UNIVERSITY OF TORONTO

REHABILITATION SCIENCES INSTITUTE

2023
RESEARCH DAY

ABSTRACT BOOK "PERSON-ORIENTED CARE"

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A message from the Director of RSI, Dr. Angela Colantonio

Dear RSI Community and Guests,

It is with much excitement that I welcome you all to our annual Rehabilitation Sciences Institute (RSI) Research Day! After many years of pandemic restrictions, we look forward to celebrating our first in-person event since 2019!

I wish to congratulate our amazing student co-chairs, Beatrice Manduchi and Natasha Benn, and the entire Research Day Committee and RSI staff for bringing us all together today for what is always the highlight of our academic year. With an estimated one in three people globally having a potential need for rehabilitation, there has never been a time where it's been more essential. Every day, we strive to position our students to be able to address the urgent need to scale up rehabilitation science in order to inform practice and training. It is at RSI Research Day that we get to celebrate this full breadth and diversity of interdisciplinary rehabilitation research being shared through the innovative work of our students and exceptional faculty supervisors. I invite everyone to fully engage with our trainees and other members of the RSI community for thought provoking knowledge exchange.

We can always count on our students to propose the most timely and critical themes for our event and clearly "**Person Oriented Care"** is what we should all be striving for. Patients are the true experts of their experience. After all, our true impact is in the positive ways in which research benefits the people it is intended to serve. I wish to welcome and thank all our guest speakers: Mr. Ryan Cowley, Mr. Ron Beleno, Dr. Lisa Hawke, as well as our keynote speaker, Ms. Annette McKinnon. We appreciate you sharing your time and insights with us.

I am also grateful for the wonderful support and extraordinary engagement of our hospital and community partners as well as the faculty who serve from other universities, nationally and internationally. It is truly an ecosystem of collaboration and excellence driving rehabilitation research that I am convinced does not exist anywhere else in the world. A sincere thank you to our generous donors and sponsors for always supporting our students on Research Day and throughout their academic journey at RSI.

Wishing you all a fruitful and enjoyable conference!

Sincerely,

Angela Colantonio, PhD, OT Reg. (Ont.), FACRM, CAHS
Canada Research Chair in Traumatic Brain Injury in Underserved Populations
Director and Professor, Rehabilitation Sciences Institute
Professor of Occupational Science and Occupational Therapy, University of Toronto

A message from the Graduate Coordinators of RSI, Dr. Sarah Munce, Dr. Alison Novak

Welcome to the Rehabilitation Sciences Institute (RSI) Research Day 2023! The goal of this day is to profile the breadth and depth of theoretical and clinical research that is being conducted by our amazing students within the programs of RSI. The research conducted by our RSI students spans the fields of occupational science and therapy, physical therapy, speech language pathology, engineering, and rehabilitation science. These research activities adopt qualitative and/or quantitative methods to answer research questions that address some of the most complex health issues that confront our society today. Our students collaborate with our RSI faculty and perform their work at the University of Toronto, the teaching hospitals affiliated with the University of Toronto, and local, national, and international community partners.

The RSI Research Day has been conceived, developed, and organized by members of the RSI Research Day Committee which is composed and led by our students. The Research Day Committee has given extensive thought about the focus of RSI Research Day and its organization. This year's theme is Person-Oriented Care and showcases the breadth of innovative research within RSI that aims to meaningfully engage individuals in planning, delivery and evaluation of healthcare and rehabilitation. Today is an opportunity to engage with, and learn from, fellow students about the exciting research that is a part of RSI.

We would like to thank the RSI Research Day Committee for their dedication to organizing the activities of today, extending our sincerest thank you to Beatrice Manduchi, Natasha Benn, Wade Michealchuck, Emily Wood, Brynna Kerr, Lovisa Cheung, Christine Muscat, Diane Wiltshire, and Luc De Nil. We would also like to thank the rest of the RSI Executive Team for your collaboration and leadership, and the entire RSI student body for your hard work and dedication.

Sarah Munce, PhD
Assistant Professor (status) & Graduate Coordinator,
Rehabilitation Sciences Institute,
Scientist, KITE-Toronto Rehabilitation Institute,
University Health Network
Assistant Professor (status), Department of
Occupational Sciences and Occupational Therapy,
Rehabilitation Sciences Institute

Alison C. Novak, PhD
Graduate Coordinator, Rehabilitation Sciences Institute
Scientist, KITE-Toronto Rehabilitation Institute,
University Health Network
Assistant Professor (status), Department of Occupational Sciences and Occupational Therapy, Rehabilitation Sciences Institute, Faculty of Kinesiology & Physical Education, University of Toronto

A message from the Associate Director of RSI, Dr. Luc De Nil

Welcome to the 2023 Rehabilitation Sciences Institute Research Day.

We are extremely delighted that this year we can welcome you in person again. The RSI Research Day is a unique opportunity for our MSc and PhD students to showcase the many exciting research projects they are pursuing as part of their academic degree. These projects tackle important basic and applied research questions in the disciplines of speech-language pathology, occupational science and therapy, physical therapy, and rehabilitation sciences. I am sure that you will enjoy meeting and interacting with our doctoral-stream students as they present and discuss their research.

This year's theme is "Person-Oriented Care" and the posters and presentation will span the full spectrum of rehabilitation research, from basic laboratory-based projects to clinical intervention and health policy using a variety of quantitative and qualitative approaches. In addition to visiting the poster sessions and listening to brief student presentations, you will have the opportunity to hear from our keynote speaker, Ms. Annette McKinnon, who has been very active as an advocate for patient involvement in treatment and research. You also can join a panel discussion on patient-oriented research. Perhaps one of my favourite parts of the day is the Awards Ceremony. It gives us an opportunity to recognize many of our amazing students and their outstanding contributions to advancing our knowledge base through basic and clinical research projects.

This day would not have been possible without the energy, amazing organizational talents, and exceptional problem-solving skills of our student research committee: Wade Michaelchuk, Beatrice Manduchi, Natasha Benn, Emily Wood, Christine Muscat, Brynna Kerr, and Lovisa Cheung. My sincere thanks to each one of these students for their many contributions to the success of this event, as well as to Diane Wiltshire and Jessica Boafo who provided generous administrative support.

I hope that you will enjoy today's events and that it will inform and inspire you as you continue on your own path to build a better future for rehabilitation and the people we serve.

Luc De Nil, Ph.D.
Associate Director, Rehabilitation Sciences Institute
Professor, Speech-Language Pathology

A message from the Rehabilitation Sciences Graduate Students' Union (RSGSU)




RSI Research Day is an annual, student-led event which is organized and supported by members of the Rehabilitation Sciences Graduate Students' Union (RSGSU). After three successful virtual Research Day events during the COVID-19 pandemic, it is a great pleasure to return to RSI Research Day in-person.

We wish to acknowledge the hard work, creativity, and resilience demonstrated by the RSI students, faculty, and staff within the RSI in the past year, which has enabled continued research progress. This is a wonderful opportunity to showcase the diverse and innovative research that is being done by the students and faculty of the Rehabilitation Sciences Institute.

We would like to thank the 2023 Research Day Committee co-chairs, Beatrice Manduchi and Natasha Benn, as well as the student committee members and department representatives for their hard work and dedication in making this event possible.

We would also like to welcome you all on behalf of the Rehabilitation Sciences Graduate Students Union (RSGSU), which aims to represent the interests and needs of the RSI students. We are here to support you in your academic journey and to foster a sense of community and collaboration among our peers. We hope you enjoy this day of learning, networking and celebrating the achievements of our RSI community.

To learn more about the RSGSU and find out how to get involved, email us at:
rehabscience.gsu@studentorg.utoronto.ca and follow us on Twitter: @RSGSU, Instagram: @uoft_rsi, and Facebook: Rehabilitation Graduate Student Union.

Sincerely,

Kai Ian Leung and Divya Vurrabindi (RSGSU Co-Presidents),

on behalf of the RSGSU Executive Team

Land Acknowledgement

Before we begin the conference, we would like to acknowledge the land on which today's event is being held and on which the Rehabilitation Sciences Institute and the University of Toronto operates.

While hearing this land acknowledgment, I encourage us all to reflect on what the words mean to you and how you intend to do better for this land and the original nations of this land.

It is important to understand the long-standing history that has brought us to reside on the land, and to seek to understand our place within that history. Land acknowledgements do not exist in a past tense, or historical context: colonialism is a current ongoing process, and we need to build our mindfulness of our present participation.

We recognize that everyone in attendance today may not work or live on this land. We encourage you all to take time to familiarize yourselves with the land you live and work on and to create your own land acknowledgement. To help you do this, we have included some resources below which allows you to look up your address and learn about the original nations of that land. We have also included resources in the program to help you learn and take action.

"I (we) wish to acknowledge this land on which we have gathered today and on which the Rehabilitation Sciences Institute at University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to gather here today and work on this land."

Resources:

To look up what land you are on for your own Land Acknowledgement, you can go to: https://native-land.ca/

Some additional resources for you to learn and take action:
- Truth and Reconciliation Report and Progress Reports: http://www.trc.ca/
- Calls To Action Accountability: A Status Update On Reconciliation: https://yellowheadinstitute.org/trc/

Indigenous Reads: https://www.rcaanc-cirnac.gc.ca/eng/1472674362414/1557776582786

Schedule of the Day

Thursday, May 25th, 2023
9:00 a.m. – 4:00 p.m.

MORNING SESSION

8:30 – 9:00	**Registration and poster set up**
9:00 – 9:15	**Opening Remarks** *MacLeod Auditorium* ❖ **Dr. Angela Colantonio,** Director of RSI ❖ **Prof. Justin Nodwell,** Vice Dean, Research & Health Science Education
9:15 – 10:00	**Keynote Address: *Patient advocacy and partnership in research*** *MacLeod Auditorium* ❖ **Ms. Annette McKinnon,** Patient advisor, partner in research, speaker and blogger
10:00 – 10:45	**Student Oral Presentations: Session 1** *MacLeod Auditorium* ❖ "No one left behind"? Problematizing disability representations in WHO guidelines and their effects for disabled people and rehabilitation system development in Armenia **V. Armineh Babikian, PhD Student** ❖ Voluntary Elimination of Nasality in Typical Speakers using Forward Voice Focus and Biofeedback **Somayah Al-Ees, MSc Student** ❖ Exploring the role of basic communication science in clinical teaching and learning **Jacquelin Forsey, PhD Student** ❖ Exploring the Self-Diagnosis Experiences of Autistic Women and Non-Binary People at the Intersection of Gender and Autism **Francis Routledge, MSc Student** ❖ Experiences of physical therapists with implementing submaximal aerobic exercise testing in in-patient stroke rehabilitation: preliminary results of a realist evaluation **Jean Michelle Legasto-Mulvale, PhD Student** ❖ A content analysis of the concussion education provided to Canadian high school students during a peer-led concussion education program **Brynna Kerr, PhD Student**
10:45 – 11:00	**Coffee break** *Reception area*
11:00 – 11:45	**Student Oral Presentations: Session 2** *MacLeod Auditorium* ❖ Development of a core outcome set to measure patient-reported dysphagia in head and neck cancer clinical trials using Delphi consensus methods **Beatrice Manduchi, PhD Student**

