web of Science, and CINAHL evaluated peer-reviewed, primary research published in English from 1976 through 2021. A total of 40 studies were yielded and content analysis identified the population, location, study design, methodology, and significant findings of each with attention to relevance to the Canadian context to determine the generalizability of the findings. Results: There is a dearth of well-designed studies that include consistent definitions of early discharge and uniform policies and practices for follow-up care for birthing people and their babies. Conclusion: There is a need for further research exploring the health outcomes of Canadian birthing people and their neonates following early hospital discharge after uncomplicated births. There is also a need to examine the impact of early discharge on the healthcare system in the Canadian context that includes a clear definition of early discharge and specification of care provided in the community following discharge.

Presenter: Veronica Vitug; Rizalei Moreno

Title: Factors Affecting the Social Valuation of an Urban Green Space in Ermita, Manila

Abstract: The notion that urbanized cities provide education, health care, and other essential services has led to the global migration from rural to urban areas. Manila exemplifies the inadequacy of green spaces in urban settings, being ranked 4th in largest built-up urban area globally. Within Manila is Arroceros Forest Park (AFP), titled the 'last lung of Manila'. As a response to the problems surrounding rapid urbanization, WHO had initiated the Healthy Cities Framework, a participatory process that incorporates urban development and healthy settings to create cities that are safe, resilient, and environmentally-friendly. There exists a need to identify how urban green spaces (UGS) can be leveraged to promote and maintain health, and how communities use and value UGS, such as AFP. The study aims to determine the factors affecting the social valuation of a UGS in Ermita, Manila. The social valuation of AFP was estimated through willingness to pay (WTP) in relation to domains on sociodemographic variables, utilization of UGS, and life satisfaction. The study employs a quantitative, analytical cross-sectional study design. Prior to data collection, the tool underwent the process of cross-cultural validation. The translated tool was found to have a good content validity (S-CVI/Ave=0.911) and face validity (S-FVI/Ave=0.985). The tool was also found to be internally consistent (Cronbach's $\alpha=0.0705$). The Chi-Square Test of Homogeneity, which compared the baseline distribution of WTP, found significant differences across all variables in the proportion of those with high ($>Php10$) and low ($<Php10$) WTP. The Spearman's Rank Test, which determined

monotonic relationships between outcome and exposure variables, found that sex, area of residence, student status, and frequency of visit had a weak negative relationship with WTP, while monthly income, proximity to UGS, perceptions of a green healthy environment, state and accessibility of the park, and life satisfaction had weak positive relationships with WTP. The study is part of a growing body of research on the social valuation of UGS in the Philippines. Identified factors may be highlighted in urban planning discourse to aid in the creation of healthy policies, in park maintenance and promotion, and in the establishment of more UGS in the Philippines.

Presenter: Parentiah Asenso

Title: Comparison of ingredients and nutrient label of the various brands of tomato paste on the Madina Market

Abstract: Majority of research on food labeling assesses consumer impressions of specific labeling components, such as nutrient content design and /or label layout and an indication of high end products. The objective of this study was to describe the ingredients and nutrient label of the various brands of tomato paste at Madina market. Nine (9) brands of tomato paste sold at Madina market (Accra-Ghana) were identified. Four (4) brands out of the nine (9) were selected based on an online and a market survey. Three (3) different samples of the selected brands were purchased from random vendors of the tomato products at Madina market. From the ingredient list, Kivo had 45% of concentrated tomatoes, Leap had 41%, Tasty tom had 42% and Gino also had 42%. With regards to percentage sugar, Kivo had 14%, Leap had 14% and Gino had 14.5%. However, Tasty tom had no specified percentage sugar. With the exception of Leap, the other brands of tomato paste had specified percentage salt. Kivo had 0.7%, Tasty tom had 0.52% and Gino had 0.55%. Kivo and Tasty tom were the only brands that had nutritional labels comprising of sugar, vitamins (A, C, D, D3, E and K), minerals (Zn, Na, Fe and Ca), energy, protein, total carbohydrate and dietary fat. Nevertheless, all the tomato paste brands had ingredient list. Considering that standards and specifications for nutritional label of tomato paste are not available, standards and specifications from Ghana Standard Authority (GSA) and the Ghana Food and Drugs Authority (GFDA) should be provided for the nutritional labelling of tomato pastes.

Presenter: Leyao Wang

Title: Comparing the Emotional Charge of Bilinguals' Languages Based on Their Linguistic Similarity

Abstract: As more than half of people on earth speak more than one language, understanding the reality of bilinguals is essential. Many bilinguals reported that during psychotherapy sessions, they felt a level of emotional detachment when speaking in their second language. However, there are over 6,000 languages in the world and bilinguals' linguistic situations are far from uniform. This study explores how linguistic similarity between bilingual individuals' first and second language affects the level of emotional activation experienced in each language. We compare the emotional reactions of English second language speakers with either French (high linguistic similarity) or Mandarin (lower linguistic similarity) as their first language. Thirty French-English and 31 Mandarin-English bilinguals were asked to do the emotional Stroop task: name as fast as possible the ink color of words that are either neutral or emotionally charged (e.g., taboo) presented in both languages. Mandarin participants reacted slower when they saw taboo words written in their first language, compared to French participants. These results are discussed in light of differences among different groups of bilinguals based on their mother tongue's linguistic distance from English and their triggered emotional intensity. It is recognized that other factors, such as language learning history and context, can also influence emotional activation in different languages.

SESSION 1B

Presenter: Veronica Vitug

Title: Development, Translation and Validation of Satisfaction with Life Questionnaire in Filipino

Abstract: The popularity of research assessing factors affecting mental well-being poses a demand to develop a culturally validated and quantitative tool measuring the Filipino population's satisfaction with life. To address the lack of attempt to develop such a tool in the Philippines, the study aims to translate and validate the Filipino version of the Satisfaction with Life Scale (SWLS) questionnaire in a representative sample of Filipino adults. The study utilized a quantitative, analytical cross-sectional design through an on-site survey to measure the cross-cultural validity indices. The SWLS adapted from Diener (1985) was first translated into Filipino by an independent translator, then translated to English by two additional independent translators. Afterwards, the original questionnaire and the back-translated English versions were compared and reconciled by a separate panel. For cross-cultural validation, the tool was pre-tested on 30 participants from Ninoy Aquino Parks and Wildlife Center in Quezon City, Philippines. The content validity index, face validity index, and Cronbach's alpha coefficients were determined. There were no major differences between the original SWLS and the back translated version. With an S-FVI = 0.99354, a CVI = 0.8333, and Cronbach's α = 0.8053, the Filipino version of the questionnaire was noted to have good internal consistency and cultural validity to measuring subjective well-being in the Filipino population. The translated tool was found to have good content validity (S-CVI/Ave=0.911) and face validity (S-FVI/Ave=0.985). The Filipino translated version of the SWLS is a valid and reliable tool to measure subjective well-being in the Filipino population. The tool can be used in future research that aim to improve and understand factors affecting general well-being.

Presenter: Anshika Singh

Title: Predilection for Intervention of Text Messaging as an Effective Psychotherapy Tool During COVID-19 Pandemic, among College Students

Abstract: The COVID-19 pandemic has spread across the globe with its unpredictable evolutionary nature and unprecedented effects on the everyday life and health of people globally. It has increasingly imposed threats to the well-being, mental health and psychological safety of people as it continues to expand its impact on the global population. Therefore, as a measure to provide support and maintain psychological safety among people around the world, the concepts of telepsychology and suitable methods to impart psychological and mental health services have been devised with the motive to provide mental health services while maintaining COVID appropriate behavior. This study aims to determine the preference of college students regarding the introduction and usage of a text message-based intervention as an effective psychotherapy tool during the current times of the global crisis. The following study involved usage of survey method carried out on an online platform through circulating a questionnaire and it also employs the usage of various scales with the motive to assess the level of anxiety, depression, stress and well-being of the participants and their attitude towards a text based intervention in therapy. The findings of the study suggested that a considerable number of college students suffered from basic mental health problems along with stress and moderate levels of well-being. It also determines the preference of college students towards the use of the text based intervention in psychotherapy. Hence, the study carried out and the findings obtained aim towards proposing an idea regarding the introduction of proper and professionally organized program particularly emphasizing on the maintenance of psychological safety of college students by using the

text based intervention in therapy during the COVID-19 pandemic while maintaining the COVID-19 protocol.

Presenter: Nayaab Baghdadi

Title: The perceived role of mental health support systems in the promotion of health and well-being at higher educational institutions.

Abstract: The burden of mental health issues is raising concern and a public health issue of grave concern. One population a target for this major health concern, is students. Mental health programs are increasingly becoming a part of many universities. However, the awareness and efficiency of these services, in reality, to prevent a mental health menace among students of higher educational levels remains in question. The study aims at finding out the perceived role of mental health support systems in the promotion of health and well-being at higher educational institutions. The paper will explore the kind of issues students at higher educational levels face, their coping strategies to those problems, and their awareness and availment towards the kind of mental health services their universities are providing. The data will be acquired through the medium of semi-structured interviews with a sample size of 30 participants. Further analysis would be done based on the themes extracted as a result of thematic analysis applied to the collected data. From the results, the study expects to gain insight into awareness among students about the mental health services provided by the universities, their perspective on such matters, and interest in availing of the same. The study also expects a display of personal biases from some of the participants against approaching such programs as a result of societal stigma surrounding psychological services and aims to explore the causes of it.

Presenter: Victoria Radovski

Title: Effects of Adverse Childhood Experiences on Interpersonal Impairment in University Students

Abstract: Adverse childhood experiences (ACEs) are defined as traumatic experiences occurring before the age of eighteen, with consequences indicating interpersonal impairment, the inability to create and maintain different types of relationships. This effect is exacerbated during adjustment to university, though childhood resilience may predict positive outcomes. This study aims to determine the extent to which ACEs are associated with levels of interpersonal impairment at the commencement of university. It was hypothesized that the experience of ACEs would influence levels of interpersonal impairment. This study utilized the uFlorish Student Well-Being and Academic Success Research study participants and self-report questionnaire. An analytical sample of $n = 1323$ first-year student participants from the University of Ottawa was obtained. ACEs as the independent variable was evaluated using personal history and Childhood Experience of Care and Abuse Questionnaire (CECA.Q). Interpersonal impairment as the dependent variable was evaluated using UCLA Loneliness Scale (ULS-4) and Resilience Scale for Adolescents (READ) independently. The association was analyzed using multiple linear regression, controlling for gender, ethnicity and family history of mental health conditions. Frequencies were calculated in terms of most-reported abuse and impairment concerns. Results indicate the experience of ACEs was significantly associated with self-reported loneliness using the UCLS-4 ($p < .001$). Female gender, other gender identity, and family history of mental health conditions were significant predictors ($p < .001$). Higher levels of low social support (indicated by READ scores) were not predicted by ACEs ($p < .001$). 59.9% of the participants reported at least one adverse childhood experience, with the most common as physical and/or verbal bullying (33.2%). Interpersonal impairment concerns include the lack of caring ($M = 4.34$, $SD = .96$)

and encouraging ($M= 4.14$, $SD = 1.03$) friends and family members. Results have strong implications on future research and the development of university mental health and well-being services.

SESSION 1C

Presenter: Muskan Sehgal

Title: The Role of Exercise in Oculomotor Task Performance

Abstract: Concussions are a prominent injury within the athletic population and can occur as direct trauma to the head or indirect trauma to the upper body. Some symptoms these patients experience relate to the oculomotor system, such as sensitivity to light, or impaired eye movements. There is currently little evidence to identify objective oculomotor measures following a concussion, which would help healthcare professionals determine appropriate rehabilitation strategies. The objective of this study is to evaluate the role of the cognitive system in completing tasks related to eye movements, while completing 20 minutes of physical activity. In particular, the speed, accuracy and errors of the oculomotor tasks are evaluated in further detail. Participants are involved in the study for 29 days, where they are asked to complete 20 minutes of exercise each day based on the modified Buffalo Concussion Bike Test (BCBT) protocol. Simultaneously, some participants complete the visual task while wearing Virtual Reality (VR) goggles. This is completed on days 1,8,15,22,29. In the first 15 days, participants are required to complete 20 minutes of biking following the BCBT on their own time. We believe that with exercise, there will be a decrease in the speed and accuracy of eye movements, and increased errors while completing the oculomotor tasks. Based on results thus far, there has been an increase in accuracy but a decrease in speed, which follows the concept of a speed-accuracy trade-off. There have not been significant amounts of research that shows a relationship between eye movements, physical activity and the cognitive system in the athletic population. This study can be used as a starting point to investigate post-concussive symptoms and the use of eye movements as a potential baseline and post-injury test for people with concussions in the future.

Presenter: Atara Lipson

Title: Effect of head orientation and optic flow gain on quiet stance amplitude

Abstract: BACKGROUND: Balance is a complex sensorimotor task, involving the integration of multiple sensory systems including vision. Visual cues from central (radial) and peripheral (laminar) optic flow are both used to control upright stance. When the gain of radial optic flow is amplified, a stiffening strategy is implemented, improving balance during quiet stance. Currently, there is limited work examining postural responses during laminar optic flow gain manipulations. This study aims to understand how radial and laminar components of balance-related optic flow gain contribute to controlling upright stance. METHODS: 23 healthy adults (mean age: 22.5, 10 female) stood quietly on a foam pad placed upon a force plate for 60 seconds per condition. Participants wore a head mounted display (HMD, Oculus Rift), displaying a realistic virtual environment. Three head orientations were counterbalanced across participants, looking straight, left $\sim 45^\circ$, and down $\sim 45^\circ$. For each head orientation, participants completed 3 optic flow gain conditions, 1x, 4x, and 16x normal optic flow. Anteroposterior (AP) and mediolateral (ML) centre of pressure (COP), and AP HMD amplitude were quantified using root mean square (RMS). RESULTS: As optic flow gain increased, AP COP RMS ($p < 0.001$) and AP HMD RMS ($p < 0.001$) decreased. Significant main effects of optic flow gain were also observed in ML COP RMS ($p < 0.05$). Significant main effects of head orientation were only observed in ML COP RMS ($p < 0.001$), where looking sideways was greater than looking straight or down across all gain conditions. No interaction effects were observed between gain and head

position. **CONCLUSIONS:** Amplifying optic flow decreases quiet standing amplitude independent of head orientation, and therefore optic flow type, in the AP direction. Yet, altering head orientation by looking to the left increases mediolateral movement across all gain conditions in the ML direction. Further work needs to examine the frequency domain to deepen our understanding of optic flow and balance.

Presenter: Victoria Fabrizi

Title: Exploring Standing Balance and Emotional Responses during Virtual-induced Postural Threat

Abstract: The visual system and visual feedback received during upright stance is heavily relied on for many individuals to maintain balance. Previous research has shown that amplifying an individual's visual feedback through virtual reality resulted in a decrease in sway amplitude. Given emotional changes, specifically postural threat, also decreases sway amplitude and influences sensory contributions to quiet stance, there is a need to examine the effects of postural threat on modified visual feedback. This study aimed to identify the combined effects of amplified visual feedback and increased virtual height, and their collective impact on the amount individuals sway while standing in place. 20 healthy adults between the ages of 18 and 39 volunteered to participate in this study. Participants wore a head mounted display used to immerse them in a virtual environment. Virtual reality technology was used to manipulate the participants' optic flow (gain), either 1x or 4x normal optic flow, and a force plate was used to measure centre of pressure displacement while participants stood quietly for 60 seconds at a virtual Low (ground level) or High (7m elevated platform) height. Head position was recorded from the head mounted display. Participants reported less confidence, less stability, more anxiety, and more fear while standing in the High height condition, with no change between gain conditions. In addition, there was a reduction in the centre of pressure amplitude in the higher gain condition. There was also a decrease in head movement in the High height condition and in the higher gain condition. Overall, this research further signifies the relationship between sensory, specifically vision, and emotional influences on upright stance.

Presenter: Michelle Park

Title: Using thin slicing of client emotions to detect client resistance in psychotherapy

Abstract: **BACKGROUND.** Combatting client resistance, where the client resists the therapy direction and/or the therapist is crucial as it may result in the (1) Client's loss of confidence in the therapist and the helpfulness of therapy (2) Therapist's negative feelings toward the client and the belief in their ability to improve during therapy. Resistance is also negatively related to important psychotherapy outcomes, including outcome expectations (OE). Therapists have been shown to have difficulty perceiving resistance during therapy sessions, as it requires awareness of verbal and nonverbal communication. Client emotions, which manifest as nonverbal behaviours, are an understudied marker for therapy, and may provide the key to combatting resistance. **OBJECTIVE.** The aim of this study is to test the predictive ability of an under-utilized method in therapy research taken from the field of social psychology, thin-slice methodology. **METHODS.** Untrained observers rated client emotions shown in thin slices/short video clips using an online survey consisting of 10 emotions from resistance research. The predictive ability of the thin slice ratings of client emotions was indicated by the strength of the relationship between the ratings and (1) Client Outcome Expectations (COE) (2) Therapist Outcome Expectations (TOE). It was predicted that less negative ratings of thin slices of resistance would predict lower COE and TOE. **RESULTS.** When participants perceived less resistance, thin slice ratings predicted higher COE for all client emotions but did not predict TOE for any client emotion. **CONCLUSIONS.** This study highlights the promise of thin-slice methodology for

rapidly detecting important therapy events such as resistance and predicting therapy outcomes such as OE. Further, this study underscores the critical need to enhance therapist training in identifying key client emotions/nonverbal behaviour during therapy sessions in order to combat client resistance.

SESSION 1D

Presenter: Noah Brittain

Title: Investigating the Role of Pregnancy and the Gut Microbiota on Intestinal ZO-1 integrity

Abstract: Introduction: During pregnancy, maternal metabolic adaptations occur to support fetal growth and maintain maternal homeostasis. These metabolic adaptations include changes in glucose regulation and nutrient absorption, both regulated, in part, by the intestines. Recently, our lab has shown that intestinal permeability (the ability for molecules to pass through the gap between intestinal epithelial cells) and the gut microbiota (the collection of microorganisms inhabiting our intestines) composition are altered during pregnancy. Despite these changes, the mechanisms that underlie altered maternal intestinal permeability are unclear. Previous data suggests that the gut microbiome may regulate intestinal permeability. As a result, we investigated whether the tight junction protein ZO-1 (zonula occludens 1)—a protein that holds intestinal epithelial cells together—is altered during pregnancy and whether this is regulated by the gut microbiota. Methods/Results: To test whether ZO-1 changes during pregnancy and in response to gut microbes, we collected ileum segments from either SPF (specific pathogen-free), GF (germ-free, no microbiota) or GFC (GF mice colonized with SPF microbiota as adults) mice at three gestational time points: NP (non-pregnant), E14.5 (embryonic day (E) 14.5, mid-gestation) and E17.5 (late gestation). All tissues (n=3/group) were fixed in Carnoy's solution. Tissues were immunostained for ZO-1 using fluorescent immunohistochemistry, imaged on a confocal microscope, and analyzed using ImageJ. We observed no significant change in the number or distance between ZO-1 protein complexes. We also show that complex size decreases in pregnant SPF and GFC mice compared to NP, but not in pregnant GF mice. Conclusion: We show that ZO-1 size decreases during pregnancy and depends on gut microbial status suggesting their importance in maternal intestinal permeability and response to gut microbiota. Understanding how the intestine regulates maternal adaptations allows us to develop novel therapeutics for abnormal pregnancies.

Presenter: Parsa Shekarloo

Title: Histological assessment of the costal diaphragm evaluating immune cell infiltration in an experimental autoimmune myositis mouse model.

Abstract: My project focuses on histopathological analysis of time-dependent changes to the costal diaphragm in an Experimental Autoimmune Myositis (EAM) mouse model. The aim of this study is to evaluate immune cell infiltration in the costal diaphragm of EAM animals over time. Idiopathic Inflammatory Myopathies (IIM) are a group of heterogeneous skeletal muscle inflammatory disorders characterized by muscle weakness, elevated muscle enzymes, immune infiltration, and extramuscular manifestations. Prevalent subgroups include Dermatomyositis (DM), Polymyositis (PM), Necrotizing Autoimmune Myopathy (NAM), and Sporadic Inclusion Body Myositis (sIBM). The causes of this disease are still unknown. Previous literature did not fully evaluate the time-dependent impact on skeletal muscle immune cell infiltration in this EAM mouse model. 12-16 week-old female BALB/c mice received multiple injections with rabbit skeletal muscle-derived myosin and were assessed at 21, 28 and 49 days (d) post-final injection as follows: 21d, 3 injections at day 0, 7, 14; 28d and 49d, 4 injections at day 0, 7, 14, and 21. Control groups were comprised of either a vehicle (glycerol+saline) or a vehicle and an adjuvant (glycerol+Complete/Incomplete Freund's Adjuvant CFA/IFA). The experimental group received rabbit-derived skeletal muscle myosin emulsified with CFA/IFA to induce

a model of experimental autoimmune myositis (EAM). These adjuvants were used to stimulate a stronger immune response to the myosin antigen. The costal diaphragm from all animals were retrieved, sectioned using the cryostat and then stained using H and E (hematoxylin and eosin). Furthermore, the slides were imaged using EVOS imaging software and analyzed for immune infiltration using ImageJ. By determining the time-dependent changes in muscle as a result of repeated myosin injections, this study will reveal the requirement of antigen presence for immune cell action in muscle.

Presenter: Efigenia Rouvas

Title: Establishing pediatric reference intervals for hematological biomarkers of health and disease - A study in the CALIPER cohort of healthy children and adolescents in the Greater Toronto Area

Abstract: Hematology tests are commonly ordered in pediatric care for the assessment of conditions, including anemia, infection, and oncology. Appropriate test result interpretation is dependent on the availability of comprehensive age- and sex-specific pediatric reference intervals (i.e. normative ranges in healthy children). The Canadian Laboratory Initiative on Pediatric Reference Intervals (CALIPER) has established pediatric reference intervals (RIs) for hematology parameters on several modern analytical systems including Beckman DxH 520, Beckman DxH 900, Mindray BC-6800Plus, and Sysmex XN-3000, demonstrating dynamic patterns throughout growth and development. Implementation of derived pediatric RIs has contributed to more accurate and informed decision-making in clinical laboratories. However, critical gaps still exist in the availability of pediatric RIs for hematology parameters on other analytical systems. This study aims to establish pediatric RIs for 29 hematological parameters on the Abbott Alinity h-series. Fresh whole blood specimens will be collected in K2EDTA tubes from healthy children and adolescents (birth-<21 years) with informed consent. Exclusion criteria will include history of chronic illness, acute illness within 7 days of collection, and/or regular use of prescribed medication. Residual specimens will also be obtained from apparently healthy outpatients at The Hospital for Sick Children. A minimum of 40 specimens per age group will be collected (i.e., birth-<1 month, 1 month-<2 years, 2-<12 years, and 12-<21 years). Specimens will be analyzed on the Alinity h-series for the complete blood count, differential, and reticulocyte panel. Data will be analyzed based on CLSI EP28-A3c guidelines, establishing reference intervals using the robust ($40 < N < 120$) or nonparametric method ($N \geq 120$). Established pediatric RIs will be disseminated via peer-reviewed publications and made accessible on the online CALIPER database (www.caliperdatabase.org). This data will expand the clinical utility of the CALIPER database to include evidence-based pediatric RIs for hematology parameters on the Alinity h-series with potential to improve diagnosis of children with medical concerns.

Presenter: George Nader

Title: Modeling Mitochondrial Dysfunctions in Bipolar Disorder Using Cerebral Organoids

Abstract: Mitochondrial dysfunctions are a group of diseases that arise from mutations in genetic or mitochondrial DNA. As widely known, the mitochondria are the main energy-producing organelles in the cell and considering that the human brain consumes 20% of the body's total energy, it is no surprise that mitochondrial dysfunctions have been linked to multiple neural disorders. Bipolar disorder (BD) is a neuropsychiatric disorder that is characterized by unusual shifts mood, concentration and energy, which manifests clinically as alternating episodes of manias and depression. The disease affects 1.4% of Canadians (~500,000 people), and 60% of patients relapse within 2 years using the current drug regiments. This project investigates the unexplored role of mitochondrial dysfunction in bipolar disorder using the novel 3D tissue-culturing model of Cerebral

Organoids (COs). We generated COs using induced pluripotent stem cells (iPSCs) derived from human peripheral blood mononuclear cells (PBMCs) of bipolar disorder patients and age-matched controls. The morphological features of the generated organoids were assessed using immunofluorescence microscopy and transmission electron microscopy (TEM) and their mitochondrial health was assessed using MitoTracker Red imaging. Our results demonstrated similar morphology across the two groups, with a 50% reduction in MitoTracker Red signal in the BD group, indicating impaired mitochondrial health in the organoids from bipolar disorder patients. These results suggest that mitochondrial dysfunction is potentially one of the underlying pathophysiological mechanisms of bipolar disorder and can be a novel therapeutic target for the disease.

SESSION 2A

Presenter: Parker Grant

Title: Framing Matters: The Power of Opt-Out Choice Framing in Empowering Women to Compete

Abstract: Previous attempts to understand gender differences in leadership have found that women are less likely to self-promote or seek competition (Moss-Racusin & Rudman, 2010; Flory et al., 2015). He and colleagues (2021) suggest that using an opt-out choice format, as opposed to an opt-in format, attenuates gender differences in competition. This study aims to replicate these findings, hypothesizing that there will be gender differences in competition in the opt-in condition, but not in the opt-out condition. We also plan to explore whether choice framing impacts state-self esteem after completing a task. Participants were randomly assigned to an opt-in or opt-out condition and completed as many additions of five two-digit numbers as possible in 3 minutes. In the opt-in condition, the default was the non-competitive scheme, where participants got \$0.50 per correct answer. However, they were able to opt into the competitive scheme, where if they won against three other participants, they got \$2.00 per correct answer, but otherwise, they received nothing. In the opt-out condition, the default was the competitive scheme, but participants were able to opt out. Participants also completed the Six Item State Self-Esteem Scale (SSES-6) before and after the task. We found that significantly more males than females chose to compete in the opt-in condition but that there were no gender differences in the opt-out condition. We also found that there was a significant decrease from pre to post-test state self-esteem in the opt-out condition, but in the opt-out condition, there was no significant difference from pre to post. Results replicate He and colleagues' (2021) findings that using an opt-out choice framing attenuates gender differences in competition. These findings suggest that restructuring promotional processes to an opt-out format could significantly reduce vertical occupational segregation and prevent individuals from experiencing reduced state self-esteem after completing a task.

Presenter: Alison Stacey

Title: Perceived Risk of Pesticide Exposure among school workers in San Carlos region, Costa Rica

Abstract: There is increasing literature understanding the effect of pesticides on people in proximity to pesticide use. However, there is limited information on how bystanders perceive the risk of pesticides to their health. This study aims to explore how school workers perceive the exposure to pesticides in a region where agriculture is the economical driven force. 143 school workers including teachers and administrators, from five districts in San Carlos region of Costa Rica responded to the Spanish NTP (Technical Prevention Notes 578) perceived risk survey. Results were divided into four main sections for statistical analysis, including prior knowledge, perception of control, perception of health risk and general knowledge of pesticide exposure. Statistical differences were seen between sex, age, dependents, level of education and position; where males and teachers had higher prior knowledge of hazards; people with children had significantly more fear over the effects of pesticide

exposure; and older population, people without a university degree and administrators had higher perception of control over exposure to pesticides. This research found school workers have knowledge associated with exposure in the workplace to pesticides, besides were aware of and feared the severity of risk associated with exposure to pesticides. Risk perception was influenced by sociodemographic characteristics such as sex, and education like relevant research. However, there are contrasting results in the context of age, that do not align with prior surveys done in Costa Rica.. We believe this makes them valuable members in increasing knowledge pathways, and with further research could make them valuable stakeholders and advocates to buffer zones, if drift exposure to pesticides is proven.