	❖ A scoping review of resilience among transition-age youth with serious mental illness: Tensions, knowledge gaps, and future directions **Amy Nesbitt, PhD Student** ❖ The development of an online mindfulness program for individuals with spinal cord injury **Vjura Senthilnathan, MSc Student** ❖ Validity of dynamic assessments of word reading skills in diverse groups of school-aged children: A systematic review and meta-analysis **Emily Wood, PhD Student** ❖ Elevated vascular risk and earlier menopause synergistically drive cognitive decline in Canadian postmenopausal women **Madeline Wood, PhD Student** ❖ Implementation challenges of activity-based therapy in Canada: A comparative analysis across key interest groups **Anita Kaiser, PhD Student**
11:45 – 12:45	**Lunch and Networking** *Reception area*
	AFTERNOON SESSION
12:45 – 1:45	**Panel Discussion: *Patient-oriented research from three perspectives: the patient, the caregiver, and the researcher*** *MacLeod Auditorium* ❖ **Mr. Ryan Cowley,** Sportswriter, author, public speaker, and a person who stutters ❖ **Mr. Ron Beleno,** Caregiver advocate, research consultant, mentor and speaker ❖ **Dr. Lisa D. Hawke,** Independent Scientist at Centre for Addiction and Mental Health
1:45 – 2:15	**Poster Presentations: Session A** *Student Lounge*
2:15 – 2:45	**Poster Presentations: Session B** *Student Lounge*
2:45 – 3:00	**Coffee break** *Reception area*
3:00 – 3:20	**Awards Ceremony** *MacLeod Auditorium* ❖ RSI Recognition Awards: Faculty & Staff; Student; Alumni ❖ Student Oral and Poster Presentations Awards ❖ Knowledge Translation Competition and Social Media Contest Winners
3:20 – 3:30	**Closing Remarks** *MacLeod Auditorium* ❖ **Beatrice Manduchi and Natasha Benn,** Research Day Co-Chairs
3:30 – 4:00	**Refreshments and Networking Time** *Reception area/ Student Lounge*

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Platinum Level	Holland Bloorview Kids Rehabilitation Hospital
Silver Level	UHN Toronto Rehabilitation Institute The Kite Research Institute

Our valued Donors

Gold Level	*Dr. Angela Colantonio* Occupational Science & Occupational Therapy UNIVERSITY OF TORONTO International Centre for Disability and Rehabilitation UNIVERSITY OF TORONTO
Silver Level	*Dr. Larry Robinson*

2023 Research Day Theme

This year, RSI Research Day comes back in person! Our **event theme** this year is "**Person-oriented care**".
The keynote address and panel will discuss the importance of patient advocacy and the impact of patient and caregiver partnership in research on advancing the field of rehabilitation sciences. In addition, the efforts that have been, and can be, done to foster patients' and caregivers' inclusion in research will be presented and discussed from multiple viewpoints (i.e., patients, caregivers, researchers). This truly multidisciplinary event will bring our community together to foster our understanding and uptake person-centred care.

The importance and relevance of person-oriented care is echoed in our student community:

"*Through the lens of patient-centered care, patients, clients and participants are viewed and treated as individuals with unique experiences and perspectives. In all domains of health, but in particular in the field of speech-language pathology, it is critical for researchers and clinicians to consider the individual's cultural and linguistic background. In the field of early literacy, linguistic diversity has often been overlooked and there have been limited assessment tools and intervention programs developed for bilingual and multilingual children. To me, patient-centered care means centering linguistic diversity, and working to develop assessment tools specifically for bi and multilingual children.*"

- Emily Wood, PhD Candidate and RSI RD committee member

"To me, patient-oriented research is critical in ensuring that our work remains focused on those whose lives we strive to improve. We can keep patients engaged in our rehabilitation research by involving them and/or their support network in the research process, such as letting them ask the research questions, or gathering their feedback on our study results. Doing so can help us identify priorities that matter the most to patients."

- Lovisa Cheung, PhD Candidate and RSI RD committee member

"During my studies and my clinical practice, I have learned that patients' and caregivers' individual needs and preferences are often overlooked. Bringing the main stakeholders at the center of our projects has the potential to foster their active participation in their healthcare decisions as well as their satisfaction with care received. Thus, learning about how we can enhance patient and caregiver participation in research is critical to move the field of rehabilitation science towards a more person-centred focus."

- Beatrice Manduchi, PhD Candidate and RSI RD co-chair

Keynote Speaker

Topic: Patient advocacy and partnership in research

Ms. Annette McKinnon

Ms. Annette McKinnon, *Patient Advisor, Patient Partner in Research, Speaker and Blogger*

Annette McKinnon is an active and engaged patient and a member of the Steering Committee of the Canadian Arthritis Patient Alliance (CAPA), Sjogrens Canada, and the Arthritis Patient Advisory Board of Arthritis Research Canada. Starting with a blog and a social media presence (@anetto), she has become involved with research teams and is a founding member of the Patient Advisors Network, a community of practice for patient and family caregiver advisors. She is also a graduate of the PaCER (Patient and Community Engagement Research) Course at the University of Calgary, and a research partner on several research teams, as well as a grant reviewer for CIHR and The Arthritis Society. She has been a Health Mentor for the Interdisciplinary Education Program of the University of Toronto for the past 10 years and was a 2014 MedX ePatient Scholar.

Panel discussion

Topic: Patient-oriented research from three perspectives: the patient, the caregiver, and the researcher

Mr. Ryan Cowley

Sportswriter, author, public speaker, and a Person Who Stutters

Ryan Cowley is a sportswriter, author, public speaker, and an ambassador for the stuttering community, having spoken to Communication Disorders departments at over 70 schools across Canada and the United States. He also works for the Content Diversity Tracking project for CBC, collecting data from shows and regions across Canada. He has been a Person Who Stutters since he was six years old and helps educate others with his own experiences with stuttering.

Mr. Ron Beleno

Caregiver advocate, research consultant, mentor and speaker

Mr. Ron Beleno is an active advocate for dementia, caregiving, aging, and research communities. Being a caregiver to his father who lived with Alzheimer's for 10+ years, he utilized technology, community, and access to research to support his family's quality of life. As strong supporter of patient engagement, Mr. Beleno is an active member, advisor, and mentor to numerous organizations and educational institutions such as AGE-WELL NCE, Centre for Aging and Brain Health Innovation (CABHI) at Baycrest, City of Toronto's Seniors Strategy, The Centre for Addiction and Mental Health (CAMH), SE Health, and the Translational Research Program (TRP) at the University of Toronto. He is also on the Board of Directors with the Ontario SPOR Support Unit which is Ontario's catalyst for patient-oriented research.

Dr. Lisa D. Hawke

Independent Scientist at Centre for Addiction and Mental Health

Dr. Lisa D. Hawke is an Independent Scientist and the Unit Head of the Patient-Oriented Research Unit at the Centre for Addiction and Mental Health. Dr. Hawke is a co-principal investigator on several CIHR-funded patient-oriented research projects. She conducts research on lived experience engagement in mental health and substance use research, as well as engaged research on issues of high relevance to people with lived experience. By engaging patients and families in her work, alongside research and clinical teams, she aims to produce research that is relevant to a wide range of stakeholders, for real-world impact.

Student Oral Presenters: Session 1

Armineh Babikian

PhD Student

Somayah Al-Ees

MSc Student

Jacquelin Forsey

PhD Student

Francis Routledge

MSc Student

Jean Michelle Legasto-Mulvale

PhD Student

Brynna Kerr

PhD Student

Student Oral Presenters: Session 2

Beatrice Manduchi

PhD Student

Amy Nesbitt

PhD Student

Vjura Senthilnathan

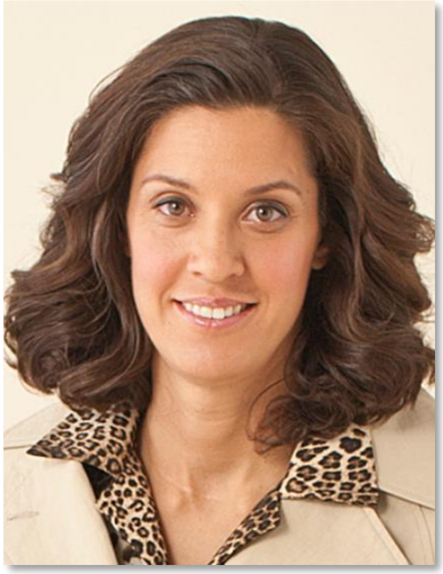
MSc Student

Emily Wood

PhD Student

Madeline Wood

PhD Student



Anita Kaiser

PhD Student

Awards and Contests

We appreciate our sponsors and in-kind donors for making these opportunities possible!

RSI Recognition Awards

> Faculty and Staff Recognition Awards
> Alumni Recognition Awards
> Student Recognition Awards

Thank you for your nominations/submissions!

Oral Presentation Competition

> The top 6 presentations will win a student award.

Submit your ballot by 12:45pm! The winners will be announced at the Awards Ceremony.

Poster Competition

We have 6 student awards up for grabs:

> Best Poster – MSc
> Best Poster – PhD
> Best Poster – People's Choice (MSc)
> Best Poster – People's Choice (PhD)
> Best Poster – Equity, Diversity, and Inclusion x 2

Submit your ballot by 2:45pm! The winners will be announced at the Awards Ceremony.

Knowledge Translation Competition

RSI students were invited to create an art-based representation of their research which will be shared at Research Day. Attendees will vote on their favourite submission.

> The top two submission will receive a knowledge translation award!

Submit your ballot by 2:45pm! The winners will be announced at the Awards Ceremony.

Social Media Contests

What better way to kick off RSI Research Day 2023 than with giveaways!

> **Event Day Twitter Raffle (Deadline: May 25th @ 2:45pm EST)**
> To participate, follow us on Twitter (@RSIUofT), keep your eyes peeled for the #RSIResearchDay #Giveaway post that will be shared on May 25th, then RETWEET it to be entered into the draw for 1 of 3 Mastercard/Visa gift cards!

All contest winners will be announced live at the Awards Ceremony on May 25th.

Good luck!


LOGO
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BANNER
VIGATION
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ONTENT 1
500 px
CONTENT
SOCIAL
FOOTER
800 px

Abstracts

Oral Presentations: Session 1

(in order of presentation)

Presentation #1: “No one left behind"? Problematizing disability representations in WHO guidelines and their effects for disabled people and rehabilitation system development in Armenia

Armenia, Babikian[1,3]; Hamdani, Yani[2,3]; Parsons, Janet[2,1]; Aslanyan, Garry[4,5]

1 Rehabilitation Sciences Institute, Temerty Faculty of Medicine, University of Toronto; 2 Department of Occupational Science and Occupational Therapy, Temerty Faculty of Medicine, University of Toronto; 3 Azrieli Adult Neurodevelopmental Centre, CAMH; 4 Centre for Global Health, Dala Lana School of Public Health, University of Toronto; 5 Special Programme on Research and Training on Tropical Diseases, World Health Organization

Field of Research: Rehabilitation Health Services Studies, Rehabilitation Governance & Development

Funding: 2022-2025 Calouste Gulbenkian Foundation Armenian Studies Scholarship, 2022-2023 Azrieli Foundation, 2022-2023 Grand Council Knights of Vartan Avak Tahlij Scholarship

Background: Following the 2020 Artsakh War, the disabled population in Armenia increased significantly as a result of complex physical injuries and psychological trauma. The response highlighted systemic gaps resulting in national priorities to further develop rehabilitation services with the guidance of the World Health Organization (WHO). While WHO guidelines are informed by UN Sustainable Development Goals (SDG) which strive for no one left behind, the conceptualization of disability within their biopsychosocial model differs from preferences of disability self-advocates who support social or human-rights models. I will examine WHO rehabilitation frameworks and taken for granted conceptualizations of disability therein to assess the implications for disabled people in Armenia.