Presenter: Maria Moncaleano

Title: Developing and Validating the 'Question Generation Task' to Measure Engagement with Stories

Abstract: The extent to which we engage with a story varies. A compelling story makes us consider how it relates to our experiences. Traditional measures of story engagement either do not capture this participatory aspect or are difficult to quantify.

In this study, I sought to validate a new measure of story engagement: the Question Generation Task hoping that its results would positively correlate with known measures of engagement.

While my study was underpowered, the non-significant correlations still showed expected trends. Changes to the QGT to address demand characteristic bias, additional content measures and the sample size could help improve the validity of the task.

Results provide insight into question generation as a possible measure of how deeply we process a story. Moreover, they can be applied to understand mechanisms underlying the formation of lasting impressions in memory.

Presenter: Benton Oliver

Title: Rights, Not Rescue: Coloniality of Anti-Trafficking and the Sport Mega-Event

Abstract: In this review we will examine the impact of fantasies used in the redevelopment of sport mega-event cities on host communities. First, we start with a discussion of event fantasies, particularly those that circulate in relation to humanitarian aid and the alleged involvement of women and children in forced labour and sexual exploitation. We trace these fantasies across several FIFA host cities since the 2006 FIFA World Cup, hosted in Germany, to leverage continual and perpetuate attention (and profit) through the non-profit industrial complex. These fantasies have facilitated and coordinated collaborative consensus amongst state authorities and allies to act in a meaningful manner even as the evidence of forced prostitution is still scant—while the realities of people that continue to be subjected to violent and exploitative labour in the construction of stadia, athlete recruitment, or equipment and apparel industries are seldom addressed. Next, we examine the lived impact of policies and personalities of rescue on people engaged, consensually, in erotic labour within host cities, that are often made target of rescue intervention. We argue that the entrepreneurial work of the (mostly) hypersexualized and racialized women to create opportunities from the mega-moment is in direct tension with the entrepreneurial work of the shadow state—i.e., those involved in humanitarian aid and evangelical rescue which often outlive the event. The figure of the proverbial sex slave, as a highly racialized and hypersexualized trope, is mobilized through the sport mega-event to further police the bodies of all women in labour and migration. We end with a cautious message to future host cities, particularly cities implicated in the 2026 FIFA World Cup within Mexico, Canada,

and the United States, of the highly-profitable and politically-advantageous rhetoric of damsel in distress.

SESSION 2B

Presenter: Connie Trang

Title: Pointing Fingers: Reactions to incidents of anti-Asian racism during the COVID-19 pandemic

Abstract: The COVID-19 pandemic has had and continues to have major detrimental health impacts on Canadians. However, the health impacts that it has on Asian Canadians, or those who appear to be of Chinese descent, intersects with anti-Asian racism that has been exacerbated by the pandemic, to add an additional layer of health implications outside of the direct impacts of COVID-19. The aim of our study is to examine the ways in which anti-Asian racism manifested and were perceived. Using the anti-Asian racism incident timeline created by covidracism.ca, we collected tweets of each incident as reported by verified Canadian news source Twitter accounts, as well as replies under each tweet. These tweets were analyzed using Braun and Clarke's Thematic Analysis, and contextualized within the history of anti-Asian racism in Canada and how it operates at individual, cultural and institutional levels, including federal, provincial, and municipal governmental policies. Based on the analysis of the replies, we argue that anti-Asian racism is understood as individualized occurrences and the blame is to be placed on individuals, specifically, by explaining anti-Asian racism as the fault of mental illness, the inaction of bystanders, one's personal character, and of Donald Trump's influence. In doing so, we see an erasure of systemic forms of anti-Asian racism in the past, and their continued influence and impact on the manifestations of anti-Asian racism throughout the COVID-19 pandemic and in today's society.

Presenter: Dmytro Rebrov

Title: Usurping Power: The Effect of Desiring Relationship Power and Apology on the Relation Between Dark Tetrad Sadism and Revenge

Abstract: Unforgiveness is a common response following interpersonal conflict and consists of revenge, avoidance, and grudge-holding. Revenge is harming a transgressor for a perceived wrong. Avoidance is distancing from a transgressor to avoid additional harm. Grudge-holding is a feeling of hurt and anger that increases caution around a transgressor. Intrapersonal characteristics influence post-transgression response (PTR) choice. The Dark Tetrad (DT) is a personality structure that addresses individuals' proclivity to self-serving and socially aversive behaviour. Psychopathy is a reduced level of empathy and guilt. Narcissism involves feelings of dominance over others. Machiavellianism is the openness to manipulate others for personal gain. Sadism is taking pleasure in other's suffering. We aimed to investigate how and why victims' self-reported DT traits, following a prompt to recall a recent transgression, affected unforgiving PTRs. We predicted a positive relation. Additionally, the perception of having power over others underpins these traits. These victims may interpret their power as being stripped from them. Given this, we predicted that the desire for relationship power would explain the primary association. Furthermore, apology can strengthen feelings of powerlessness because it serves to remind victims of the transgression. Apologies involve admitting wrongdoing, accepting responsibility, remorse, saying "sorry", reparations, and promising not to transgress again. This led to predicting that transgressors' apology would moderate the DT, desire for relationship power, and unforgiving PTR relationship. Our study of 425 undergraduate students partially confirmed the first prediction, and supported the moderation and mediated moderation hypotheses. Results showed that when victims are high in sadism, they are more likely to

respond vengefully, and particularly after receiving an apology. This relation was explained by victims' desire for relationship power. One implication suggests that sadistic individuals are prone to escalating conflict, and another that apology may not remedy it. Future research should experimentally manipulate transgressions and apology levels.

Presenter: Olivia Smith

Title: Out of the Loop: Investigating the Relationship Between Social Media, Body Image, and Self-Esteem

Abstract: Social media has fundamentally changed how we connect with one another, however it can have negative effects on users' mental health and body image. Women are more likely than men to use social media to view others' photos, which can result in upward social comparison, and subsequently, greater body dissatisfaction and drive for thinness. There are no known evidence-based interventions to prevent the adverse effects of social media use on body image. Given the immense popularity of social media and declining rates of mental health among young people, there is an urgent need for knowledge of how to protect users from worsened mental health due to social media. The main objective of the study was to test the effects of taking a break from social media on young women's body image and self-esteem. 66 female undergraduate students, 18-25 years old, were recruited through York University's URPP. Eligible participants were required to be willing or motivated to take a break from social media. In part 1, participants met with the researcher and completed a series of baseline psychological measures. Half of participants were randomly assigned to the experimental condition and asked to abstain from any social media for one week; the other half were randomly assigned to the control condition and instructed to continue their normal use for one week. Participants attended part 2 of the study 7 days later, completed a manipulation check and a series of outcome measures, and were interviewed by the experimenter about their experience. Results showed that taking a one-week break from social media significantly improved body image and self-esteem. Future research should explore the effects of longer social media breaks and use larger and more gender and age inclusive sample sizes.

Presenter: Heather Lumsden-Ruegg

Title: The Walking Wounded: Moral Injury in Police Officers with Posttraumatic Stress Disorder

Abstract: Background: Moral Injury (MI) is psychological suffering first recognized in military personnel following experiences of moral transgression or after failed trust from authorities. MI is often associated with but considered distinct from posttraumatic stress disorder (PTSD). A recent review posited MI prevalence among public safety workers, but there have been few empirical studies to date.

Method: As part of a larger study of police officer stress, a sample of 69 active-duty police officers was obtained and completed online surveys. A PTSD subgroup (N = 14) was identified using the PTSD checklist for the DSM-5; remarkably one in five officers met PTSD criteria.

Results: Officers with PTSD experienced significantly higher MI perpetrations [$t(17.54) = -2.60, p = .018$] and MI betrayals [$t(19.65) = -3.78, p = .001$]. There were higher levels of MI emotional sequelae [$t(20.34) = -5.59, p < .001$], higher levels of burnout [$t(18.96) = -2.94, p = .008$] and anti-mattering [$t(21.39) = -3.63, p = 0.002$], and lower levels of mattering [$t(28.76) = 2.18, p = .038$] compared with those without PTSD.

Conclusion: Findings identified a subgroup of police officers with serious PTSD symptoms associated with self-reported MI experiences and burnout. Officers without PTSD felt more listened to and taken

seriously, and not shamed or made to feel invisible. Implications are discussed for organizational and mental health supports.

SESSION 2C

Presenter: Shaya Samet

Title: Symmetry Benefits Working Memory Representations of Object Orientation

Abstract: Symmetry is a fundamental principle important for perceptual organization. Here we ask whether symmetry facilitates working memory in a task that is unrelated to object shape or identity. In addition, we investigate whether potential effects of symmetry on working memory are specific to symmetry in the image plane, or persist when symmetries are distorted due to perspective. Participants were presented with images of symmetrical and asymmetrical novel objects generated procedurally in the Blender 3D graphics software. The image-plane group ($n = 60$) was shown images where the symmetry axis of the object was orthogonal to viewing direction, leading to symmetry in the image plane. The distortion group ($n = 60$) was shown images where the objects were rotated relative to viewing direction, leading to perspective distortion. To replicate the online experiment under controlled viewing conditions, we conducted the experiment in the lab as well. In the in-person experiment, participants ($N = 60$) with normal or corrected-normal vision were recruited, half in the image-plane group and half in the distortion group. The in-person experiment allowed us to control viewing distance and thus maintain a constant stimulus size in $^\circ$ /visual angle across participants. On each trial, 1-6 objects were shown at different locations on the screen, at different pseudo-randomly chosen orientations. After a retention interval (1000 ms), the participant was shown the same image and asked if the stimuli were presented in the same orientations as the original image. On half the trials this was true, and in the other half one of the images had changed orientation. In both online and in-person experiments, we found increased sensitivity for symmetrical objects, but only when symmetry was present in the image plane, not for perspective distorted symmetry. This suggests that image level symmetry facilitates representations of object orientation in working memory.

Presenter: Fatemeh Ghasemi

Title: How does simulated eye height affect size perception in different postures?

Abstract: Eye height influences visual object size (e.g., Leyrer et al., 2011). But in virtual reality, there are two simultaneous, independent eye heights: the simulated eye height above the ground plane and the external eye height above the physical ground. Can they both have an effect? Using virtual reality, participants ($n = 40$) compared the size of a red rectangle simulated at three different distances (6, 12, and 18 m) against the length of a physical stick held in their hands with all combinations of three physical eye heights in the real world (sitting ~ 125 cm, standing ~ 165 cm, and standing elevated on a table ~ 215 cm) and three simulated eye heights that corresponded to each participant's real-world eye-heights (~ 125 cm, ~ 165 cm, and ~ 215 cm). Simulated eye height correlated with perceived size. Physical eye height above the ground also affected perceived size: size was overestimated when standing on the floor relative to sitting and relative to standing on the table. There was an interaction between simulated and physical eye heights: people were more influenced by changes in simulated eye height depending on their external eye height. We have demonstrated for the first time an interaction between what happens inside virtual reality and people's knowledge of their physical position in the real world. This becomes a significant factor when VR is used for perceptual experiments where the simulated environment may be independent of the external ground plane.

Presenter: Sadaf Khodagholi

Title: Does the dual task effect balance vary according to the type of cognitive distraction being presented

Abstract: Maintaining balance and defending against falls is a crucial task in everyday life activities. At the same time, these daily activities require performance of cognitively demanding and distracting tasks. Postural control and multi-tasking interact; however, it is unclear whether some types of distractors have a greater effect on balance than others. In addition, some studies show that performance of a dual-task improves stability, while others do not, thereby leading to uncertainties about the relationship between distraction and postural control. The aim of this study is to determine whether a specific type of cognitive distraction has a greater effect on balance as measured on a force plate. Participants were instructed to stand on an AMTI force plate under five different conditions, each for 90 seconds: standing still, quiet standing while visually fixating on a target 1.5m in front of them, performing a mental serial subtraction task, listening to auditory tones and stating the order in which the series of tones was played, and answering yes/no memory recall questions. The conditions were repeated while participants stood on a high-density foam pad to disrupt proprioception during task performance. The order of tasks was randomized. Spectral analysis of center of pressure (COP) sway in the anteroposterior (AP) and mediolateral (ML) directions were used to assess balance in the different conditions. The visual fixation on a target and serial subtraction tasks were found to be different from the other conditions on both foam and firm surfaces especially in AP direction. Because both tasks engage the visual system to a greater extent than the other tasks, the findings indicate that visual distractions have the greatest impact on balance. This work is relevant to understanding the impact of multitasking in everyday activities on the ability to optimize balance and reduce the risk of falling and fall-related injuries.

Presenter: Oriana Culig

Title: Investigating the Reliability of Subacromial Space Measures Using Ultrasound

Abstract: The subacromial space (SAS) of the shoulder is the area between the acromion process of the scapula and the humeral head. The tissues residing within this space are susceptible to compression and injury when this space is reduced, in a condition termed subacromial impingement syndrome (SAIS). SAIS can lead to pain, weakness, and mobility restrictions. Measuring the SAS can be challenging as it requires medical imaging techniques such as x-ray, ultrasound, and MRI. Ultrasound has been shown to be reliable at capturing the SAS, but measures are typically captured by experts with clinical ultrasound experience. The purpose of this research was to evaluate the agreement in SAS measures captured using ultrasound between a novice with introductory training and an expert. 18 participants (9 males and 9 females) with no shoulder pain or injuries were recruited. Two researchers (novice and the expert) collected three SAS measurements using a GE Logiq ultrasound system, with participants in both seated and supine positions. The mean SAS was then calculated for each rater. Intraclass correlation coefficients (ICC) were calculated to determine the agreement between the novice and the expert in each position. Generally, novice measurements overestimated the expert for both seated ($1.3 \pm 1.0\text{mm}$) and supine ($1.4 \pm 1.3\text{mm}$) positions. ICCs revealed moderate agreement between the novice and expert in both the seated (ICC=0.74) and supine (ICC=0.63) positions. Intra-rater agreement was high for both novice (ICC=0.84) and expert (ICC \geq 0.94) raters. This research suggests that a novice with introductory ultrasound training can reliably capture the SAS with reasonable agreement to an expert. However, it may be more appropriate for novice raters to assess the SAS for repeated measures study designs. Within session differences should be compared rather than capturing a true minimum SAS, as small reductions to the space ($\sim 1\text{mm}$) can be clinically relevant.

SESSION 2D

Presenter: Katherine Ullrich

Title: Establishing pediatric reference intervals for laboratory biomarkers of blood coagulation in health and disease - A study in the CALIPER cohort of healthy children and adolescents in the Greater Toronto Area

Abstract: Diagnosis, monitoring, and prognostication of hemostatic disorders in children and adolescents relies on clinical laboratory measurement of coagulation parameters, including fibrinogen, D-dimer, and thrombin. Comprehensive age- and sex-specific pediatric reference intervals (RIs) are necessary for accurate test result interpretation and appropriate clinical decision-making due to the maturation of the hemostatic system throughout growth and development. The Canadian Laboratory Initiative on Pediatric Reference Intervals (CALIPER) has established evidence-based pediatric RIs (i.e. normative ranges in healthy children) for over 200 biomarkers of health and disease (www.caliperdatabase.org). However, pediatric RIs for coagulation parameters are lacking due to challenges in recruitment as well as pre-analytical and analytical requirements. RIs used in clinical practice are thus based on adult populations, small sample sizes, and/or outdated methodologies. This significantly compromises the quality of pediatric laboratory medicine in the evaluation of hemostasis.

To address this gap, this study aims to establish age- and sex-specific pediatric RIs for several coagulation parameters in the CALIPER cohort. 516 whole blood samples (44.6% male, 55.4% female) were collected in sodium citrate tubes from children and adolescents (birth-<19 years) with informed consent and no history of chronic illness, regular use of prescribed medication, and/or acute illness within 7 days of collection. Samples were processed and stored at -80C by the CALIPER team and will be analyzed on the IL ACL Coagulation Analyzer. Data analysis will be performed in accordance with CLSI EP28-A3c guidelines on defining, establishing, and verifying RIs. Age- and sex-specific differences will also be assessed using the method of Harris and Boyd. Established pediatric RIs will be disseminated via peer-reviewed publications and made available on the online CALIPER database for use by clinical laboratories and hospitals across Canada and worldwide. Implementation of study findings is expected to improve interpretation of coagulation parameters and clinical decision-making in children and adolescents.

Presenter: Rohin Malekzadeh

Title: The Impact of Post-Exercise Heating on Skeletal Muscle Force Recovery in Humans during an Acute High-Intensity Exercise

Abstract: Hot water immersion (HWI) is a popular post-exercise intervention, assumed to be effective in accelerating muscle recovery and maintaining performance during strenuous exercise. However, little is known whether this recovery modality can enhance or exacerbate recovery when performing an acute high intensity exercise (HIE). Whether HWI aids performance before, during or after a competition is yet to be determined.

Presenter: Jaryeon Lee

Title: Exploring the sex specific role of high fat diet on adult muscle stem cell fate decisions in mice

Abstract: Skeletal muscle has the property to regenerate, which is an ongoing process during the lifetime of an individual. Successful regeneration is made possible by adult muscle stem cells (MuSCs). Importantly, MuSCs can have several fates, such as activate to replenish their pool (self-renewal) or differentiate to make more muscle fibers (differentiation). An understanding of fate choices for more self-renewal or differentiation will provide approaches for potential therapies against muscle wasting in aging known as Sarcopenia. Unfortunately, research has long overlooked the sex specific effects that stem cells might possess by preferentially choosing male subjects over females. Indeed, very little is known if sex differences affect MuSC fate decisions and the impact of metabolic disturbances on MuSCs based on each sex. Answering these questions will provide information to be used for a targeted approach to manipulate MuSC fate choices based on sex. To this end, the following mouse study group (n=4 for each condition) has been set up, consisting of female and male normal diet, female ovariectomized and male castrated normal diet (to remove any possible hormonal effects), female and male, high fat diet, female ovariectomized and male castrated, high fat diet. To analyze the MuSC fate decisions for our study group, we use a well-established method that scores MuSC self-renewal and differentiation. This ex-vivo method utilizes isolated extensor digitorum longus myofibers where MuSCs on the myofiber become activated. In this way, MuSC fates for self-renewal or differentiation can be tracked by immune-staining of stem cell markers followed by microscopy. To date, I have immune stained and imaged using confocal microscopy activated fibers and I will be enumerating the various MuSC fates of self-renewal and differentiation. This project will provide insight for the existence of potential sex differences in MuSCs, which is knowledge that can be used to tailor specific treatment strategies to increase their efficacy.

SESSION 3A

Presenter: Umaima Abbas

Title: Inequity in Corrective Eyewear Insurance in Ontario: A Repeated Cross-Sectional Study

Abstract:

"Background and Context:

The Canadian Ophthalmological Society revealed that only 54% of Canadians consult health professionals for eye disease symptoms. This is in part due to the lack of insurance coverage across Canadian provinces, contributing to adverse vision outcomes. The province of Ontario, in particular, has a patchwork system that provides poor or no coverage to many of its residents.

Research Objective:

Our objective was to examine the associations between socioeconomic and demographic characteristics, self-reported health, and insurance coverage for corrective eyewear in the Ontario population after the delisting of routine eye examinations in 2004.

Data and Methods:

We used data from the Canadian Community Health Survey (2005, 2008, 2013-2014) to describe the extent to which Ontario residents reported insurance coverage for corrective eyewear. We performed logistic regressions to report relative (odds ratios) and absolute (predicted probabilities) estimates of associations between sociodemographic characteristics and corrective eyewear insurance.

Results:

We found important socioeconomic differences in the reporting of corrective eyewear insurance. Lower-socioeconomic status (SES) adults were more likely to have reported public coverage, whereas higher-SES adults and older adults (≥ 65 years) were more likely to have reported private coverage. Overall, lower-SES adults and older adults were substantially less likely to have reported any eyewear coverage. Adults and older adults in poorer health had lower odds of having reported private coverage for corrective eyewear. Relative to 2005, adults had higher odds of having reported public coverage, while older adults had lower odds of having reported public coverage for corrective eyewear in 2013 and 2014.

Conclusions and Interpretation:

Our findings reinforce the limits of the current health insurance system for eyewear in Ontario. The substantial socioeconomic differences in the reporting of corrective eyewear insurance, as well as the low coverage in older adults, particularly among the poor and unhealthy, are of concern."

Presenter: Prabhnoor Sidhu

Title: Lessons learned from the application of an electronic data capture tool (REDCap) to develop a database of research accomplishments by oncology nurses

Abstract:

The Oncology Nursing Research Centre of Excellence (ONRCE) at the Princess Margaret Cancer Centre aims to support the research and scholarship of nurses working with people, families, and communities affected by cancer. As part of this work, a database was developed to collect information about the research contributions (i.e. publications, presentations, awards) of oncology nurses working within the organization. The web-based Research Electronic Data Capture (REDCap) software was used by the team as the platform for data collection through surveys of oncology nurses, import of

pre-existing lists, and direct data entry by the program team. Strengths of applying REDCap for this purpose included a visually appealing survey interface, user friendliness, accessibility from various devices, data security, and wide availability of online resources for developing and maintaining REDCap projects. Challenges included the time necessary for the team to develop proficiency with REDCap and navigating project-specific issues with survey design, accessibility and functionality. Overall, REDCap is a reliable tool for database development due to its accessibility, usability and secure environment. The ONRCE has developed their data gathering form using REDCap and the database development is currently ongoing based on the lessons learned through the initial set-up process. The data gathering form will go through an iterative user-centered design process to ensure that it is able to meet the unique needs of capturing the scholarly work of oncology nurses. The ONRCE's annual report produced using the data from the REDCap database will be shared with stakeholders to generate awareness and support for oncology nurse-led research.

Presenter: Allison Spearin

Title: Gender distribution on bicycle infrastructure types in Toronto: an observational analysis

Abstract:

"Background: Observational counts in low-cycling countries, such as Canada, typically show ratios of 2 men cyclists for every woman cyclist. In surveys, women indicate safety as a deterrent to cycling and show preference for infrastructure designs separated from motor vehicle traffic.

Objective: The objective of this study was to conduct observational counts to compare the gender distribution cycling on different levels of bicycle infrastructure in Toronto.

Methods: We selected route segments representing three categories of bicycling specific infrastructure: separated infrastructure, painted infrastructure, and no infrastructure. Four 15-minute observation sessions were conducted at 13 locations (5 separated, 4 painted, 4 no infrastructure). Observations were conducted by a single observer in October and November 2022, with the observer attempting to visually assign gender to each observed cyclist. A Chi-Square test of association (χ^2) between infrastructure and gender was conducted.

Results: We counted 1180 cyclists: 51% on separated infrastructure, 32% on painted infrastructure, and 17% on segments with no infrastructure. For the gender analysis, 20 cyclists who were either children or adults for whom gender could not be assigned were excluded. Of the 1160 adult men or women cyclists, 2/3 were men and 1/3 were women. The percentage of women on each category was separated infrastructure 34.3%, painted infrastructure 33.4%, and no infrastructure 31.9%. $\chi^2 = 0.367$, p-value 0.83.

Conclusion: There was no significant association between infrastructure type and gender distribution, and men cyclists outnumbered women on all route types. While infrastructure may not influence ridership by gender in Toronto, it is also possible that segments designated as having separated infrastructure are not representative of an overall deficit of safe infrastructure sufficiently connected in a network to attract women riders. This study was limited by use of a crude, visually assigned gender variable. Self-report surveys may construct a more nuanced gender variable. "

Presenter: Wajeeha Rasul

Title: Examining Code-Switching Tactics of High-Performance Black, Indigenous, and People of Colour (BIPOC) Female Sport Coaches

Abstract:

The under-representation of women in sport leadership and coaching has long been a topic of much interest among sport researchers and advocates (e.g., see Demers & Kerr, 2018; Norman et al., 2020; The Rally Report, 2020; Unck, 1992). Although there is a robust body of research on the range of constraints faced by women sport leaders, there remains much room for more scholarship examining

the ways in which gender and racial identity intersect within sport as a workplace, particularly for racialized women in sport coaching. This paper will highlight data from a one-year undergraduate honours thesis study that focused on female sport coaches, especially those who identify as BIPOC, and their use of code-switching as a tactic to navigate within their respective working environments. This undergraduate thesis study employed qualitative research methods, specifically semi-structured interviews, and was nested within a broader E-Alliance-funded study that examined the sport-work-gender nexus within the Canadian high-performance sport coaching context. Study participants shared their working experiences as sport coaches and preliminary findings demonstrate that there are a variety of tactics that female sport coaches feel they must use to address the challenges they face (e.g., racism, sexism, ageism, etc.) and operate in their sport coach working environments. Insights from the study participants highlight how these tactics, although perceived as necessary, are understood as undermining or compromising their identity as women and BIPOC (where applicable). This paper will conclude with a discussion of the implications of women's need to employ tactics such as code-switching in order "to get by" in the sport coaching workplace.

Presenter: Salwa Siddiqui

Title: An environmental scan update to confirm priority neighbourhoods for an intervention targeting older adults living in communities with health inequities

Abstract:

"Background:

EMBOLDEN aims to improve physical and community mobility for older adults living in areas with high health inequities. An environmental scan was conducted to inform the co-design and implementation of the EMBOLDEN program as well as determine priority neighbourhoods for testing the program. This project aimed to: 1) update the identified neighbourhood profiles completed using 2016 Census Tract (CT) data with recently released 2021 CT data and 2) assess changes in key population health indicators.

Methods:

Eight priority neighbourhoods in Hamilton were previously identified based on the following criteria: higher proportions of older adult (55+) populations relative to Hamilton; higher material deprivation quintiles; higher proportion of older adults living below the low-income cut-off; and higher proportions of immigrants. Canadian 2021 CT data for the eight priority neighbourhoods and the Hamilton Census Metropolitan Area (CMA) were used to update the profiles. Additional indicators included total household income, housing types and costs, and languages spoken at home. Neighbourhood profile infographics were created as knowledge translation tools to share with community partners and plan for program implementation in each neighbourhood.

Results:

The percentage of individuals aged 55 and older decreased 2-12% in three neighbourhoods, increased 2-3% in four, and demonstrated no change in two. Across all neighbourhoods, the proportion of older adults below the low-income cut-off declined since 2016 but remained between 3.5-12%. No updated material deprivation data was available. All but two neighbourhoods had higher immigrant populations than the city (26%), ranging from 21-44%. Average income increased across all neighbourhoods (18-32%) yet all remained below the Hamilton CMA average. Average monthly shelter costs increased 12-33% and home values increased 45-86% for all neighbourhoods. Arabic remains the most used non-official language spoken at home (11%) across the Hamilton CMA.