Purpose/Hypothesis: How are disability and rehabilitation represented by WHO guidelines informing rehabilitation planning and design in Armenia? What assumptions and discourses underlie these representations? What are the implications for disabled people and person-oriented rehabilitation?

Methods: Guided by a critical social science lens and Bacchi’s What’s the Problem Represented to be?(2016) approach, a document analysis of WHO guidelines was conducted to examine how disability is represented and problematized, and the effects for disabled people when this representation informs policy and rehabilitation system development in the Armenian context.

Results: Prevailing representations within WHO guidelines view disability as something to be ‘reduced’ and utilize biomedical terminology. While this can be beneficial during conflict when survival and return to military service are priorities, it can also have unintended harmful effects for those living with congenital or lifelong disability who do problematize disability and instead prioritize human rights, access, and inclusion. As such, prevailing representations of disability underpinning national rehabilitation planning and design do not meet the needs of all service users. This has direct implications in the care disabled people receive in Armenia.

Discussion: I will discuss the potential beneficial and harmful consequences for disabled Armenians when these representations guide rehabilitation service delivery and sustainable development.

Significance and Implications for Person-Oriented Research: Significance and implications for person-oriented research:,I will propose ways to rethink the aims of rehabilitation through co-design with disabled people and a human-rights lens, and contribute to UN SDGs 3, 10, and 16, each of which have been reported to still have 'significant challenges' in Armenia.

Presentation #2: Voluntary Elimination of Nasality in Typical Speakers using Forward Voice Focus and Biofeedback

Al-Ees,Somayah[1]; Bressmann,Tim 2

1 Rehabilitation Sciences Institute, Temerty Faculty of Medicine, University of Toronto; 2 Speech-Language Pathology, Temerty Faculty of Medicine, University of Toronto

Field of Research: Speech-Language Pathology

Funding: Dr. Tim Bressmann's Natural Sciences and Engineering Research Council of Canada (NSERC)

Background: Nasality disorders, such as hypernasality, impact speech intelligibility and cause social stigma. Hypernasality results from the failure of the velopharyngeal sphincter to regulate nasality. Current speech therapy interventions have limited efficacy due to the difficulty in voluntary control of the sphincter. Therefore, there is a need to explore new approaches for reducing nasality.

Two techniques have been reported to have promising results in reducing nasality; forward voice focus by constricting the vocal tract and aiding velopharyngeal sphincter closure, and biofeedback to monitor nasality in treatment. This study aims to assess the efficacy of combining these techniques in eliminating nasality.,

Purpose/Hypothesis: The combination of forward voice focus and biofeedback will lead to a significant reduction in nasality in the speech of typical speakers, as indicated by a decrease in nasalance score after the intervention.

Methods: Twenty typical speakers were divided into two groups to receive visual or tactile biofeedback. Nasometer collected Nasalance Scores for sentences with nasal sounds in different conditions, beginning with a baseline, followed by reducing nasality using forward voice focus and biofeedback, ending with a recording without biofeedback. Descriptive and inferential statistics were used to compare the nasalance scores between the baseline and the final recording.

Results: Both visual and tactile biofeedback groups showed significant reduction in nasalance scores after treatment ($p<0.001$). The visual biofeedback group showed a decrease in scores (ANOVA: $F(2,18)=49.06$, $p<0.001$), dropping from 59.99 (SD 7.85) at baseline to 28 (SD 14.75) without biofeedback. Similarly, the tactile group had ';9reduction (ANOVA: $F(2,17)=21.83$, $p<0.001$), dropping from 61 (SD 8) at baseline to 32.9 (SD 18.94) without biofeedback.

Discussion: Though participants recognize the importance of AEx testing in PwS, there are many barriers that limit their use of AEx testing in IP SR.

Discussion: The results of this study provide evidence for the effectiveness of combining forward voice focus and biofeedback in reducing nasality in typical speakers. However, further studies are needed with hypernasal speakers to validate these findings.

Significance and Implications for Person-Oriented Research: This study extends beyond clinical practice to the knowledge base and suggests that forward voice focus facilitates velopharyngeal closure, which has implications for understanding the mechanisms of nasality control. This program's design allows for a person-oriented approach by customizing it to the individual's needs through adjusting its intensity and combining it with other interventions such as flap surgery and speech prosthesis.

Presentation #3: Exploring the role of basic communication science in clinical teaching and learning

Forsey, Jacquelin[1,4]; Ng, Stella[2,4]; Rowland, Paula[4,1]; Freeman,Risa [5]; Woods, Nikki[3,4]

1 Rehabilitation Sciences Institute, Temerty Faculty of Medicine, University of Toronto; 2 CACHE, UHN; TIER, Michener Institute, UHN; 3 The Wilson Centre, Temerty Faculty of Medicine, UHN; 4 Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto

Field of Research: Other, Health Professions Education

Funding: OGS, Stella Ng's grant, Rehabilitation Sciences Institute

Background: Healthcare professionals (HCP) must be adaptive communicators experts, navigating a complex interaction of high stakes, emotional situations, and contextual variation, but current communication training programs rarely prepare HCPs to meet this challenge. Previous research has established that integration of basic science into a clinical curriculum supports the development of adaptive expertise, which enables HCPs to manage this complexity. Our review of the literature identified six conceptual groupings that represent the basic science of patient-provider communication. The current study examined if and how these concepts manifest in clinical teaching scenarios.

Purpose: The purpose of this work is to understand how basic communication science concepts manifest in clinical teaching and learning encounters**.**

Methods: To address our research question we observed clinical teaching encounters between medical trainees and staff developmental pediatricians at Holland Bloorview Kids Rehabilitation Hospital in Toronto, Canada. Subsequently, we conducted interviews with the staff to probe their knowledge and beliefs about patient communication and training approaches. This data was analysed qualitatively taking an abductive approach and using previously established conceptual groupings as sensitizing concepts.

Results: Constructs from 5 of the 6 conceptual groupings were evident broadly across the data. Staff physicians placed a particular emphasis on communication aimed at creating alignment with families, sharing information clearly, and building emotional connections. Language tools that shaped power dynamics and identity formation operated implicitly but were never discussed directly with trainees.

Discussion: Integration of theoretical and conceptual knowledge is known to improve learning outcomes. The first step in improving educational design is a strong understanding of current practices. This work is that first step, bridging theory and practice.

Significance and Implications for Person-Oriented Research: Our results highlight the strengths of current communication training and illuminate areas where more in-depth and nuanced communication science would enable learners to develop the adaptive expertise, they will require to provide the relationship-centered care their patients deserve.

Presentation #4: Exploring the Self-Diagnosis Experiences of Autistic Women and Non-Binary People at the Intersection of Gender and Autism

Routledge, Francis[1,2]; Hamdani, Yani[3,2]; Thulien, Naomi[4,5]; Lai, Meng-Chuan[6,7]

1 Rehabilitation Sciences Institute, Temerty Faculty of Medicine, University of Toronto; 2 Azrieli Adult Neurodevelopmental Centre, Centre for Addiction and Mental Health; 3 Department of Occupational Science and Occupational Therapy, Temerty Faculty of Medicine, University of Toronto; 4 MAP Centre for Urban Health Solutions, Li Ka Shing Knowledge Institute, St. Michael's Hospital; 5 Dalla Lana School of Public Health, University of Toronto; 6 Child and Youth Mental Health Collaborative, Centre for Addiction and Mental Health, The Hospital for Sick Children; 7 Department of Psychiatry, Temerty Faculty of Medicine, University of Toronto

Field of Research: Social Sciences Perspectives, Social and Cognitive Rehabilitation

Funding: Rehabilitation Sciences Institute, CAMH Azrieli Adult Neurodevelopmental Centre, Ontario Association on Developmental Disabilities

Background: Many Autistic adults, particularly women and non-binary people, have relied on or arrived at self-diagnosis either by choice or because they lack access to adult Autism assessment services. Limited understandings of Autism for non-men contribute to misdiagnosis, under-diagnosis, and diagnosis later in life. Moreover, males are two to three times more likely to receive an Autism diagnosis than females. Autism, commonly diagnosed as Autism Spectrum Disorder in medicine, has been heavily researched from a neurobiological perspective focused on deficits in communication, interaction, and expression. Less attention has been paid to lived experience perspectives of self-diagnosed Autistic people.

Purpose/Hypothesis: This study explores the self-diagnosis experiences of Autistic women and non-binary people at the intersection of gender and Autism and aims to: (1) describe self-diagnosis experiences of Autistic women, (2) examine how understandings of diagnosis, gender, and Autism shape their self-diagnosis experiences, and (3) explore the implications for them and their lives.

Methods: This critical qualitative study elicited the perspectives of seven Autistic women and non-binary people in Ontario through either a virtual interview or an open-ended written questionnaire. Drawing on reflexive thematic analysis procedures, interview and questionnaire data were analyzed both inductively to describe self-diagnosis experiences and deductively to examine assumptions and power relations underlying understandings of diagnosis, gender and autism using critical Autism studies and intersectionality as theoretical lenses.

Results: Gendered understandings about Autism presentation and prevailing assumptions about Autism as deficit-based pathology contribute to women and non-binary people relying on or choosing self-diagnosis. Some participants chose self-diagnosis because they could not access clinical assessment, whereas others preferred self-diagnosis. Autism self-diagnosis provided a basis for self-acceptance, connection to other Autistic people, and informal accommodations.

Discussion: This analysis will provide a critical foundation for creating needed support to address Autism diagnostic barriers, health care apprehension, and provides insight into a process undertaken by many Autistic adults.

Significance and Implications for Person-Oriented Research: This research centers the lived experiences of a group that has not had equitable access to Autism assessment services and challenges the extent that Autism health and diagnostic services are person-centered vs system-centered.

Presentation #5: Experiences of physical therapists with implementing submaximal aerobic exercise testing in in-patient stroke rehabilitation: preliminary results of a realist evaluation

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Field of Research: Movement Science

Funding: Dr. Nancy Salbach's (Supervisor's) Grants, Rehabilitation Sciences Institute

Background: Aerobic exercise (AEx) testing helps physical therapists (PTs) ensure that people post-stroke respond safely to AEx and determine an AEx training intensity to sufficiently challenge the cardiovascular system. There are a range of practitioner- and organisation-related barriers that prevent PTs from implementing AEx testing. Understanding how PTs working in stroke rehabilitation (SR), who perform AEx testing, overcome these barriers will help provide more meaningful and feasible guidance for how PTs in similar settings can implement AEx testing.,

Purpose/Hypothesis: Our study aimed to describe how PTs make sense of and apply AEx testing in in-patient or out-patient SR settings, to explore the contextual factors influencing PTs' decisions when implementing AEx testing, and to understand how PTs overcome the barriers to AEx testing.

Methods: A qualitative realist evaluation, involving semi-structured Zoom interviews, was conducted with PTs who perform submaximal AEx testing in Canadian in-patient or out-patient SR settings. Transcripts were analyzed using directed content analysis, guided by the Theoretical Domains Framework, to describe the relationships between contextual factors, mechanisms of action, and the outcome of interest (AEx testing).

Results: Ten PTs were interviewed. Preliminary analysis revealed the following context-mechanism-outcome configurations: 1) Low functional status? Low prioritization: When patients with stroke require significant assistance for transfers and ambulation, AEx testing and training were not prioritized; 2) Walking tests for walking goals: When PTs and patients prioritize walking, walking tests were performed, even if they did not guide AEx prescription; 3) Guide to prescribe: When PTs have access to site-specific AEx testing forms, practice guides, experts, and hands-on training, they used AEx testing to guide AEx prescription.