Conclusion:

Findings from the updated scan confirmed the target neighbourhoods remain as priority communities for EMBOLDEN. "

SESSION 3B

Presenter: Tia Kleiner

Title: "Unmasking the Self: How COVID-19 Changed the Way We See Ourselves"

Abstract:

"The COVID-19 pandemic has negatively impacted nearly every aspect of life. Thus far, the majority of psychological research has focused on the mental health repercussions of COVID-19, which have been primarily negative (Lotzin et al., 2020; Robinson et al., 2022; Son et al., 2020). In contrast, minimal research has been conducted on the changes to individuals' self-concept due to living through the pandemic, which is critical to how people make sense of their lives (Oyserman et al., 2011). This study explores how individuals believe their self-concepts have changed from COVID-19. Thirteen semi-structured interviews were conducted and subsequently transcribed. Employing narrative analysis methodology (Josselson & Hammock, 2021), multiple readings of each transcript were performed. The first reading involved coding initial themes, the second reading coded for significant voices in the narratives, and the third reading integrated the themes and voices to construct the following "core narratives"—first, the additional time afforded by lockdowns facilitated self-reflection, resulting in positive transformations in participants' lives. Second, the social constraints imposed by the lockdowns led individuals to become even more appreciative of their relationships. Third, COVID-19 prompted the realisation that "hustle culture" adversely affects well-being. These findings contribute to the expanding literature on the ways in which individuals derive meaning from their lives during global crises."

Presenter: Surabhi Velagala

Title: Optimal Placement of ActiGraph for the Detection of Physical Activity Among The Pregnant Population

Abstract:

"Background: Physical activity (PA) is beneficial for pregnant individuals, as it confers protective effects on the maternal and fetal health during gestation and postpartum period. To objectively measure PA patterns, research grade accelerometers such as the ActiGraph are used and cut points are developed to assess intensity in various populations. Though the benefits of PA in pregnancy are known, valid PA cut points (measures of intensity, frequency, and duration of PA obtained in a time-stamped manner) in pregnant individuals have yet to be developed as current ones are based on those suited to non-pregnant individuals.

Objective: To determine the optimal placement for the ActiGraph accelerometer for obtained valid PA counts for three intensities of PA: sedentary, light physical activity (LPA), and moderate-vigorous physical activity (MVPA). We expect that the wrist worn ActiGraph will be the optimal placement.

Methods: Four participants of 12-weeks gestation were recruited through self-selected sampling and were pre-screened to ensure they had no contraindications to exercise and to determine if they met the inclusion and exclusion criteria. Data were collected from 3 ActiGraphs placed on the wrist, ankle, and hip. Free-living activities were performed, and vector magnitude counts from the ActiGraph were collected and analyzed. Activities were classified as sedentary, LPA, or MVPA.

Results: The ankle placed accelerometer provided the most valid PA counts for MVPA and sedentary intensities while the wrist placed device was optimal for measuring PA counts of LPA intensity.

Conclusion: The optimal placement of the ActiGraph varied based on the PA intensity. The ankle appeared to be the optimal placement for sedentary and MVPA and the wrist was optimal placement for LPA. However, since this pilot only conducted assessment on four participants, it is underpowered.

We will continue to augment the data by recruiting more individuals to support the required sample size. "

Presenter: Jan Wozniak

Title: Social anxiety in autistic adults: A qualitative study of postevent processing and safety behaviours

Abstract:

Autism spectrum disorder is a pervasive and heterogeneous neurodevelopmental condition characterized by atypical social communication, sensory processing, restricted interests, and repetitive behaviour patterns. Autistic individuals have high rates of psychiatric comorbidity, with social anxiety being one of the most common co-occurring disorders. To better understand the phenomenon of social anxiety, this qualitative study is the first of its kind to investigate postevent processing and safety behaviours in autistic adults. Notably, these constructs can appraise the cognitive, behavioural, and physical dimensions of social anxiety, which remain sparse and misunderstood in the autism research literature. The proposed study recruited 16 formally diagnosed Canadian autistic adults (ages 18-65). Participants completed a virtual semistructured interview and self-report questionnaires to evaluate anxiety-related traits and social interaction descriptions. A reflexive thematic analysis was then used to summarize and model social communication patterns and confluent lived experiences. Given that autistic adults experience high rates of loneliness, social isolation, health disparity, and economic privation, this research provides valuable insight into the potential challenges and risk factors shared across lifespan development. The results indicated that Canadian autistic adults experience high levels of stress, stigma, and social anxiety in daily life. Common recommendations included the need for further public awareness, social and sensory accommodations, autism-informed training for physicians and mental health practitioners, and inclusive research protocols.

Presenter: Samantha Mason

Title: A Psychometric Evaluation of the Parental Reflective Functioning Questionnaire in a Clinical Sample of Caregivers Who Attended a Emotion-Focused Family Therapy Workshop

Abstract:

The Parental Reflective Functioning Questionnaire (PRFQ) is a brief and relatively new parent self-report measure. While researchers have begun using the PRFQ in lieu of previously validated but resource intensive assessments of parental mentalization, studies reporting on the measure's factor structure have yielded inconsistent findings. Scoring of the PRFQ yields three theoretically-based subscales, each providing a measure of three core facets of parental reflective functioning: The Pre-Mentalization subscale, The Certainty About Mental States and the Interest and Curiosity subscale. This study will evaluate the construct validity of the PRFQ, examining its psychometric properties within a clinical sample. Data were collected as part of an ongoing collaborative study on Emotion Focused Family Therapy (EFFT) at York University and the Emotion Transformation Lab (at the Family Psychology Centre). Participants included 243 caregivers who attended an intensive EFFT workshops between May 2016 and September 2018. Data were collected across 6 time points: during registration, one week before to the workshop, immediately following the workshop (i.e., at the conclusion of day two), and again four, eight, and twelve months later. Analyses will involve both exploratory and confirmatory factor analysis (CFA, EFA) to explore the PRFQ's structural validity, model invariance, and external validity. We hypothesize that: (1) the original 3-factor structure of the PRFQ will be confirmed within the current sample; (2) there will be model invariance across mothers and fathers; and (3) the measure will be related to other variables in predictable ways (e.g., we expect the PRFQ subscales to be positively correlated with parental-self efficacy and negatively correlated to parental fears and child symptoms). Implications for future research will be discussed.

Presenter: Orly Aziza

Title: COVID-19 Vaccine Hesitancy and Access in Newcomer Populations- A Scoping Review

Abstract:

"COVID-19 has been a central concern to public health, with differential impacts on marginalized populations within North American and Western countries such as immigrants (Clarke et al., 2021; Kitano et al., 2021; McNeely et al., 2020; Mia & Griffiths, 2020). The mRNA vaccines have been an important and vital development in the global health crisis of COVID-19, due to rapid development and versatility (CDC, 2022; Park et al., 2021). A new wave of vaccine hesitancy has emerged posing a barrier to promoting public health (Troiano & Nardi, 2021). Vaccine hesitancy, and vaccine inaccessibility has previously been documented in newcomer populations in various countries, including Canada, due to historical and on-going discrimination (Daniels et al., 2022; Lin, 2022; Pollock et al., 2012; Rubens-Augustson et al., 2019; Zibrik et al., 2018). In this scoping review, PsychINFO, CINAHL, Medline, Embase were searched using nested keywords and MeSH titles relating to newcomer/immigration, healthcare accessibility, patient behaviours, and vaccine hesitancy in Canada. Grey literature was also searched using the Google search engine, Google scholar, and the IC/ES database. Studies on vaccine hesitancy, coverage, and accessibility within newcomer populations in Canada was screened by searching for abstracts related to these topics in Canada. Searches returned 123 results, but only 3 papers describing 3 studies met inclusion criteria. Evidence of vaccine hesitancy among immigrants in Canada is mixed. Results are interpreted in light of other, international, studies. The findings point to the intersectional nature of this phenomenon, such as country of origin, physical location, age/cohort, and duration of residence impact vaccine coverage and intention. Effective vaccine implementation requires targeting and addressing cultural differences, language barriers, and targeting stigmatic beliefs around vaccination but further research is clearly needed."

SESSION 3C

Presenter: Allison Liang

Title: Construct Validity, Responsiveness, and the Minimally Important Change of the 30-second Chair Stand Test in People with Stroke

Abstract:

Functional strength plays a significant role in independence and is commonly impaired by stroke. The 30 second chair stand test (30s CST) is a lower-extremity functional strength test used in older adults and people with disability. Although the 30s CST is commonly used by clinicians, its results must demonstrate sufficient validity and responsiveness to change in the population being assessed to be viable for clinical practice. Additionally, information on the interpretability (e.g., in the form of a minimally important change (MIC) value) may further help with assessment. This secondary analysis aimed to assess the construct validity, responsiveness, and the MIC value of the 30s CST in people with stroke using data collected virtually from two clinical trials. A hypothesis testing method was used to assess construct validity and responsiveness, and an anchor-based receiver operator curve method was used to find the MIC values, with the Stroke Impact Scale (SIS) 16 and the stroke recovery domain of the SIS serving as anchors. Sixty-two people with mild to moderate stroke (60.7±12.1 years of age, 9.1±4.7 months post-stroke) were included in this analysis. Two thirds (n=10/15) and 47% (n=7/15) of hypotheses were confirmed for construct validity and responsiveness, respectively, indicating moderate construct validity, but poor responsiveness of the 30s CST in people with stroke. The baseline and change scores of the 30s CST had highest correlation with the Timed Up and Go (r=-0.66) and Functional Reach (r=0.32), respectively. Additionally, values ranging from

0.5-1.75 sit-to-stands may be considered meaningful, but were inconclusive due to wide confidence intervals around the area under the curve. Overall, our results suggest that the 30s CST may be a reasonable measure of functional strength in people with stroke and is also highly correlated with balance confidence and lower-extremity impairment.

Presenter: Daryoush Akbari

Title: Exploring the impact that high-intensity exercise may have on mood and arousal in those with high preconceived stress.

Abstract:

Stress is an innate reaction that individuals experience on a regular basis. Yet, a surplus of stressors may potentially disrupt the body's homeostatic state and lead to diminished positive mood. Fortunately, high-intensity aerobic exercise has been shown to alleviate stress levels and enhance psychological well-being. However, other studies highlight that excess lactate buildup due to increasing exercise intensity may cause overarousal and negative mood. Thus, the purpose of this study was to examine the role that high-intensity exercise may play in arousal and mood in those with differing levels of preconceived stress. Healthy participants (N=8) completed the Depression-Anxiety-Stress Scale prior to an exercise intervention. As a subsection of a larger study, participants ran at an exercise intensity equivalent to 80-85% of their heart rate reserve. At various checkpoints before, during, and after, researchers collected blood lactate using a portable analyzer. Mood and arousal levels were measured using the Feeling Scale (FS) and Felt Arousal (FAS) questionnaires, respectively. Repeated measures ANOVA found a main effect of time for lactate, $F(2.25, 15.71) = 15.63$, $p < .001$, and felt arousal, $F(2.11, 14.75) = 13.136$, $p < .001$, but no significant effect of time for mood, $F(1.85, 12.92) = 1.24$, $p = .319$. Additionally, higher stress scores were positively correlated with lactate at the finish, $r(6) = .62$, $p = .05$, and post-exercise timepoints, $r(6) = .80$, $p = 0.01$, whereas higher stress scores were positively correlated with FAS only at the finish, $r(6) = .76$, $p = .01$. There was no significant correlation at any FS timepoints ($p > .05$). The results suggest that experiencing more mental distress causes greater arousal and higher lactate following a bout of intense exercise. The prolonged elevation of lactate levels in these individuals suggests greater activation and delayed recovery from the exercise stressor, providing insights in the compounding effects of physiological and psychological stressors.

Presenter: Sandy Guirguis

Title: Active attention in humans: a study into cognitive-sensory interactions in balance control

Abstract:

Knowledge of the complex relationship between balance and attention is essential to better understand the factors that may contribute to fall risk in daily activities. This study aims to assess whether humans actively pay attention to sensory information for balance, and how the presence of real-time visual feedback in the anterior-posterior (AP) direction affects balance control. Participants were provided with real-time visual feedback of their sway in the AP direction measured while standing quietly on a force plate. This was compared to conditions with fixed feedback where vision was fixated on a stationary target. Serial subtraction and standing on foam were used as other conditions to probe whether the results of the study would hold under different cognitive and sensory conditions, respectively. Centre of pressure was derived from the forceplate and analyzed using spectral analysis. Results showed greater power in higher frequency bins in the AP direction with the presence of visual feedback, while fixed feedback had greater power in the lower frequency bins. This main effect of visual feedback was not observed in the mediolateral direction. These results reinforce the findings that visual feedback in AP was responsible for driving the change and influencing balance in the AP direction. The same pattern of results in AP was observed when participants stood on foam.

Performance of a distracting task (serial subtraction) did not consistently influence balance control. The results show that with the presence of visual feedback, balance becomes more reactive and less predictive, as shown by greater power in high frequencies. These findings indicate that humans vary the attention paid to balance, depending on how the information about their balance is conveyed. This attention can override the potential destabilizing effect of a cognitive distraction. These results have important implications for understanding fall risk in the presence of distractions.

Presenter: Areesa Lalani

Title: Examining the effects of exercise breaks on attention and retention in university students with poor mental health

Abstract:

Introduction: As a result of the pandemic, researchers have seen a decrease in engagement, motivation, and perception of success in relation to focus in the classroom. However, studies have suggested that a possible method to counteract a lack of focus is through taking breaks between lessons. This study aims to not only examine the link between exercise breaks and comprehension during online learning, but also analyze negative emotional states as a factor that could influence one's focus and working memory. Methods: Thirty-three university students (age = 20 ± 2 yr) were split into an exercise break, non-exercise break, or no break condition. All 3 groups watched 2 Exercise Psychology lectures, and the relevant conditions engaged in a 10-minute break in between the two lectures. Following the lectures, participants completed a 20-question multiple choice comprehension test and then returned 48 hours later to complete another 20-question multiple choice comprehension test to measure retention. Motivation, mood, and mental fatigue questions were measured throughout the protocol. The Depression, Anxiety and Stress Scale (DASS-21), Adult ADHD Self-Report Scale, International Physical Activity Questionnaire (iPAQ), and Preference for and Tolerance of Exercise Intensity Questionnaire (PRETIE-Q) were also administered during the protocol. This study was administered virtually on the Zoom platform. Results: It is hypothesized that people with poor mental health in the moderate to extremely severe group will have decreased mood, motivation, and retention scores, and higher mental fatigue. It is also predicted that chronic PA (Physical Activity) will predict significantly better mental health and higher retention scores. Additionally, we hypothesize that exercise breaks will predict better retention scores, regardless of grouping. Conclusion: Overall, we hypothesize that exercise breaks are correlated with greater academic performance, attention, and retention outcomes, including students who have poor mental health scores. This would emphasize the importance of potentially implementing brief exercise breaks within university lectures.

Presenter: Hasan Mansour

Title: Visuo-motor adaptation through a balance-related task: Forward Leaning

Abstract:

Motor adaptation utilises error to correct for movement, with researchers often utilising reaching tasks to investigate the process. Such tasks involve the proprioceptive and visual sensory systems, and less so the vestibular system. This research investigates motor adaptation through a balance task, which utilises all three sensory systems. Ten participants were instructed to lean as fast as possible at the ankles, moving from a home position to a target position. Visual feedback of the home position, target, and head position recorded by the head mounted display (HMD) were displayed within a virtual environment. It was hypothesised that participants would gradually compensate the visual distortion by balancing in the opposite direction of the visual distortion. Following an initial 15 pre-test trials with no rotation (i.e., in the controlled position), 30 adaptation trials were conducted with a 45° clockwise rotation of the cursor position. Lastly, 15 post-test trials with no rotation were conducted to test for

after-effects. Angles of deviation from the centre line were then calculated for each trial. Two t-tests were conducted to examine adaptation and aftereffects. There was a significant decrease in the angle of deviation when comparing the last trials of the pre-test and adaption blocks ($p < 0.001$). Furthermore, there was a significant increase in the angle of deviation between the last trial of the adaptation block and the first trial of the post-test block ($p < 0.001$). As such, motor adaptation through a balance task in response to visual rotation was experienced by the participants along with after-effects, following the same trends as previous research. While such findings support the process of balance adaptation through forward leaning, it is important to further investigate adaptation through whole body balance-related tasks for real-life applicability.

SESSION 3D

Presenter: Nicholas Cheng

Title: The effects of endothelial cell Forkhead Box O1 deletion on vascular permeability and lipid accumulation in ischemic skeletal muscle

Abstract:

"Introduction: Peripheral artery disease (PAD) impairs blood flow to downstream tissues such as skeletal muscle, resulting in ischemia, muscle damage, fat (lipid) accumulation and eventual amputation of the lower leg if PAD progresses. Angiogenesis, the formation of new capillaries composed of endothelial cells (EC), can improve blood distribution and attenuate muscle damage. However, the ischemic tissue produces anti-angiogenic factors that impede muscle recovery. Thus, the objective of my thesis was to determine if the genetic deletion of anti-angiogenic factor EC-Forkhead Box O1 (FoxO1) can improve the pathophysiology of skeletal muscle ischemia. Methods: The femoral artery was ligated to induce ischemia in the hindlimb of EC-FoxO1 knock-down (KD) or control mice. Extensor digitorum longus (EDL) muscles were extracted from the mice 4-days or 14-days post-ligation. EDL muscles were sectioned via cryotome and stained with bodipy or fibrinogen primary antibody. Fibrinogen positive area is indicative of vascular permeability due to fibrinogen leakage and bodipy area is representative of lipid accumulation. Images were captured by light fluorescence microscopy and quantification was performed by measuring fibrinogen and bodipy positive areas relative to whole muscle area. Results: At 4-days post-ligation, muscles from EC-FoxO1 KD mice had significantly greater fibrinogen positive area compared to the EC-FoxO1 control mice ($p < 0.05$). No fibrinogen positive areas were observed at 14-days post-ligation for either EC-FoxO1 KD or control mice. Current results suggest that at the 14-day timepoint, EC-FoxO1 KD mice may have less bodipy area compared to the control mice. Conclusion: The deletion of EC-FoxO1 increases vascular permeability (which is an early step in angiogenesis) and may lower lipid accumulation. Thus, although more research needs to be conducted, my thesis demonstrates that targeting EC-FoxO1 has the potential to improve ischemic muscle recovery for people with PAD. "

Presenter: Jama Maxie

Title: The Effects of Higher Education on Criminal Justice-Involved People Post-Release

Abstract:

Society considers high recidivism a growing issue with our legal system. As a result, there has been a call to action to produce better outcomes for criminal justice-involved people post-release. There has been a considerable amount of research investigating the effects of education and post-criminal justice involvement outcomes. A well-known meta-analysis published by the RAND Corporation (Davis et al., 2013) identified that correctional education has significant impacts on reducing

recidivism. However, like many of the studies in the existing literature, this research focused on GED attainment and vocational education completed during incarceration. Comparably less research exists on participation in post-secondary education during incarceration, and even less research exists on post-secondary education completed following release from an institution. Thus, our aim in this study is to establish and investigate the impacts on post-release outcomes for people who pursue post-secondary education after being released from prison. Now that we have received the ethics board approval we are actively recruiting participants that pursued post-secondary education after being released from prison via Twitter and Reddit. I will be conducting one on one interviews in a semi-structured format with these people either online or in person. After participant consent transcripts of interviews will be generated for analysis to be included in a future manuscript write-up. The hypothesis is that post-release post-secondary education will increase personal growth factors and reduce the likelihood of the individual re-offending. This research is critical because this could lead to raising awareness of the stigma criminal justice-involved people face and advocate for increased funding for people who leave the prison system.

Presenter: Patrick Hewan

Title: Structural Integrity of the Locus Coeruleus and Ventral Tegmental Area is Related to Decision-Making in the Aging Brain

Abstract:

Balancing the familiar and the unknown is a consistent challenge in daily life, as we grapple between tried-and-true options and venturing into uncharted territory. Do I choose my favorite restaurant or try somewhere new? Do I rewatch my favorite show or start a new series? Balancing comfortable periods of exploitation with risky periods of exploration is required for adaptive decision-making and one method of examining this exploration vs. exploitation tradeoff is through tasks that involve foraging. These tasks are associated with noradrenergic (attention) and dopaminergic (reward), systems in the brain, anchored in the locus coeruleus (LC) and ventral tegmental area (VTA) respectively. The impact of age-related changes to these nuclei on decision making is unknown. To examine this, we had 116 older adults complete a foraging task and undergo qMRI brainstem mapping to study the relationship between the integrity of these nuclei and a hypothesized bias towards exploitation. We found that both LC and VTA integrity was associated with task performance, with lower LC integrity predicting a greater exploitation bias and lower VTA integrity predicting an exploration bias. These results suggest that both noradrenergic and dopaminergic systems are related to decision-making with a bias towards exploitation in older age. This aligns with cognitive aging theories proposing that older individuals prefer positive, predictable rewards over pursuing novelty and making riskier choices.

Presenter: George Opoku

Title: Malnutrition Amongst the Elderly in Ashaiman

Abstract:

Malnutrition is a major public health problem among the elderly as a result of physiological, physical, and immune compromises that comes along with ageing. Malnutrition affects the quality of life, immune system and mortality among the elderly. It is imperative to assess malnutrition among the elderly in order to plan interventions to improve the quality of life of the elderly in Ghana. This study sought to determine the prevalence of malnutrition among the elderly populace in Ashaiman and also to relate sociodemographic characteristics and dietary diversity score to the nutritional status of the elderly. A cross-sectional study was conducted with sixty-six elderly individuals in Ashaiman. The Mini Nutritional Assessment (MNA) questionnaire was used to determine the nutritional status, health conditions, and Body Mass Index (BMI) of study participants. Approximately 12.1% were

malnourished, 60.6% were at risk of malnutrition and 27.3% were normal based on the MNA tool. More females (9.1%) were malnourished than the males (3%). Nearly 25.8% elderly people were underweight whilst 50% of the elderly had a normal BMI status. There was no significant relationship between malnutrition indicators (Mid Upper Arm Circumference (MUAC), Calf Circumference, haemoglobin and BMI) and sociodemographic characteristics except for literacy. More than half of the study participants were at risk of malnutrition based on MNA. The sociodemographic characteristics of the elderly were not associated with their nutritional status. Nutritional interventions should be implemented to ensure that Ashaiman elderly are well-nourished.

Presenter: Prisha Jain

Title: The Association Between Maternal Stress Biomarkers and Infant Neurodevelopmental Outcomes: A Structured Review

Abstract:

Stress impacts development across several domains. The early stages of development are particularly important due to the rapid neural and physical development that happens during the prenatal period and the first 3 years. Research has identified several physiological responses that indicate elevated activation of stress in both adults and infants and children. However, less is known about maternal biomarkers during pregnancy that might indicate an elevated stress response or increased risk for the child to develop long-term negative outcomes as a result of stress exposure during pregnancy. This review is currently examining how maternal stress is measured physiologically during pregnancy along with the neurodevelopmental outcomes that follow in infants and children. To begin the search, a structured review was conducted by looking at articles from PubMed. Articles were included if they met the following criteria: (1) Fully completed empirical studies published in English from 2013-2023; (2) included both maternal stress, measured as a naturally occurring biomarker, from the beginning of pregnancy to birth, and neurodevelopmental outcomes in children from birth to 10 years old. This resulted in 137 papers, which was cut down to 68 after screening for titles, and 25 after screening for abstracts. According to the preliminary results, some biomarkers of maternal stress included: maternal cortisol, inflammatory markers, hair glucocorticoids, maternal C-reactive protein, and interleukin. These biomarkers are related to a variety of neurodevelopmental outcomes for infants and children in cognitive, socio-emotional, and physiological domains. Although this review and the preliminary results have some promising findings regarding the association between maternal stress and neurodevelopmental outcomes, there are many remaining gaps in the literature which can be acknowledged through future research.

SESSION 4A

Presenter: Michaela Garvey

Title: Self-Kindness, Mindfulness, and Common Humanity: Effects of Self-Compassion on Wellbeing for Indigenous Participants in Self-Compassion-Related Interventions

Abstract:

Only in the last twenty years has Western psychology taken a focused interest in the benefits of self-compassion on wellbeing, despite its customary role in wellbeing across cultures. Kristen Neff has conceptualized self-compassion and its components (self-kindness, mindfulness, common humanity) through a Westernized lens. This model of self-compassion is associated empirically with wellbeing among Western populations on the one hand, and conceptually with traditional Indigenous wellness concepts of self-kindness, mindfulness, and common humanity on the other, suggesting self-compassion may be useful when designing mental wellness interventions with Indigenous communities. Guided by a Mi'kmaq Two-Eyed Seeing approach, this systematic review sought to

explore whether and how self-compassion relates to wellbeing within various Indigenous communities and possible mechanisms by which the construct is associated with wellbeing in Indigenous contexts. We completed a thematic analysis of qualitative research with Indigenous youth and adults—including Aboriginal and Torres Strait Islander peoples in Gumbaynggirr Country, and regional New South Wales, Native Americans from the Confederated Salish and Kootenai tribes of the Flathead Nation in northwestern Montana, and First Nations in Manitoba, Canada—participating in interventions that promote aspects of self-compassion and outcomes related to wellbeing. A link between self-compassion and wellbeing was revealed through three themes: connection (new relationships, stronger relationships, and spirituality), enhanced awareness (of mind, body, and environment), and self-empowerment. We discuss parallels between these themes and traditional Indigenous concepts of wellness, including the Mitakuye Oyasin prayer of the Lakota, The Seven Grandfather Teachings of Anishinaabe nations, and Inuit Qaujimajatuqangit. Findings suggest that a focus on self-compassion may be useful in promoting wellbeing among Indigenous peoples. Larger culture-specific and systematic studies on self-compassion are needed. Researchers must work together with Indigenous communities to determine whether self-compassion aligns with their particular culture, and for guidance on effective and culturally meaningful adaptations of self-compassion-related interventions.

Presenter: Niegel Rozene C. Aguilar

Title: Association between Media Exposure to Family Planning Messages and Modern Contraceptive Use among Filipino Women

Abstract:

"With the persistence of high unintended birth rates globally, family planning (FP) media campaigns have been implemented. However, the relationship between media exposure to FP messages and modern contraceptive use among women in the Philippine context has not been well-elucidated due to the lack of consistency and generalizability from past research findings. This study aimed to determine the association between media exposure to FP messages and modern contraceptive use among Filipino women of reproductive age. Data from the 2017 Philippine National Demographic and Health Survey (NDHS) were analyzed. Simple logistic regression was performed to screen for confounders. Contrasts of marginal linear predictions were used to screen for age group as an effect measure modifier (EMM). Multiple logistic regression and stratified analysis were conducted to determine the association between media exposure to FP messages and modern contraceptive use in each age group. The results showed that geopolitical location, wealth quintile, employment status, religion, educational attainment, and contact with an FP provider were significantly associated with media exposure to FP messages and modern contraceptive use ($p < 0.001$). Age group was a significant EMM ($p < 0.05$). Filipino women aged 25–34 years (aOR: 4.17, 95% CI: 3.57–4.87) and 35–49 years (aOR: 4.32, 95% CI: 3.66–5.10) who were exposed to FP messages through media were more likely to use modern contraceptives compared to those who were unexposed. Meanwhile, there was no sufficient evidence to conclude a significant association between the exposure and the outcome among those aged 15–24 years (aOR: 0.96, 95% CI: 0.92–1.00). This suggests the utilization of targeted FP media campaigns for Filipino women aged 25–49 years, improvement of FP promotion for Filipino women aged 15–24 years, and crafting of policies and programs focused on nationwide multimedia campaigns with age-appropriate materials."