Discussion: Preliminary findings highlight the impact of patients' functional ability and goals, and PTs' access to AEx testing resources on PTs' use of AEx testing in SR.

Significance and Implications for Person-Oriented Research: Ensuring patients, PTs, and health care organizations are informed of the benefits of AEx training on function may help PTs to prioritize AEx testing during SR. Additionally, providing guidance on how to use walking tests to guide AEx prescription may enable more PTs to prescribe an appropriate AEx training program post-stroke. Lastly, site-specific training and access to AEx testing resources may facilitate PTs more regular use of AEx testing to guide AEx prescription during SR.

Presentation #6: A content analysis of the concussion education provided to Canadian high school students during a peer-led concussion education program

Kerr, Brynna[1]; Wilson, Katherine[2]; Ippolito, Christina[2]; Mallory, Kylie[3,1]; Kroshus, Emily[4,5]; Hutchison, Michael [6,7]; Reed, Nick[1,2]

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Field of Research: Rehabilitation Health Services Studies, Knowledge Translation

Funding: 2022-2023 Ontario Graduate Scholarship, Dr. Reed's Canadian Institutes of Health Research (CIHR) Project Grant

Background: Concussion education delivered in the school setting has the potential to improve concussion knowledge and behaviours in youth. In particular, peer-led education programs may be beneficial as they allow youth to adapt concussion education to their needs. However, to date, no studies have assessed the content shared during a peer-led concussion education program. An analysis of the content shared and dissemination strategies used by students during a peer-led concussion education program can provide insights into the extent of the concussion education provided to students and students' preferred dissemination strategies.

Purpose/Hypothesis: Explore the information shared within three high schools' peer-led concussion education programs and describe the dissemination strategies applied by students to share concussion content with peers.

Methods: Three Canadian high schools delivered peer-led concussion awareness campaigns during the 2021-2022 school year as part of the Youth Concussion Awareness Network (You-CAN) program. Campaign details and materials were retrieved from each school through email and an online campaign details form. A coding framework comprised of eight concussion topics was created to describe the content included within each school's concussion awareness campaign. Topics covered by each school and the dissemination strategies used by students during their concussion awareness campaigns were summarized using descriptive statistics.

Results: Students covered an average of 42% of concussion topics within their concussion awareness campaigns. In total, students used six different dissemination strategies (e.g., videos and posters) to share concussion information with their peers. No schools used the same dissemination strategies.

Discussion: Concussion education initiatives self-directed by high school students may not address all pertinent topics related to concussions. As such, additional program guidelines may be needed to support the creation of more holistic concussion education interventions.

Significance and Implications for Person-Oriented Research: Education programs directed at schools should take a person-centred approach by tailoring dissemination strategies to students' unique environments as school context and students' learning needs and preferences can vary. Meanwhile, research should continue to explore students' concussion education needs and preferences to facilitate the design and implementation of more personalized and impactful education programs.

Oral Presentations: Session 2

(in order of presentation)

Presentation #7: Development of a core outcome set to measure patient-reported dysphagia in head and neck cancer clinical trials using Delphi consensus

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Field of Research: Speech-Language Pathology

Funding: 2022-2023 Peterborough K. M. Hunter Graduate Award,Dr. Rosemary's Martino's Canada Research Chair in Swallowing Disorders

Background: Dysphagia (swallowing disorders) is one of most common and debilitating consequences of Head and Neck Cancer (HNC). Measuring dysphagia-related patient-reported outcomes (PROs) with is a complex task: current PRO selection is heterogenous and inconsistent, with no declared agreement regarding which dysphagia-related PROs must be captured in HNC clinical trials. Implementing agreed standardized sets of outcomes, known as core outcome sets (COS), can help minimize inconsistency in outcome selection and reporting across studies.

Purpose/Hypothesis: This study aimed to engage a group of international HNC stakeholders to derive a COS of patient-reported dysphagia for use in HNC clinical trials.

Methods: A Delphi survey was previously developed, containing a comprehensive list of available dysphagia-related PRO items in HNC. A purposefully selected sample of HNC experts was invited to participate in a 2-Round modified Delphi technique. Round 1: Participants were invited to complete the Delphi survey by voting on the importance of each item on a 5-point Likert scale. Items rated as important or extremely important by >70% participants and extremely not important or not important by <15% were moved forward to the next Round. Round 2: All participants took part to a synchronous consensus meeting to discuss items in disagreement; subsequently, they completed the Delphi survey once again. Items rated as extremely important by >70% and extremely not important or not important by <15% formed the final COS.

Results: A total of 104 PRO items formed the initial Delphi survey. N=45 participants from 9 countries were recruited: n=9 were HNC patients and caregivers and n=36 clinicians and researchers (i.e., SLPs, radiation, surgical and medical oncologists, social workers, nurses and dentists). Round 1: N=40 items were deleted and n=64 retained. Round 2: a final 4-outcome COS was derived, including: patient report of swallowing difficulty, choking when swallowing, pain when swallowing, and swallowing difficulty impacting quality of life.

Discussion: This study reached consensus on the 4 most important dysphagia-related patient-reported outcomes to capture in HNC clinical trials. It is recommended that these core concepts are captured in all HNC clinical trials, to facilitate meaningful treatment comparisons and improve the quality of data synthesis.

Significance and Implications for Person-Oriented Research: Including HNC patients and caregivers in this study ensured that their opinion shaped the development of standards for outcome measurement in HNC. This partnership represented a critical step towards the promotion of patient-oriented research.

Presentation #8: A scoping review of resilience among transition-age youth with serious mental illness: Tensions, knowledge gaps, and future directions

Nesbitt, Amy[1]; Sabiston,Catherine[2]; deJonge,Melissa[2]; Barbic,Skye[3,4]; Kozloff,Nicole[5,6]; Nalder,Emily[1,7]

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Field of Research: Occupational Science

Funding: CGS-D award from CIHR, Dr. Catherine Sabiston's Canada Research Chair in Physical Activity and Mental Health,Dr. Emily Nalder's Canada Research Chair in Resiliency and Rehabilitation

Background: The study of resilience among transition-age youth (aged 16-29 years) living with serious mental illness (SMI) has provided a promising new direction for research with the capacity to explore both one's strengths and environmental resources. However, variability in how resilience is defined and measured has led to a lack of conceptual clarity.

Purpose: The purpose of the current study was to map how resilience has been conceptualized and operationalized among transition-age youth with SMI, explore resilience factors and outcomes that have been studied, and recommend areas for future research.

Methods: A six-stage scoping review methodology was used to systematically identify relevant empirical literature across multiple databases. Consultative meetings were conducted to gather feedback from transition-age youth with SMI, researchers, and clinicians on the review methods and findings. A meta-narrative approach was used to organize included studies into research traditions (i.e., paradigms of inquiry with similar storylines, theoretical and methodological orientations). Resilience factors and outcomes, and the consultative meetings, were analyzed using content analysis.

Results: Twenty-four studies met inclusion criteria (14 quantitative, 9 qualitative, 1 mixed-method). Four research traditions were identified, each contributing a unique storyline which conceptualized and operationalized resilience in different ways: Stress Adaptation, Person-Environment Interactions, Recovery-Focused, and Critical and Cultural Perspectives. Resilience factors and outcomes were most commonly evaluated at the individual-level or within the immediate environment (e.g., personal characteristics, social support networks). Limited research has explored the influence of macro-level systems and health inequalities on resilience processes. Participants in the consultative meetings prioritized further research to understand health services and sociocultural factors shaping processes of resilience among youth.

Discussion: Limited research has explored the influence of macro-level systems and health inequalities on resilience processes. Participants in the consultative meetings prioritized further research to understand health services and sociocultural factors shaping processes of resilience among youth.,

Significance and Implications for Person-Oriented Research: The results highlight future research directions and a large breadth of transdiagnostic resilience factors that could be harnessed in developing youth-specific and resilience-informed services. Interdisciplinary and intersectional research that prioritizes community and youth engagement is needed to advance person-oriented research and care approaches among transition-age youth with SMI.

Presentation #9: The development of an online mindfulness program for individuals with spinal cord injury

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Field of Research: Rehabilitation Health Services Studies

Funding: Branch Out Neurological Foundation, Canada Graduate Scholarships – Master's program (CGS-M), Dr. Sarah Munce's (Supervisor's) Craig H. Neilsen Foundation PSR Pilot Grants

Background: Individuals with spinal cord injury (SCI) are at risk for developing mental health issues such as depression and anxiety. Mindfulness programs can be effective in addressing these issues; however, there is a need to determine the preferred adaptations for a mindfulness-based intervention (MBI) for individuals with SCI given their neurological injury and that an online intervention could be a more accessible format for them.

Purpose: To determine the implementation considerations for an online MBI tailored to the needs of SCI individuals.

Methods: This study was a cross-sectional, online survey with an integrated knowledge translation (iKT) approach. 255 individuals with SCI (167 males, mean age 36.63, SD 8.72) across Canada and the United States completed this online survey. Participants indicated their preferences on different aspects of the program (e.g., who should deliver the program, how should the program be delivered, etc.). The content of the survey was informed by an earlier qualitative study and the Template for Intervention Description and Replication (TIDieR) framework.

Results: Preliminary data analyses suggest that pre-recorded webinars were the most preferred format for an online MBI. Participants preferred having the intervention delivered by a person with lived SCI experience. Regarding duration and frequency of intervention administration, preferences were for between 8-12 weeks and 2 sessions per week, respectively. The preferred length of each session was 30-45 minutes. Participants preferred having the online MBI introduced during the rehabilitation period.

Discussion: This is the first study to determine the preferred adaptations for an online MBI for individuals living with SCI. This research will provide recommendations for implementing an online MBI tailored to the unique needs of SCI individuals.

Significance and Implications for Person-Oriented Research: With the iKT approach, we partnered with people with lived SCI experience throughout the research process (from research proposal development to dissemination of findings) to develop and implement a relevant and sustainable intervention for individuals with SCI. This research will lead to the implementation of an intervention that will improve the emotional and physical health as well as the quality of life of individuals with SCI.

Presentation #10: Validity of dynamic assessments of word reading skills in diverse groups of school-aged children: A systematic review and meta-analysis

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Field of Research: Speech-Language Pathology, Education

Funding: SSHRC CGS-M, OGS, RSI

Background: Existing word reading assessments have been developed for English monolinguals and cannot be used to identify reading difficulty for the 41.2% of Canada's population that are bilingual. Dynamic assessments (DAs) which evaluate ability to learn rather than acquired knowledge, can reduce impact of previous experience and minimize linguistic bias in testing.

Research Questions: This systematic review and meta-analysis examined concurrent and predictive validity of DAs of word-reading skills to determine whether they are valid alternatives to static assessments (SAs). The consistency of validity across DAs of word-reading skills (phonological awareness (PA), sound-symbol knowledge (SSK), decoding) and across populations defined by language (monolingual, bilingual) and reading (typically developing, at-risk) status was examined.

Methods: Five electronic databases (Medline, Embase, PsycINFO, ERIC, and CINAHL), three preprint repositories (MedRxiv, PsyArXiv, and EdArXiv), and the gray literature were searched between March and December 2022 to identify studies that examined a word reading DA, with participants aged 4-10 and that reported a Pearson's correlation coefficient. Information regarding participant characteristics, DA, SA, and word reading outcome measures (WROMs), and study design were extracted. Random effects meta-analyses for concurrent and predictive validity, and subgroup analyses based on participant language and reading status were conducted.