Presenter: Renz Matthew L. Aurellano

Title: Perceived Reasons for Antenatal Care Practices in the City of Manila: Perspectives of Community Health Workers

Abstract:

Antenatal care (ANC), otherwise known as prenatal care, is a preventive healthcare service catered to pregnant women in order to achieve healthy outcomes for their maternal and perinatal period. However, current reports state that a significant proportion of mothers still do not comply with the four (4) recommended ANC visits of the health, particularly in the City of Manila, Philippines. Therefore, this study aimed to determine the perceived reasons for the ANC practices in the City of Manila in the perspectives of community health workers (CHWs). These health workers were recruited from selected health centers in the administrative district via convenience sampling. Data was gathered through semi-structured key informant interviews; responses were recorded and transcribed for qualitative analysis. After translation and analysis of the transcripts through deductive thematic analysis, codes were generated and classified into various themes. Findings of the data analysis presented the following relevant predisposing factors: employment status, knowledge on ANC, attitude on ANC, and maternal education; whereas, the latter was identified to have other components that influence its role as a factor. On the other hand, the relevant enabling factors identified were the following: socioeconomic status, general cost of availing ANC services, distance of residence to health center, appropriateness of health center, approachability of health service providers (HSPs) and CHWs, and availability of ANC services to a lesser extent. Fundamentally, the aforementioned variables had situational levels of positive and negative influence on ANC compliance of mothers. Hence, it is recommended to conduct the following activities: (i) review jurisdiction of health centers; (ii) appropriate training based on a training needs assessment; and (iii) include information for ANC services in the local health department's social media chatbot for better information dissemination.

Presenter: Cindy Zhang

Title: Past and Future of Medical Device Sounds - Exploring better approaches to auditory alarms in medical devices

Abstract:

Auditory alarms in hospitals are used to convey information about a patient to clinicians, such as oxygen, ventilation, or temperature. However, they are annoying, too numerous, and there is often confusion between alarms. Many healthcare professionals tune them out, turn them down or even off, leading to devastating consequences and deaths. Our exploratory study aims to investigate the change of medical alarm sounds over history. We conducted an analysis of the frequency, harmonic structure, amplitude envelope, and melodic sequence of alarms. We analyzed the current medical alarm standard IEC 60601-1-8 and historical medical alarms from the past century provided by Frank Block Jr, an anesthesiologist and one of the creators of the IEC sounds. We also analyzed alternative alarm sounds from Roy Patterson, Chris Thompson, and Judy Edworthy, who are prominent alarm designers in the field. We created an electronic archive of alarm sounds to compare and showcase the acoustic structure of alarms throughout history. We found that the current standard has not improved since the medical alarms of the 1980s. They are flat tones with simple harmonics, where current auditory research suggests that these types of sounds are not ideal for detectability, discrimination, and annoyance. The alternative alarm sounds by Patterson and Edworthy provide more sound complexity and enhanced learnability however further testing of these alarms is required. To date, the field of medical alarms has remained stagnant as the current sounds have not changed since the 1980s, even with advances in psychology and auditory research. There is a need for well-designed and user-friendly alarm sounds to improve the quality of care for patients and healthcare professionals.

Presenter: Benjamin P. Nguyen

Title: When Husbands/Fathers Come Out as Gay in a Heterosexual Familial Context: A Scoping Review

Abstract:

This scoping review, by examining the empirical academic literature since the year 2000, aimed to synthesize and map current knowledge on the coming out experience of post-heterosexual gay husbands/fathers (PHGHF) and how this life-altering disclosure influences their wives and children within the heterosexual familial context. Through a comprehensive search conducted across 7 electronic databases and supplemented by screening reference lists of initially identified articles, 15 studies investigating PHGHF (n = 8), their wives (n = 2), and their children (n = 5) were included in the review. Results indicated that there were three overarching yet distinct periods in which the family reacts to a gay husband/father coming out process, including (1) before the disclosure, (2) during the disclosure, and (3) after the disclosure. Within each of these periods, an interpersonal factor appeared to notably affect the family dynamics and every individual involved, i.e., (a) husband-wife relationship dissatisfaction before the husband/father came out as gay, (b) divorce/separation during the coming out process, and (c) positive communication after the event had settled. This study not only reveals nuanced insights into unique yet interconnected lived experiences of PHGHF, their wives, and their children in relation to the coming out process, but also serves to provide important directions for future research and clinical practice.

SESSION 4B

Presenter: Benwillies Nyaanga Onchong'a

Title: Covid-19 prevalence and all-cause mortality rate among musculoskeletal patients in Nairobi, Kenya compared to patients with other diagnosis.

Abstract:

There is a paucity of data regarding the management and prognosis of Covid-19 in Kenya, especially amongst patients with chronic diseases. The rate of Covid-19 prevalence and its impact on all-cause mortality among musculoskeletal patients in comparison to patients with other diagnoses is so far unknown. The purpose of this study was to evaluate the prevalence of Covid-19 and all-cause mortality rate of Covid-19 among patients with musculoskeletal diseases as compared with a matched cohort of patients with other diagnoses. We performed an observational cohort study from January to September 2022 based on register data from Kenyatta national hospital and Mbagathi district hospital. We identified hospital admitted musculoskeletal patients with chronic inflammatory arthritis (IA) or connective tissue disorders (CTD) that have been laboratory tested for Covid-19 by either a polymerase chain reaction (PCR) or antigen test. Patients with other diagnoses were randomly sampled and matched by age and sex. Patients' demographics, medical history, diagnoses and outcomes were captured from hospital inpatient health records. The cohorts were composed of 316 musculoskeletal and 1476 non-musculoskeletal patients. Mean age was 56.6 (SD 10.8) years and female sex 48%. The prevalence rate of Covid-19 was 16.5% in musculoskeletal and 9.0% in the non-musculoskeletal cohort ($p < 0.001$). All-cause mortality was 20 (6.3%) in musculoskeletal cohort and 16 (1.1%) in the reference cohort ($p < 0.001$). In the logistic regression adjusted for comorbidity (musculoskeletal vs. non-musculoskeletal), Covid-19 status, sex, age, and weight, comorbidity was the only statistically significant predictor of all-cause mortality (OR 6.35; 95% CI 3.23-12.48, $p < 0.001$). The prevalence of Covid-19 was higher in patients with musculoskeletal diseases. The Covid-19 status did not associate with all-cause mortality, but the odds of dying was over 6 times higher among patients with musculoskeletal diseases.

Presenter: Jewy Ferrer

Title: The Interactive Role of Hurt and Anger on Grudge Holding

Abstract:

"Despite our need to develop and maintain satisfying relationships with others, conflict is common during the social bonding process. One way victims of conflict manage their relationships is by holding grudges. However, very little is known about grudge holding, particularly the factors that affect its process. Grudges was recently defined as sustained feelings of hurt and anger that dissipate over time but can be triggered when needed, suggesting that they may result from both feelings of hurt and anger. Although both hurt and anger independently function to maintain and threaten relationships, respectively, they often co-occur. The purpose of this research was to test the interactive role of victims' hurt feelings and anger on grudge-holding within a romantic relationship. We predicted that victims who feel higher degrees of anger following a transgression will have a stronger positive relation between hurt and grudge holding compared to those who feel a lower level of anger. To test this moderation hypothesis, a nonexperimental study was conducted. Participants were asked to recall and write about an unresolved conflict with their romantic partner, and then, answer a series of questions about the transgression, their feelings of hurt and anger, and how they responded to the unresolved conflict. As predicted, hurt and anger interacted on grudge holding. Participants who experienced low anger, had a small positive relation between feelings of hurt and grudge holding. Consistent with our theorizing, the relationship between feelings of hurt and grudge holding are stronger when victims were angry. We also found a strong positive relation between anger and grudge holding when victims were hurt, as predicted. Overall, support was found for the moderation hypothesis. This research contributes to the theoretical development of grudges and could help in developing interventions for couples who are dealing with conflict in their relationship."

Presenter: Nidhi Roshni Rameshan

Title: "A systematic review to determine the effectiveness of mindfulness-based interventions on binge-eating behaviour"

Abstract:

"Mindfulness interventions have increased in popularity as a treatment for binge eating and problematic eating behavior due to their non-intensive nature. This systematic review aims to assess the effectiveness of mindfulness in the prevention and treatment of binge eating and problematic eating behavior. Literature was taken from PubMed, APA PsycNet and PsychInfo based on specific inclusion and exclusion criteria by following the PRISMA method, resulting in 13 final papers. The review proved the effectiveness of mindfulness-based interventions in the treatment of binge eating disorder and problematic eating behavior, with significant impact on binge eating, eating pathology, food cravings, control and restrained eating, food quantities, weight loss, body image and self esteem. Mindfulness-based interventions such as MB-EAT, MBCT, MEAL, MEG and MBI are effective in the treatment of BED and reduction of severity of symptoms. Participants undergoing mindfulness treatment are more compliant to treatment programs. MBCT has proven most effective in the treatment of BED, binge eating behavior and encouraging weight loss. The implications of the research done indicate that mindfulness can be an effective treatment for BED because of its focus on acceptance and control over eating behavior as opposed to behavioral modification. However, there are limitations of the studies done because of the small sample size, gender differences and lack of comparative variables.

Key terms: Binge Eating, Emotional Eating, Problematic Eating, Mindfulness-Based Interventions, Mindful Eating, Binge Eating disorder, Restrained Eating, Psychological distress.

"

Presenter: Angelina Heidebrecht

Title: Early Language Environments in Low Socioeconomic Status Families: Children's Language Acquisition and Development

Abstract: Children's language outcomes have been found to vary as a function of socioeconomic status (SES), though considerable individual differences are observed. Variation in language outcomes may arise from variation in the early language environment experienced by children experiencing low SES. However, factors that contribute to individual differences in the early language environment within a low-SES context (e.g., maternal stress), and specific pathways by which those early experiences influences later language outcomes are not well understood. Previous studies have found that maternal reports of stress were negatively associated with caregiver-child conversational turns (Pierce et al., 2021). It has been hypothesized that early language input might influence the development of children's phonological working memory, with more advanced phonological memory predicting better language outcomes (Hoff et al., 2008; Pierce et al., 2017), however this has not been tested in a low-SES context. This project uses a longitudinal sample of children (n = 22; age 6 to 36 months) from low- mid-SES backgrounds to test associations between (a) stress-based variations in the early language environments, derived from home language samples (using LENA language recordings), and the development of children's phonological memory (using a non-word repetition task), (b) phonological memory and later language outcomes, and (c) whether variation in the early language environment predicts neurodevelopmental change that is associated with language processing. The results of our analyses indicated a correlation between measures of early language environments, phonological memory, and later language outcomes; however this correlation did not persist on our neurological measure. It is possible our study was not sufficiently powered to detect small effects in neural measures, or that the association between the early language environment and language outcomes are mediated by a factor separate from phonological memory, leaving us with direction for future research.

Presenter: Katriel Read

Title: Early Language Environments in Low Socioeconomic Status Families: Children's Language Acquisition and Development

Abstract: "Episodic future thinking (EFT) is the mental simulation of personal future events. Engaging in EFT during intertemporal choices decreases delay discounting across various populations. However, the mechanisms underlying this reduction are unknown. Possible mediating factors of EFT are the vividness and self-relevance of the imagined future events. This study employs an experimental manipulation to disrupt the vividness of imagined events using a visuospatial working memory task. It is hypothesized that self-relevance will play a more prominent role in decreasing delay discounting compared to vividness.

17 undergraduate student participants were pseudo-randomly assigned into an EFT or control condition. Participants were prompted to describe 5 future events that were either personal (EFT) or non-personal (control). Participants completed a series of intertemporal monetary decisions, some of which were cued to imagine the personal or non-personal future events. Participants rated the vividness of the cued events at the end of each trial. Certain trials included a concurrently performed visuospatial task where participants were asked to remember shapes that were tested at the end of the trial; this manipulation was intended to decrease the vividness of imagined events.

Preliminary results indicate no significant effect of EFT cues on delay discounting ($p=0.365$) or compared to control ($p=0.820$). Working memory load significantly diminished EFT cue effects on delay discounting ($p=0.007$). While trending towards significance ($p=0.055$), there was a large effect size for the correlation between diminished EFT cue effects and changes in vividness.

Self-relevance was not a mediating factor of EFT. The working memory task diminished EFT cue effects, resulting in increased delay discounting. There was a large effect size for the interaction between diminished EFT cue effects and decreased vividness. This suggests that vividness was a mediating factor of EFT. These are preliminary findings; therefore, definitive conclusions cannot be made until additional data is collected."

SESSION 4C

Presenter: Valeria Hernandez

Title: Acute substance use by precariously housed persons and the effects on cognition

Abstract: The relationship between precarious housing and substance use is well-established. Precariously housed persons refer to people with lack of stable housing, a population that faces high levels of marginalization, health challenges, poverty and drug use. Drug use is known to impact neurocognitive functioning, and due to the high rates of substance use by precariously housed individuals, this is important to explore further to gain an accurate assessment of their neurocognitive profile. This study aimed to explore how acute use of stimulants, marijuana, opioids, and alcohol within the last 48 hours affected the cognition of this population. How did the time from last use and amount of substance used in the past 48 hours affect neurocognitive test performance? In the original Hotel Study, four hundred and twenty-eight (N = 428) participants were recruited from Single Room Occupancy (SRO) hotels in the Downtown East Side (DTES) of Vancouver, Canada and asked to report on their substance use in the past 48 hours. Findings included that higher amounts of stimulants were associated with decreased verbal memory performance, higher amounts of opiates with decreased selective attention and processing speed, and less recent and higher amounts of alcohol with decreased attention, memory and executive function performance.

Presenter: Lara Black

Title: Examining psychometric properties among online neurocognitive assessment batteries: A literature review

Abstract: Computerized neurocognitive measures provide an innovative way to assess thinking abilities. Given that traditional neuropsychological testing is time- and labor-intensive, dedicated services are scarce. The development of reliable computerized neurocognitive measures could potentially offer an efficient and cost-effective way to screen and triage patients, thereby facilitating equitable access to appropriate assessment and intervention services. However, it must be ensured that these benefits come at no extra cost to the quality of testing. The purpose of this literature review was to determine what specific psychometric properties are satisfactory to deem a computerized measure as valid, feasible, and acceptable as a clinical screen for cognitive assessment among adults. A literature search was conducted using PsycInfo and PubMed search engines to examine existing literature assessing validity, feasibility, and acceptability of computerized cognitive measures for a variety of adult populations. Appropriate psychometric properties, including correlation co-efficients, sensitivity, specificity, positive predictive value, and negative predictive value, will be reported on. These values will help guide efforts to select the most appropriate computerized neurocognitive measures for clinical and research application.

Presenter: Lauren Rudolph

Title: Using the NeuroBioBehavioural Model to Treat Underlying Causes of Behaviour in Autism Improves Symptoms

Abstract: Autism spectrum disorder (ASD) has neurological and biological root causes underlying behavioural symptoms. Current ASD treatment uses behavioural therapy and sometimes pharmaceuticals. Unfortunately, these treatments sometimes fail to improve quality of life and specific symptoms. Also, these treatments only address behaviour and do not treat physiology that leads to symptoms or neurotransmitter imbalances in the first place. However, complementary medicine uses effective, evidence-based approaches including dietary supplements and alternative neurological treatments to treat underlying physiological causes of behaviour in ASD. For example, people with ASD often have impairments in methylation genes, which are required for synthesizing neurotransmitters, neuronal synchrony, and neuroplasticity for learning and behaviour change. A well-studied B vitamin called folinic acid and a dietary supplement called tetrahydrobiopterin, which is involved in neurotransmitter synthesis, improve methylation, communication, social interaction, and other symptoms in ASD. Furthermore, people with ASD often have altered microbiomes. The microbiome plays an important role in neurotransmitters and psychological symptoms. An animal study and double-blind placebo-controlled study administered probiotics and demonstrated improved social and sensory processing and ASD symptoms. Therefore, based upon ample evidence, I developed the NeuroBioBehavioural Model to address neurological and biological root causes of behaviour using complementary medicine to improve symptoms and improve the efficacy of behavioural treatments. The NeuroBioBehavioural model posits that autism and psychological disorders have neurological and biological causes of behaviour, and therefore, treatment needs to address underlying root causes, not only behaviour. This model also applies to other neurodevelopmental and psychological disorders, including ADHD, depression, and anxiety. This model hypothesizes that treating neurological and biological underlying causes of psychological symptoms could improve symptoms and could also improve the efficacy of behavioural treatments. Initial studies combining complementary medicine and behavioural treatment support my NeuroBioBehavioural model by demonstrating that complementary medicine increases the efficacy of behavioural treatments.

Presenter: Taylor Alves

Title: Neurodiversity and COVID-19

Abstract: Many Canadians have been diagnosed with one or more conditions which mean they experience and manage the world around them in a variety of different ways. Neurodiversity is an umbrella term and 1 in 7 people may have one or more diagnoses cooccurring. There is no "right" way of thinking, behaving, or learning and these differences can often be an advantage for some. With the COVID-19 pandemic, a lot of new challenges were raised as everyone adjusted to a new normal. Prior research has shown neurodiverse people may struggle to adjust to the new normal and follow safety measures (ex. wearing a mask at all times). On the other hand, neurodiverse people may prefer working from home or attending online lectures. With a variety of possible outcomes, our aim in this study was to investigate the relationship between the COVID-19 pandemic and neurodiverse peoples' experiences. Additionally, we plan to investigate the effective coping mechanisms used and if they have changed through the duration of the pandemic. Qualitative interviews consisting of open-ended questions were developed using evidence-based research on adjustment in neurodiverse populations. The interviews consisted of 15 open-ended questions conducted with students at York University to examine themes from an inductive thematic analysis. The deidentified findings will be shared through an open forum website hub to be able to connect neurodiverse people. The goal is to create an online community so people can share experiences and coping mechanisms with each other and be involved in research that gives back to the community.

Presenter: Aaya Mahdi

Title: The Opposing Effects of Obesity and Exercise on Colorectal Cancer Development

Abstract: It is known that exercise training reduces colorectal cancer risk in mice and humans, particularly those with obesity. However, mechanisms responsible for these beneficial effects of exercise remain unknown. The proposed work will evaluate a novel relationship between the opposite effects of exercise and obesity on hematopoietic stem cell populations as one potential mechanism explaining the opposing effects of obesity and exercise on CRC risk. These findings will advance health care research by providing biomarkers for CRC risk and promote research of preventative strategies. This is a relevant project to showcase at CUHR that will start engaging and progressive conversations.

SESSION 4D

Presenter: Aleeza Qayyum

Title: Treating Alzheimer's Disease: A Mass Spectrometry Analysis of Molecules Binding Specifically to Amyloidogenic Tau

Abstract:

Tau is a microtubule-associated protein that plays a crucial role in stabilizing microtubules in human neurons. However, under certain biological conditions, such as hyperphosphorylation, tau can undergo modifications that lead to the formation of abnormal aggregates that are toxic to neurons, resulting in neurological diseases collectively known as tauopathies. Alzheimer's disease is the most recognized tauopathy and is projected to affect 152 million people worldwide by 2050! The deposition of amyloid aggregates of tau in the brain, known as amyloidogenesis, is a significant target in the treatment of neurodegenerative disorders such as Alzheimer's disease. In recent years, there has been a growing interest in developing small molecular inhibitors of amyloidogenic tau to prevent the formation of tau tangles and reduce the accumulation of abnormal proteins in the brain.

In this study, we investigate the potential of a series of small molecules designed by a Toronto-based pharmaceutical company to inhibit the fibrillation of tau. We aim to evaluate the efficacy of these molecules in inhibiting tau assembly using Time-Resolved ElectroSpray Ionization Hydrogen-Deuterium Exchange Mass Spectrometry (TRESI-HDX-MS). This technique is a structure-dependent labeling technique that allows the analysis of the conformational dynamics and induced structural changes of proteins due to ligand binding and folding. The inhibition of tau fibrillation is crucial in preventing the progression of Alzheimer's disease and the development of efficient and safe therapeutics for these neurological disorders is essential, given the increasing prevalence of these diseases. Our study aims to contribute to the development of effective small molecular inhibitors of amyloidogenic tau and provide insights into the structure-function relationships of tau proteins, to one day create a world where Alzheimer's disease is treatable.

Presenter: Isha Verma

Title: Impact of a South Asian Diet on Major Cardiovascular Disease Outcomes: A Systematic Review

Abstract: Dietary intake is a crucial modifiable risk factor in the development of non-communicable diseases, however there is limited research on how diet can impact health outcomes in ethnic groups. In particular, individuals of South Asian origins are at higher risk for the onset of cardiovascular diseases. The aim of this systematic review is to assess the unique components of a South Asian diet as a risk factor for cardiovascular disease outcomes within the South Asian global diaspora. A literature search was conducted in three databases: MEDLINE, Embase, and The Cochrane Library, from January 1990 to January 2023. Eligible studies were observational studies that investigated the relationship between diet intake and cardiovascular disease outcomes among adult South Asians originating from India, Pakistan, Sri Lanka, Nepal, and Bangladesh, regardless of their place of residence. A total of 31 studies were included in this review. Majority of studies showed significant associations between certain foods in the South Asian diet and cardiovascular disease outcomes. Harmful effects of higher intake of refined carbohydrates, red meat and processed meat, sweets and desserts, fried snacks, and saturated fats indicated associations with onset of cardiovascular disease outcomes. In contrast, studies have shown protective effects of the South Asian diet including higher intake of fruits, vegetables (mainly green leafy vegetables), lentils, legumes, yogurt, and fish. The trends observed between studies highlights a potential for improved dietary advice for South Asians that encourage foods which offer protective effects to reduce disease burden in this population.

Presenter: Sandy Luu

Title: Mindfulness on the Brain: Exploring the Feasibility and Acceptability of a Mindfulness Training Intervention and its Effects on Alpha Asymmetry and Mood amongst High Ruminators

Abstract: Ruminative thought patterns, such as repetitive dwelling on negative memories, can have detrimental effects on mental health. While mindfulness training has been shown to improve mood and executive function, its impacts on rumination and its underlying neural mechanisms remain unclear. The present pilot study investigates the impact of a four-week mindfulness meditation intervention in high-ruminating individuals. The primary aim is to evaluate the feasibility and acceptability of the intervention by assessing participant engagement, dropout/attrition, and recruitment success rate. As secondary measures, we also investigate the impacts of the intervention on mood and resting state frontal alpha asymmetry. 12 participants were each randomly assigned to the immediate intervention or waitlist control group. At the start of the experiment and again after a 4-week interval, participants completed a set of questionnaires assessing trait mindfulness, rumination, emotion regulation, handedness, mood, dissociation, and sleep quality. Resting-state neural activity was also measured using electroencephalography. Those in the immediate intervention group were provided a Fitbit watch and were instructed to wear it as close to 24 hours a day as possible throughout the 4-week interval to track their activity levels and sleep patterns. Fitbit Premium accounts were provided to allow access to in-app guided meditation videos. Participants were asked to complete at least 60 minutes of meditation per week. Those in the waitlist control group were asked to carry on with their normal lifestyle during the 4-week interval, after which they completed the intervention. Although data analysis is ongoing, we predict to observe a reduction in alpha asymmetry, an increase in trait mindfulness, and improved mood in the immediate intervention group, compared to those in the waitlist-control group. As well, given that there were no participant dropouts during the study, we anticipate that study adherence will be high with respect to meditation and Fitbit use.

Presenter: Jason Youssab

Title: Is Lovastatin a Preventative Agent for BRCA2 Mutation Carriers?

Abstract: BRCA2 is a tumor suppressor protein that functions in the DNA repair process via homologous recombination. BRCA2 deficiency leads to genomic instability and increased cancer risk. Women who have a BRCA2 germline mutation have a 45%-69% chance of developing breast cancer by 70-80 years old. In mammary gland development, estrogen (E2) and progesterone (P4) activate the expression of growth factors, which downstream bind to their respective receptors, transducing a cell signal that eventually results in the proliferation of the cell. The primary pathology that occurs in cancer is the uncontrollable proliferation of cells. This can be problematic in BRCA2 mutation carriers as the mutation will be propagated and spread to a greater number of cells. This study aims to understand the potential therapeutic role of lovastatin as a preventative treatment for BRCA2 mutation carriers. The objective we aim to achieve is to characterize changes that occur following hormone treatment with or without lovastatin in MMTV-Brca2 mouse model. Our results suggest a negative correlation between treatment with lovastatin and proliferation in BRCA2-deficient epithelium, as indicated by the proliferative biomarker, Ki-67. In addition, we found a positive correlation between BRCA2 deficient epithelium and the level p16, cell cycle inhibitor expressed. Farnesylation is a post-translational modification that localizes the Ras protein to the cell membrane. The primary enzyme that catalyzes farnesylation is farnesyl transferase (FT). If farnesylation is inhibited, this downregulates the Ras/Raf/MAPK (MEK)/ERK pathway, which will decrease proliferation. Therefore, we speculate that lovastatin acts as a FT inhibitor, preventing RAS farnesylation, and inhibiting proliferation. Collectively, our findings may help elucidate the effectiveness of lovastatin as a cancer prevention agent for BRCA2-deficient carriers.

Presenter: Mohamed Aboudlal

Title: Characterization of mitochondrial network morphology in term placenta from active and inactive participants.

Abstract: The placenta is the organ of life, acting as the bridge and barrier between the gestational parent and fetus to facilitate gas exchange and metabolic transfer. Mitochondrial dynamics is a new field in bioenergetics aimed at understanding the relationship between mitochondrial fission, fusion, and mitophagy. While most research regarding mitochondrial dynamics in the placenta has focused on gestational age and pregnancy complications, the effect of physical activity (PA) on mitochondrial dynamics and morphology has been substantially ignored. The purpose of this study was to compare the mitochondrial network morphology of human term placenta from healthy active and inactive participants. Participants included five habitually active and five inactive pregnant individuals. PA was objectively measured using an Actical accelerometer. Pregnant participants wore the Actical for 7 consecutive days during each trimester to measure free-living PA. Immunofluorescence was used to image the mitochondrial networks in placental tissue, and Mitochondrial Network Analysis plugin was used for mitochondrial network morphology analysis on ImageJ. Mitochondrial footprint, mean summed branch length, mean network branches, and donuts presented no significant differences between active and inactive participants. Mean branch length was significantly higher in inactive participants (active = $4.42 \times 10^{-5} \pm 9.45 \times 10^{-7} \text{um/um}^2$; inactive = $4.61 \times 10^{-5} \pm 1.74 \times 10^{-6} \text{um/um}^2$; $p=0.047$). These findings indicate that the placentas of inactive individuals have higher adenosine triphosphate (ATP) production capacity. Sedentary behaviour may be perceived as a stressor by placental mitochondria, possibly leading to compensatory mechanisms resulting in longer mitochondrial branches to maintain optimal ATP levels at low levels of stress (e.g., engaging in bouts of PA). In conclusion, this study demonstrates that lower PA is associated with longer mitochondrial branches in term placenta. Understanding mitochondrial dynamics and morphology in the placenta will help us to better understand the protective effects of exercise on maternal and fetal health, thereby allowing us to develop targeted interventions for optimal health outcomes.

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