Results: 34 studies from 32 papers were identified. We observed a strong relationship between DAs and SAs (r=.60). DAs of decoding (r=.54) and PA (r=.73) demonstrated significantly stronger correlations with SA counterparts than DAs of SSK (r=.34). We observed a similarly strong relationship between DAs and WROMs (r=.57), independent of the type of measure. A stronger relationship between DAs and SAs was observed for bilinguals, but there were no significant differences between language groups for the predictive validity of DAs or between reading status groups for concurrent or predictive validity.

Significance and Implications for Person-Oriented Research: Results suggest that DAs of PA and decoding skills are alternatives to SAs of equivalent constructs and are valid for the prediction of word reading across populations regardless of language or reading status children aged 5-6. However, more research conducted with well-defined bilingual populations is required given the limited number of studies that included bilingual participants.

Presentation #11: Elevated vascular risk and earlier menopause synergistically drive cognitive decline in Canadian postmenopausal women

Wood, Madeline E.[1,2]; Wu, Che-Yuan[3, 2]; Buckley, Rachel F.[4, 5]; Swardfager, Walter[3, 2]; Masellis, Mario[6,2]; Galea, Liisa[7,8]; Black, Sandra E.[6,2]; Rabin, Jennifer S.[1, 2, 9]

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Field of Research: Neuroscience

Funding: 2022-23 CIHR Master's Scholarship, CIHR: 173253, 438475, Alzheimer Society of Canada

Background: Menopause-related estrogen depletion is linked to greater cardiovascular risk (Muka et al, 2016), Alzheimer's disease pathology (Bove et al., 2014), and dementia risk in women (Gong et al., 2022). Age at menopause and vascular risk factors may together influence the likelihood of developing AD in women, but this has not yet been studied.

Purpose: We investigated whether earlier menopause and elevated vascular risk independently or synergistically influence cognitive decline in postmenopausal women, relative to age-matched men.

Methods: We used data from the Canadian Longitudinal Study on Aging. We included 8,804 postmenopausal women (mean age=64.6±8.55 years, mean age-at-menopause=50.1±5.05 years) and 8,804 age-matched men. Sex was operationalized using self-reported sex at birth. Vascular risk was calculated using a summary score of hypertension, diabetes, smoking, obesity, and high cholesterol. Participants completed cognitive assessments at baseline and 3-year follow-up. For some analyses, self-reported age-at-menopause was categorized as early (<49) or average/late (≥49). Linear models tested independent and interactive effects of age-at-menopause and vascular risk on 3-year cognition, adjusting baseline cognition, baseline age, education, test language (English/French), history of hormone therapy, and time to follow-up.

Results: In women, vascular risk and age-at-menopause were independently associated with cognitive decline (vascular risk: β=-0.08, p=.006; age-at-menopause: β=0.004, p<.001). Vascular risk was also associated with cognitive decline in men (β=-0.06, p=.01). When examining synergistic effects of age-at-menopause and vascular risk in women, earlier menopause and elevated vascular risk interactively drove greater cognitive decline (β=0.01, p=.03). We next compared men and women. Relative to men, vascular risk was associated with greater cognitive decline in women with early menopause (β=-0.14, p=.008) but not in women with average/late menopause (β=0.06, p=.2). Sensitivity analyses additionally adjusting for physical activity, race/ethnicity, depression, and alcohol consumption yielded similar results. ,,Discussion: ,Early menopause and vascular processes synergistically drive cognitive decline in postmenopausal women. These findings provide novel insight into how vascular and hormonal factors together relate women's risk for Alzheimer's disease.

Significance and Implications for Person-Oriented Research: Dementia is one of the most pressing health issues for Canadian women. A better understanding of sex-specific contributions to Alzheimer's risk is crucial for developing effective interventions to treat and prevent dementia. If earlier menopause and vascular risk interact to drive Alzheimer's risk, precision interventions addressing both factors could substantially delay the onset and progression of dementia in women.

Presentation #12: Implementation challenges of activity-based therapy in Canada: A comparative analysis across key interest groups

Kaiser, Anita[1,2]; Chan, Katherine[2]; Sessford, James[2]; McCullum, Shane[3]; Athanasopoulos, Peter[4]; Rice, Chris[2]; MacRitchie, Iona[5]; Zariffa, José[1, 2]; Musselman, Kristin E.[1, 2]

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Field of Research: Rehabilitation Health Services Studies, Practice Science

Funding: Dr. Kristin Musselman's (Supervisor's) Canadian Institutes of Health Research Catalyst Grant,2020-2023 Vanier Canada Graduate Scholarship Doctoral Scholarship, 2019-2020 KITE-Toronto Rehab's TD Graduate Scholarship for People with Disabilities Doctoral Scholarship

Background: Spinal cord injury or disease (SCI/D) often leads to significant sensorimotor loss and resulting comorbidities that can have a devastating impact on an individual's independence and quality of life. Activity-based therapy (ABT) has emerged as a novel therapeutic approach that may promote neurorecovery, reduce secondary complications and improve overall quality of life. In spite of the numerous health benefits, adoption of ABT has been limited across the care continuum.

Purpose: The objective of this study was to understand and compare multi-group perspectives on the challenges that hinder implementation of ABT in Canada for people living with SCI/D.

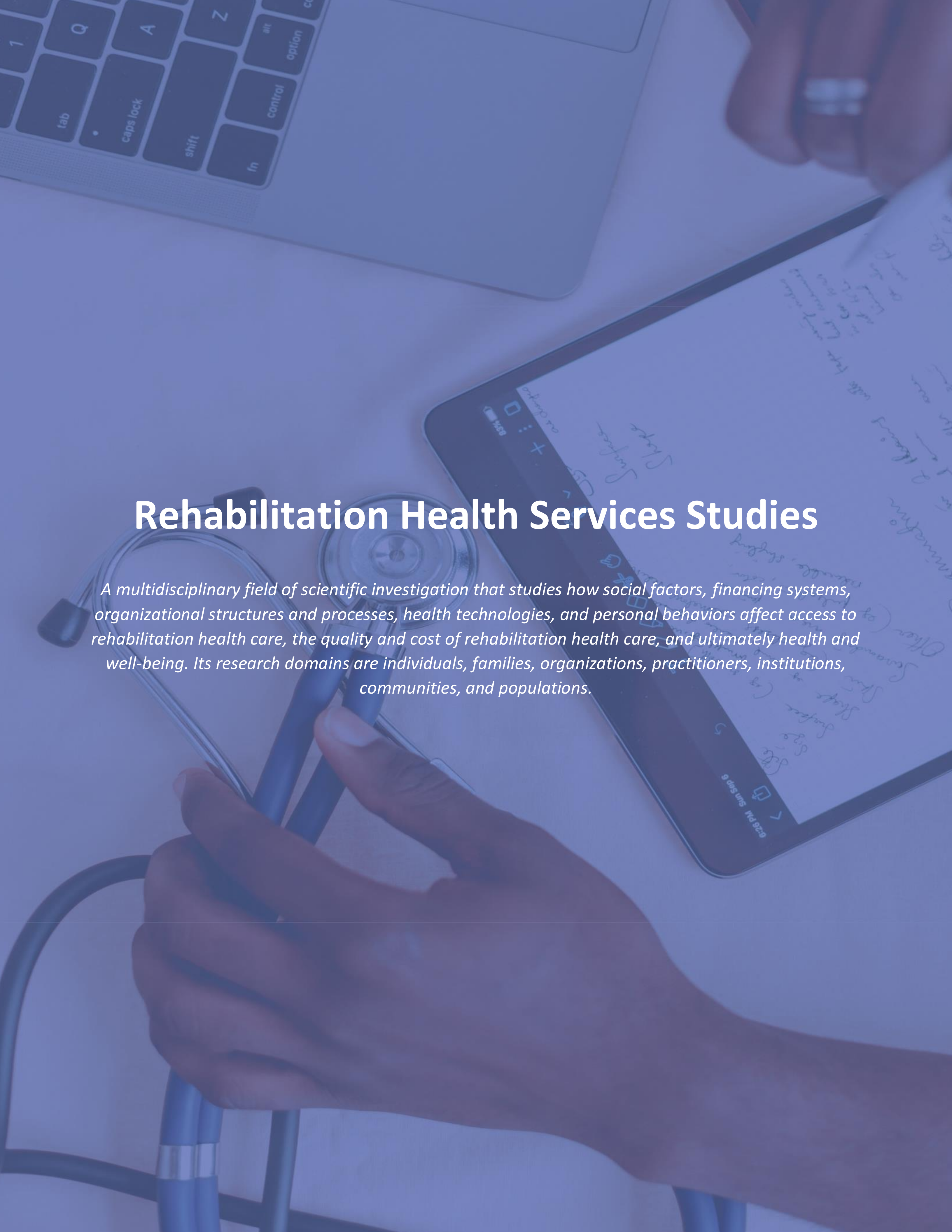
Methods: Individuals from six key interest groups (i.e., researchers; persons living with SCI/D; hospital and community administrators; physical and occupational therapists; community-based exercise trainers; and funders, advocates and policy experts), who had knowledge of and/or experience with ABT, were recruited to participate in focus group interviews that were held over web conferencing. Participants were asked about the barriers and facilitators to practicing ABT. Interviews were audio recorded, transcribed verbatim, and analyzed using conventional content analysis followed by a comparative analysis across groups.

Results: Forty-eight individuals participated in interviews lasting 30-80 minutes. Six themes were identified: 1) Challenge of defining ABT and addressing gaps in knowledge and training; 2) Challenge of standardizing ABT; 3) Challenge of determining the optimal timing of ABT; 4) Challenge of defining, characterizing and achieving high dosage and intensity; 5) Challenge of funding ABT; and 6) Challenge of measuring participation and performance in ABT. While all groups acknowledged these six challenges, therapists and community trainers viewed knowledge and training gaps, and achieving high dosage and intensity as key challenges. Researchers and advocates emphasized funding as a key challenge.

Discussion: Participants highlighted the challenges that limit adoption of ABT into practice within hospital and community settings in Canada.

Significance and Implications for Person-Oriented Research: Future research should explore strategies to address these challenges with a co-design approach that includes all respective interest groups identified in this study to support successful implementation of ABT in Canada.

Poster Abstracts



Rehabilitation Health Services Studies

A multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to rehabilitation health care, the quality and cost of rehabilitation health care, and ultimately health and well-being. Its research domains are individuals, families, organizations, practitioners, institutions, communities, and populations.

Poster #1A: Expectations and demand for a home-based videogaming therapy program in families of children with cerebral palsy in Costa Rica

Chan-Viquez, Daniela[1,3]; Fernandez-Huertas, Heilyn[2]; Chacon-Vargas, Fernanda[2]; Montserrat-Gonzalez, Carles[2]; Munce, Sarah[4]; Fehlings, Darcy[3,5]; Wright, Virginia[1,3]; Biddiss, Elaine[3,6]

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Funding: Azrieli Foundation Research Support Fund, Dr. Elaine Biddiss (supervisor) Canada Institute of Health Research Grant

Background: Children with cerebral palsy (CP) living in developing countries usually face limited access to motor therapy services. Rehabilitation videogame home interventions (VG-HI) can facilitate access to care. However, how likely are these interventions to be used by families of children with CP in developing countries needs to be explored.

Purpose: To explore the demand for a movement-tracking VG-HI designed for upper limb (UL) rehabilitation among Costa Rican children with CP. Success criteria included: recruiting ≥ 3 participants/month, ≥80% had an appropriate screen and space to play, participants setting a weekly play time goal (PTG) of ≥45 minutes and identified at least one UL therapy goal. Family expectations for the VG-HI were explored.

Methods: Eligible participants had a CP diagnosis (7-17 years old), difficulty manipulating objects or performing activities of daily life with at least one UL, communicated verbally and had a parent who participated. Data were collected via telephone screenings and Zoom interviews. Descriptive statistics were reported for success criteria and a qualitative descriptive approach was used for interview data.

Results: 15 children-parent dyads participated (2 ± 1 dyads/month). All had a TV flat screen in an area with 3x3 meters of free space. Weekly PTGs ranged from 45-80 minutes. All but one interview (missing data) was analyzed and four main themes influencing the demand of the VG-HI were identified: sociocultural factors, cultural neglect of UL function, feelings of hope, and motivation for participating.

Discussion: The narrow inclusion criteria affected recruitment rate. Having a flat-screen TV and a small space to play is feasible for most Costa Rican families. The ability to fit the VG-HI into the main caregiver responsibilities and changing school schedules was important for participants, who were also willing to replace part of their leisure screen time to play the VG-HI, enabling weekly PTGs ≥45 minutes. The absence of cultural focus in improving UL function resulted in participants needing help from the interviewer in identifying their UL goals. Children were motivated by the fun component of the VG-HI, while parents were interested in its therapeutic value, with a shared feeling that any therapy is better than no therapy.

Significance and Implications for Person-Oriented Research: This study provides valuable insights into the demand for a movement-tracking VG-HI in Costa Rican families with children with CP, and how this intervention can be implemented to improve access to motor rehabilitation care.

Poster #2B: Addressing Balance Impairments and Concerns About Falling in Dementia: A Qualitative Study with Rehabilitation Clinicians

Dove, Erica[1,2]; Avila, Shane[2]; Wang, Rosalie[1,2]; Patterson, Kara[1,2]; Astell, Arlene[2,1]

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Funding: Alzheimer Society of Canada - Alzheimer Society Research Program (ASRP): Doctoral Award, AGE-WELL NCE Graduate and Postdoctoral Award in Technology and Aging - Doctoral Award, Ontario Graduate Scholarship - Doctoral Award,

Background: People living with dementia have two to eight times more falls than older adults without dementia. Major risk factors for falls in dementia include balance impairments and concerns about falling. Rehabilitation clinicians primarily develop and deliver interventions to prevent or recover from injury (e.g., falls). However, limited evidence exists about programs designed specifically for people with dementia.

Purpose: To understand how rehabilitation clinicians address balance impairments and concerns about falling in dementia.

Methods: Rehabilitation clinicians (n=7; 100% female; 4 Occupational Therapists [OT], 3 Physiotherapists [PT]; mean age: 35.9 years) participated in semi-structured interviews, with questions related to balance rehabilitation, concerns about falling, and cognitive impairment. Interview data were transcribed and analyzed via reflexive thematic analysis to identify prevalent themes.

Results: None (0%) of the recruited clinicians worked directly with people with dementia in their practice. However, they worked with people living with other cognitive disabilities (e.g., 57.1% stroke). Rehabilitation clinicians reported several ways to accommodate clients' cognitive impairments (e.g., repetition, cues, etc.) and emphasized individual tailoring of exercise programs. Across the differing population of focus, the clinicians heavily emphasized balance rehabilitation and fall prevention. Clinicians directed less attention toward concerns about falling.

Discussion: The data confirmed a lack of focus on rehabilitation interventions to address fall risk in people with dementia.

Significance and Implications for Person-Oriented Research: Evidence and lessons from other populations with acquired cognitive impairment can help to inform new interventions targeting balance impairments and concerns about falling for people with dementia who are at risk of falls.

Poster #3A: Systematic Review and Meta-analysis of Interactive Digital Self-Management Interventions for Chronic Respiratory Disease

Michaelchuk, Wade[1,2]; Quach, Shirley[2,3]; Benoit, Adam[2,3]; Maybank, Aline[2,6]; Oliveira, Ana[2,5]; Goldstein, Roger[2,4]; Brooks, Dina[2,3]

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Funding: D.B. holds National Sanitorium Association Chair in Respiratory/Pulmonary Rehabilitation Research

Background: Interactive, digital self-management (IDSM) interventions utilizing web applications, mobile applications, and wearable devices have the potential to help individuals with chronic respiratory disease effectively manage their condition, but this is not well understood.

Purpose: The aim of this review was to summarize the effectiveness of IDSM interventions for individuals with chronic respiratory diseases.

Methods: Medline, Embase, Scopus, CINAHL, and Cochrane databases were searched. Three reviewers screened titles, abstracts, and two reviewers screened full texts of studies meeting the following inclusion criteria: 1) applications or wearable devices for IDSM, 2) randomized controlled trials, and 3) adults with chronic respiratory disease. Articles were excluded if interventions did not feature an interactive component (e.g., communication or monitoring only) or were not available in English, French, or Portuguese. Study characteristics, intervention design information, and outcomes were extracted.

Results: The search generated 93,419 studies. Twenty-six studies were included in the qualitative synthesis and 17 in the quantitative synthesis. Studies evaluated 1726 individuals with asthma (age 31 to 57, FEV1%predicted 60 to 95) and 1254 individuals with chronic obstructive pulmonary disease (COPD; age 62 to 73, FEV1%predicted 36 to 69). Most studies evaluated an IDSM application compared to a control group featuring no IDSM application (n=21, 80.8%). Median (range) intervention length was 24 (2-52) weeks with daily use most prescribed (n=8, 30.8%) and educational information often featured (n=20, 76.9%). Meta-analysis for studies in COPD examined exercise capacity, disease-specific quality of life, general quality of life, health status, and physical activity. IDSM interventions showed a greater effect than control for health status (COPD Assessment Test score (mean difference [95%CI]): -2.67 [-4.31, -1.21], P<0.01) and physical activity (steps per day: 627.65 [104.23, 1151.06], P<0.05). Meta-analysis for asthma studies showed no effects greater than control.

Discussion: Interactive digital self-management interventions may lead to improved health status and physical activity in individuals with COPD but may not provide additional benefit to adults with asthma.

Significance and Implications for Person-Oriented Research: This work will influence future research on digital self-management and has the potential to influence clinical care and self-management strategies for individuals with chronic lung diseases.

Poster #4B: A systematic review of physical interventions for the rehabilitation of upright balance control and balance confidence in people with chronic, motor incomplete spinal cord injury/disease

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Funding: Dr. Kristin Musselman's (Supervisor's) CHRP Grant, Rehabilitation Sciences Institute, Support the Troops National Scholarship, Veteran's Memorial Scholarship, Toronto Rehabilitation Institute Scholarship

Background: The number of interventions targeting upright balance control in neurorehabilitation is growing. To assist with informed clinical decision-making, evidence syntheses are needed to demonstrate the available options, the efficacy of the interventions, and considerations for who and how the intervention can be effectively applied.

Purpose: To describe the efficacy and dosage of interventions targeting upright balance control (i.e., intervention) on measures of balance control and balance confidence (i.e., outcomes) in adults with motor incomplete spinal cord injuries/diseases SCI/D (i.e., population).

Methods: A review with six databases being systematically searched. Title, abstract, and full-text screening were conducted by two researchers independently. Data extracted from included articles included: participant characteristics, balance intervention details, the occurrence of adverse events, outcome measures used, and study results. The Downs and Black Checklist was used to assess the methodological quality.

Results: The search returned 1,267 unique studies, with 26 included. Methodological quality ranged from fair to excellent. A total of 420 individuals with SCI/D aged 18-74 years (2.4 times more males than females) participated. Pre-post (54%) and randomized clinical trials (27%) were the most common study designs. Clinically significant Berg Balance Scale (BBS) improvements were seen in the body weight-supported treadmill, functional electrical stimulation with standing balance, under-water treadmill, and visual feedback in standing interventions. The community-specific ambulation intervention alone showed clinically significant improvements on the Activities-Specific Balance Confidence (ABC) scale. BBS scores showed a significant but weak, positive correlation with the interventions' total training hours dosage ($R2=0.52$, $p=0.0005$). Minor adverse events were reported in eight studies (e.g. muscle soreness and fatigue).

Discussion: Several standing balance interventions resulted in clinically significant improvements in standing balance control measured by the BBS, with a positive dose response. However, only the community-specific intervention improved balance confidence on the ABC scale. Skill-specific training may be needed to improve a person's balance confidence.

Significance and Implications for Person-Oriented Research: Standing balance control can be meaningfully improved through balance interventions. This review provides a meaningful overview for patients of currently available standing balance interventions to guide therapy programs.

Poster #5A: Using Interactive Computer Play in Clinical Practice in Pediatric Rehabilitation

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Funding: Dr. Elaine Biddiss' (Supervisor) Bloorview Children's Hospital Foundation Chair in Pediatric Rehabilitation, Rehabilitation Sciences Institute, Azrieli Foundation

Background: The use of interactive computer play (ICP), any virtual-reality technology where a child can interact with virtual objects in a computer simulated environment, has increased in use as a therapeutic tool. While movement-tracking video games for entertainment purposes have been used for rehabilitation, they cannot be configured to an individual’s capacity or therapy goals. Bootle Blast (BB) is a mixed-reality ICP system that uses a 3D camera-computer to provide real time feedback on skeletal movements during gameplay.

Purpose: This study sought to understand what motor learning strategies (MLS) are integrated into BB and to define clinicians’ role in enhancing MLS during clinician-child-ICP system interactions.

Methods: ,In this observational study, children over the age of 5 years engaged in ICP-based therapies at Holland Bloorview Kids Rehabilitation Hospital, and their treating clinicians were eligible to participate. Children who consented to study participation played one BB mini game independently before clinicians carried out therapy sessions using BB as per usual care. Video recordings of therapy sessions were then reviewed by two raters and MLS were rated using the 22-item Motor Learning Strategies Rating Instrument (MLSRI-22), a tool that measures extent of use of 22 MLS from 0=very little (0-5% of the time) to 4=mostly (76-100% of the time).

Results: Five children, mean age 9.4 years (SD 0.5) with cerebral palsy, Gross Motor Classification System Levels I-III, and their clinicians (1 physiotherapist, 1 occupational therapist, 2 therapy assistants) participated. Of the 8 visual/audio MLS prompts integrated into BB, directing attention to objects, and relating to results were used to the greatest extent (median=4, IQR=1). Seven MLS were added by clinicians through verbal and physical means, with meaningful increases in progressive practice (median=2, IQR=2), asking to problem solve (median=2, IQR=0) and physical guidance (median=2, IQR=1). Seven MLS were not present irrespective of clinician involvement.

Discussion: To our knowledge, this is the first instance of the MLSRI-22 being used to quantify MLS provided by an ICP system during ICP-based interventions. By providing additional MLS, clinicians are able to enhance the MLS that are already integrated into BB. Study results will help refine BB and training resources to optimize the therapeutic potential of BB for home use.

Significance and Implications for Person-Oriented Research: Study results will help refine BB game elements and training resources to optimize the therapeutic potential of BB for home use.

Poster #6B: Exploring perspectives of people with stroke, caregivers, and health professionals on mobile technology for stroke self-management support: An interpretive description study

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Funding: Queen Elizabeth II Graduate Scholarships in Science and Technology, Ontario Graduate Scholarships, Ydessa Hendeles Graduate Scholarships At Baycrest

Background: Background and Rationale: Stroke self-management support is a rehabilitation intervention that provides people with knowledge, confidence, and skills to manage the chronic effects of stroke. There is growing interest in enhancing stroke self-management support with mobile health (mHealth) technology (e.g., smartphones, apps). In past studies that explored perspectives on the topic, the terms ‘self-management’ and ‘mHealth’ have been variably defined and inconsistently applied. This inconsistency has resulted in a disjointed body of work, where studies have each focused on narrow sub-dimensions of the broader concepts. This study sought to address that gap by using a multidimensional taxonomy of self-management support in combination with photos of previously studied mobile technologies as elicitation tools for ideation.

Purpose: The purpose of this study was to explore perspectives of people with stroke, caregivers, and health professionals on mobile technology for stroke self-management support.

Methods: This study employed a user-centred design approach with qualitative, interpretive description methodology. Participants were recruited purposively across Canada to include: 12 people with stroke (at least 6 months post-stroke and living at home), 8 caregivers of people with stroke, and 14 health professionals working in stroke (e.g., occupational therapists, physical therapists, neuropsychologists). Data were obtained via semi-structured interviews and focus groups, conducted virtually (Zoom or phone) and using visual handouts. Data are currently being analyzed using reflexive thematic analysis.,Results:

Results: Themes will describe experiences with self-management (in terms of the taxonomy) as well as needs and opportunities to enhance self-management support with existing and/or new mobile technologies. Themes will also describe factors that influence access, provision, and use of mobile technology for stroke self-management support, particularly during and beyond the pandemic.

Discussion: This study will advance our understanding of what service delivery and technology characteristics are important to end-users of mHealth enhanced stroke self-management support. In turn, this knowledge may inform future technology development research, as well as extend to other chronic conditions.

Significance and Implications for Person-Oriented Research: This study aims to provide directions for future development that centre the perspectives of end-users.

Poster #7A: Rehabilitation interventions for oculomotor deficits in adults with concussion or mild traumatic brain injury: A systematic review

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Funding: Univeristy Health Network Foundation, Mitacs, Neuroflex Inc

Background: A concussion, the most common form of mild traumatic brain injury (mTBI), often leaves individuals suffering from persistent symptoms suggestive of impaired oculomotor function. Oculomotor deficits can last months after injury and impair one’s ability to participate in work, school, and sport. To date, rehabilitation interventions targeting oculomotor deficits in concussion/mTBI have been reported on in several studies with varying study designs.

Purpose: To optimize the development of oculomotor rehabilitation interventions, we systematically reviewed the literature on the effectiveness of oculomotor interventions in adults with oculomotor deficits after concussion/mTBI.

Methods: We searched five databases for key title terms oculomotor, rehabilitation, and brain injury or related terms. We excluded research with mixed severity of TBI. Two independent reviewers identified eligible studies, performed data extraction, and assessed study quality. A meta-analysis was performed for outcomes reported on in two or more studies.

Results: Results A total of 7331 citations were included. Of these, eight studies of low quality (seven case series and one crossover design) met the inclusion criteria. These studies included N=418 adults; 43% male; mean age 24. Within the entire sample, interventions ranged from 4.5 to 13.6 weeks, and involved 1 to 3 training sessions per week. Overall, oculomotor rehabilitation was associated with improvement on a variety of oculomotor outcomes.

Discussion: Although limited in scope, synthesis of results of oculomotor intervention research showed some benefits for dealing with oculomotor deficits in persons with concussion/mTBI. Developments and initiation of a randomized oculomotor rehabilitation program is timely.

Significance and Implications for Person-Oriented Research: Concussion/mTBI management continues to be heterogeneous. Consolidation of existing evidence is needed to determine the utility of oculomotor based rehabilitation as a component of standard care.

Poster #8B: Wellness in Action: What Do Wellness Principles Look Like in Real-World Special Olympics Practices and Activities and How Can They Be Supported?

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Funding: Special Olympics Canada Research Grant, Canadian Institutes of Health Research

Background: Special Olympics Canada (SOC) provides health-promoting services through sports and activities for individuals with intellectual and developmental disabilities.1 In recent years, SOC has adopted a holistic, strength-based wellness approach to health promotion.2 A wellness approach addresses how individuals can lead meaningful lives by focusing on their unique strengths across multiple wellness dimensions.3,4 Previous research with SOC identified five core wellness dimensions that most aligned with their mission and vision, namely belonging and inclusion, emotional, physical, psychological, and intellectual wellness.2,Purpose/Hypothesis: ,Gap: It is largely undocumented whether or how the five core wellness dimensions are implemented into SOC practices and activities.

Purpose: 1. To identify and describe the wellness principles currently being adopted in SOC practices and activities. 2. To provide tangible examples of how wellness principles can be purposefully implemented in SOC practices and activities.

Methods: Mixed methods, using non-participant observation to gather quantitative frequencies of wellness minimum principle requirements, and written qualitative examples of wellness dimensions and field notes. Three SOC sites (one urban, one suburban and one rural) were used for observation. ,Results:

Anticipated Results: Quantitative frequencies demonstrated that each of the three observation sites largely implements the five core wellness dimensions. The qualitative data will provide contextual information to better understand factors that contribute to the integration of wellness and highlight examples of how to purposefully implement wellness into SOC practices and activities.

Discussion: The results of this study will provide a better understanding of how SOC practices and activities can support SOC athletes across multiple wellness dimensions to improve their overall well-being and enrich their lives.

Poster #9A: Clinical Implementation of Artificial Intelligence to Assess Patient Engagement and Dropout Risk in Virtual Cardiac Rehabilitation

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Funding: Dr. Tracey Colella's Research Scientist and Clinician in Rehabilitation Health Services Studies, Rehabilitation Sciences Institute

Background: Cardiac rehabilitation (CR) has evolved over time from an exercise focused regime to a comprehensive program integrating other factors of cardiovascular disease risk, education, and social support. Through the integration of these components, CR has demonstrated the capability to improve quality of life in cardiac patients. Patient engagement in these programs is key to achieving this improvement. However, many rehabilitation programs transitioned to a virtual/hybrid setting during the COVID-19 pandemic. As a result of the decline in face-to-face interactions and supervision, dropout rates have been reported of up to 50%. Previously, artificial intelligence has been utilized in other fields to study engagement and in other areas of rehabilitation, however, it has yet to be fully realized in CR.

Purpose: This study aims to assess patient engagement using a novel artificial intelligence approach to determine its feasibility and potential role in cardiac rehabilitation. AI algorithms will be used to measure patient engagement and exercise quality. This study will aim to determine patient and clinician experiences and feedback regarding the program, as well as any potential barriers they may have encountered. We hypothesize that our AI algorithms will be able to accurately detect patient exercise quality and engagement levels relative to patient and clinician reported measurements.

Methods: Patients in the cardiac rehabilitation program will participate in 4 onsite resistance training sessions and 4-6 online education sessions. Both sessions will be recorded and analyzed for consented patients. For resistance training sessions, spatio-temporal deep neural algorithms will be applied to determine patient exercise quality/accuracy and validated with a clinician's reported measurements. Patient engagement will be measured using AI algorithms for recorded education sessions and will be validated with the patient's reported measurement of engagement. Patients and clinicians will then participate in a focus group study afterwards to determine user satisfaction and experiences, as well as any potential barriers to participating in the study.

Results: We are hoping that our measurements obtained from the AI algorithms developed for both patient exercise quality and engagement will be similar to that of the clinician and patient reported measurements respectively. We are also hoping to determine potential barriers that may hinder patient engagement in the program through our focus group study.

Discussion: With our results, we can determine if our AI algorithms were able to accurately detect patient engagement and exercise quality. Furthermore, we can identify any potential barriers to patient engagement in cardiac rehabilitation programs and any suggestions that patients or clinicians may have to improve the rehabilitation program.

Significance and Implications for Person-Oriented Research: As patient engagement in rehabilitation is key for achieving an improvement in overall quality of life, the AI algorithms can help detect patients that are disengaged and allow clinicians to personalize their programs to better suit patient needs. Furthermore, future clinicians can look to address any of the barriers identified that could hinder patient engagement within their programs.

Poster #10B: Social Connection Measurement Tools for Older Adults in Long-Term Care Homes: A Scoping Review

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Funding: Walter & Maria Schroeder Institute for Brain Innovation and Recovery, Advancing Research on Care and Outcome Measurement (ARCOM) grant from the Alzheimer's Association, Brain Canada and Leveraging an Interdisciplinary Consortium to Improve Care and Outcomes for Persons living with Alzheimer's and Dementia (LINC-AD) grant

Background: Social connection comprises multiple distinct aspects describing how individuals connect to each other. It has significant impacts on quality of life and well-being in older adults living in long-term care (LTC) homes. This population is disproportionately affected by poor social connection due to cognitive impairment, complex health needs and changes in social networks. Various measurement tools have been used to assess social connection in LTC home populations. While these tools assess multiple aspects of social connection, they use inconsistent terminology and there is no gold standard approach to measurement, leading to further ambiguity around quantifying this construct.

Purpose: The objective of this scoping review is to describe and analyze how social connection is assessed in measurement tools developed specifically for LTC resident populations.

Methods: A literature search was conducted in MEDLINE ALL (Ovid), Embase Classic and Embase (Ovid), Emcare Nursing (Ovid), APA PsycInfo (Ovid), Scopus, CINAHL Complete (EBSCOhost), AgeLine (EBSCOhost), and Sociological Abstracts (ProQuest) from database inception to November 18th, 2021. Studies were included if they: (1) were conducted in LTC resident populations, (2) quantified any aspect(s) of social connection and (3) reported at least one psychometric property for the measure(s) of social connection. Two reviewers independently screened titles and abstracts, and reviewed full text articles against inclusion criteria. Data extraction was carried out in duplicate. Content analysis, guided by the framework method, was used to analyze data and synthesize findings.

Results: This study identified 61 studies describing 35 different social connection measurement tools. There is significant variation in the conceptualization and operationalization of social connection.

Discussion: This review created a comprehensive list, detailing existing measurement tools, their characteristics, and approaches to measurement. This informed the development of a comprehensive conceptual framework to demonstrate how social connection is conceptualized and operationalized in measures developed specifically for LTC resident populations.

Significance and Implications for Person-Oriented Research: This review will advance the measurement of social connection in LTC residents. The findings will inform future measurement tool development through its contribution to the SONNET study. SONNET is creating a novel, person-centered, social connection measurement tool for people living in LTC homes.

Poster #11A: Understanding Sex and Gender Differences Regarding Willingness to Participate in Stroke Research Studies: A Protocol for a Qualitative Study

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Funding: Brain Canada Foundation - Women's Brain Health Initiative Expansion Grant: Considering Sex and Gender

Background: Women are underrepresented in stroke research studies despite equivalent stroke incidence to men. No qualitative study has explored sex and gender differences regarding participation in research studies post-stroke.

Purpose: To explore 1) attitudes, beliefs, and perceived barriers and facilitators in women and men and influence of gender-related variables regarding willingness to participate in stroke research studies 2) sex preferences and influence of gender-related variables regarding research recruitment material in individuals post-stroke.

Methods: This will be a qualitative descriptive study using focus groups conducted online (approximately 60-90 minutes). The option of joining a Microsoft Teams focus group by telephone (audio only) will be offered to those who do not have access to a computer or other electronic device. A semi-structured interview guide will be used that was developed based on expert knowledge, evidence from the literature and the Theoretical Domains Framework (Atkins et al., 2017). The inclusion criteria include adult males and females, who have had a stroke, without significant communication impairments. Participants will be recruited from an ongoing questionnaire examining sex and gender differences in willingness to participate. After completion of the survey, participants are given the option to self-identify as being interested in participating. Based on the literature, 21 focus group participants (4 focus groups) will be initially recruited as this should result in approximately 80% thematic saturation. Thereafter, an interim analysis will be conducted to determine if saturation of themes is reached or if further focus groups are required. Purposeful sampling will be used to ensure representation of people who have participated in research and those who have not, people from diverse backgrounds (sex, gender, race/ethnicity) and from different age group categories. Focus groups will be video and audio recorded and later transcribed for analysis. Thematic analyses will be used to identify emerging themes.

Anticipated Results: We expect to identify three main themes including individual context, social and economic context, and organizational context.

Discussion: An intersectionality lens regarding sex and gender, race/ethnicity, age, education, and socioeconomic status will be applied.

Significance and Implications for Person-Oriented Research: The results of this study will determine promising strategies to ensure equal representation of women and men in stroke research studies.

Poster #12B: Considerations for the Development of a Compassionate Virtual Peer Navigation Program for Youth with Childhood-Onset Disabilities

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Funding: Kids Brain Health Network (KBHN)

Background: Youth with childhood-onset disabilities (COD) often require ongoing health surveillance and care to maintain optimal health into their adult years and face unique challenges when transitioning from the pediatric to the adult care system. The initiation of transition from an early age may improve long-term health outcomes partly due to an increased familiarity and expectations of the transition process. Further, there is a paucity of literature on the conceptualization and outcomes of compassion or self-compassion directly with youth with COD. ,Purpose/Hypothesis: ,The following specific research objectives will be addressed: (1) to understand the nature and extent of literature on the conceptualization, use and outcomes associated with compassion in the care of youth with cerebral palsy (CP) and childhood-onset ABI ; (2) to explore (i) how compassionate care is conceptualized and (ii) the expectations of transition from the pediatric rehabilitation to adult rehabilitation and community settings, experiences of transition planning and how this conceptualization of compassion could be integrated into future transition strategies; (3) to explore how virtual peer navigation can provide compassionate care and facilitate the transition from pediatric to adult rehabilitation and community settings from the perspective of pre-transition youth with CP and childhood-onset ABI, their family caregivers and healthcare providers.

Methods: Pre-transition youth with CP and childhood-onset ABI, family member participants and healthcare providers will be recruited from Holland Bloorview. Semi-structured interviews will be conducted via telephone, Zoom or in-person.

Results: This research will explore the role and conceptualization of compassion and transition expectations amongst pre-transition youth with CP and childhood-onset ABI, their family caregivers and healthcare providers to inform the development of a virtual peer navigation program.,Discussion: ,Understanding the meaning of compassion and compassionate care for youth with COD and their family caregivers will assist in developing novel interventions (i.e., virtual peer navigation) that can improve outcomes and address the needs of youth with COD.

Significance and Implications for Person-Oriented Research: This research will help to inform the development and pilot test of a patient- and family-informed virtual peer navigation program prototype for youth with COD to aid in the successful transition of youth to adult care services and enable every youth to reach their full potential.

Poster #13A: Continuity of Care Interventions for People with Stroke and Caregivers: A Scoping Review Protocol

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Funding: Toronto Rehabilitation Institute Student Scholarship, Rehabilitation Science Research Network for COVID Trainee Award, Gwen Bell Endowment Fund

Background: Enhancing the continuity of care for people with stroke (PWS) and their caregivers can contribute to improved quality of care. Continuity of care is coherent, connected, and consistent care provided based on a person's needs and personal context. As the Canadian Stroke Best Practice Recommendations emphasize supporting PWS and caregivers through care transitions, it is essential to understand current continuity of care interventions. To date, there has been no synthesis of continuity of care interventions for the stroke population.

Purpose: What is the scope of continuity of care interventions for the stroke population? Additional sub-questions include: (1) What are the components of these interventions that are care-context specific as PWS and/or caregivers' transition (e.g., care environments, implementation strategies) and (2) What theoretical frameworks informed the development of the interventions?

Methods: We will use the JBI methodological framework to guide our study. We have searched on Ovid MEDLINE, (2) CINAHL Plus with Full Text, (3) PsycINFO, and (4) EMBASE from January 2000 to January 2023, restricting to articles published in English. Core concepts of stroke and continuity of care and their synonyms were used as search terms. Identified articles will be assessed by two independent reviews for eligibility using inclusion and exclusion criteria. We will extract data related to components of continuity of care interventions. We will synthesize the data using quantitative descriptive analysis and qualitative thematic analysis. Results will be further informed by a consultation exercise with healthcare professionals from the research team who work across the care continuum. We will discuss emerging themes and identify needs for future practice and research pertaining to stroke care. Reporting of results will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).

Results: Electronic database searches identified 9539 articles to be screened. The scoping review will be completed by the fall of 2023.

Discussion: This research will identify components of continuity of care models that address the needs of PWS and their caregivers. It will also outline components that are care-context specific and theoretical frameworks that informed the development of these interventions. This research will also identify gaps in the literature to provide recommendations for future research and inform the guidelines imposed by the Canadian Stroke Best Practice Recommendations.

Significance and Implications for Person-Oriented Research: This research will identify components of continuity of care models that support PWS and caregivers. Findings from the study may aid in developing continuity of care interventions that are responsive to the preferences and needs of PWS and caregivers.

Poster #14B: Programming Options for Accessible Playgrounds in Education and Pediatric Rehabilitation Health Care Settings

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Funding: Rehabilitation Science Institute, Dr. Tim Ross EPIC Lab, Holland Bloorview Centre for Leadership Grant

Background: Children with disabilities (CWD) benefit from play, as it allows them to develop physical and social skills, self-regulation, and to experience joy. However, CWD are at times excluded from play due to infrastructural inaccessibility and poor programming support. There has been a recent shift toward building accessible playgrounds, but little attention has been given to developing programs to leverage these playgrounds. Playground programming can help CWD to engage in play, interact with peers, use equipment, and to perform on-playground education and rehabilitation activities.

Purpose: This study engaged two questions: (1) how have CWD, parents, and professionals experienced accessible playground programming? And, (2) how would they change programming to suit their needs and desires? This study's aim was to explore the playground programming needs and desires of CWD, parents, as well as education and health care professionals, with a view to developing recommendations for accessible playground programming.

Methods: Using a qualitative study design, we engaged two CWD in a draw-and-write activity. We also interviewed two parents, six education staff, and five healthcare professionals to understand their playground experiences and playground programming needs and desires.

Results: CWD are often more motivated to achieve education and rehabilitation goals while on an accessible playground. Low usage times present opportunities to implement programming, such as weekend drop-ins or after-hour outpatient/sibling programs. Playground design changes (e.g., educational signage, whiteboards, play equipment offering varied challenge levels) can aid programming efforts. Providing play equipment that offers different challenge levels can help to enhance play engagement and support rehabilitation programming. Advancing creative and nimble programming options can help to fully realize and leverage an accessible playground's potential.

Significance and Implications for Person-Oriented Research: By considering the playground programming needs and desires of CWD, their families, and both education and rehabilitation staff, this study offers useful insights into how we can use programming to incorporate accessible playgrounds into the care and education of CWD. Providing CWD with more thoughtful, varied, and individualized playground program options that cater to their unique interests, abilities, goals, and preferences can enhance their engagement in play, motivation to achieve goals, and their overall well-being.

Poster #15A: Insider Perspectives on Living with Spinal Cord Injury: A Phenomenological Study

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Funding: Supervisor (Prof. Susan Jaglal), TRI Student Scholarship

Background: Spinal cord injury (SCI) can cause tremendous changes to a person's body and its function, with potentially devastating impact in all areas of life. Even so, many people do adapt to SCI over time. The processes of adjustment and adaptation to SCI are not well understood, although they have been explored across several domains. Various explanations have been put forward, including the importance of acceptance and the role of appraisals, but these do not elucidate the process, and typically focus exclusively on cognitive aspects of adjustment. The changed experience of embodiment after SCI is an important and underexplored aspect of adjustment, as are relationships with (especially intimate) others.

Purpose: A better understanding of adjustment to life with SCI can help health care providers and others provide appropriate support and resources. Further, recent developments such as the accessibility of physician-assisted death for people with SCI in Canada highlight the importance of exploring how persons living with SCI can reframe their experience and overcome a sense that their life is not worth living. This requires access to the insider perspective, in order to explore in depth and in detail the world as it is experienced by persons living with SCI. The objectives of this study are to:

- Explore how a person's understanding of life with SCI changes over time as they live with SCI
- Develop an understanding of how people experience their body after SCI and how they learn to care for it
- Explore the role of relationships in adjustment to SCI.

Methods: A phenomenological approach will be used to explore the experience of persons living with SCI. Conceptual resources for the exploration of this topic will be drawn from the tradition of phenomenology and in particular the work of Goldstein and Straus, in order to examine the experience of embodiment. Phenomenological interviews will be conducted with persons living with SCI for at least 2 years (n=15). The interviews will follow the microphenomenological approach as developed by Vermersch and applied to the study of chronic illness by Depraz; each participant will complete an initial interview focused on biographical experience and life with SCI overall, and a second interview focused on the recall of specific salient moments related to the adjustment to life with SCI, the experience of embodiment, and relationships with others. In order to access fully the perspective of interview participants and solicit their full engagement, persons with lived experience of SCI will be involved in the conceptualization and conduct of research, following the principles of integrated knowledge translation. In particular, the lead researcher is a person who lives with SCI.

Significance and Implications for Person-Oriented Research: This work will provide a better understanding of how people adjust to life with SCI, supporting the work of rehabilitation professionals and other health care providers. It will also inform the development of supportive interventions and of policy on access to physician-assisted death for persons with SCI. The knowledge translation plan will involve conference presentations and publications as well as specific outreach to the SCI community.

Poster #16B: Developing an implementation toolkit for an online mindfulness-based stress reduction program for people with multiple sclerosis

Sureshkumar, Ashvene[1]; Luong, Dorothy[2]; Munce, Sarah[1,2]; Lai, Nanette[3]; Bayley, Mark[1,2]; Kastner, Monika[5,6]; Furlan, Andrea[2,4]; Oh, Jiwon[7,8]; Feinstein, Anthony[9,10]; Simpson, Robert[1,10]

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Funding: CIHR - Catalyst Grant

Background: Multiple sclerosis (MS) is a neurodegenerative disease that affects over 30,000 people in Ontario. MS is a stressful condition, which ultimately exacerbates anxiety and depression in people with MS (PwMS), diminishing quality of life. Mindfulness-based interventions (MBIs) help people with chronic conditions cope with stress. Online MBIs appear to be effective for PwMS and offer advantages through improved accessibility. However, intervention adherence rates are still low. Implementation considerations for developing an online MBI for PwMS have not been established. Identifying these considerations may increase effectiveness of such interventions for this group.

Purpose: To identify implementation priorities amongst PwMS and key knowledge users to inform the development of an online mindfulness-based stress reduction (MBSR) program for PwMS across Ontario. ,Methods: ,A qualitative descriptive design will be employed with an integrated knowledge translation (iKT) approach. Virtual semi-structured interviews will explore experiences and preferences of five stakeholder groups (n=41interviews): 1) PwMS, 2) care partners 3) MS clinicians, 4) MBI instructors, and 5) health service leaders. Interviews will be digitally recorded and transcribed verbatim. An initial inductive thematic analysis will be followed by a deductive analysis using the Dynamic Sustainability Framework.

Results: Four emerging themes include: mindfulness as an evolving tool; accessibility created through advocacy, awareness, and clinical governance; dynamic interactions driving intervention preferences and accountability in practice. PwMS value agency in attuning MBIs to their own capabilities without the need for interventions to be tailored to MS specifically. However, clinicians and MBI instructors describe a preference for programs to be focused on MS. Interactions between PwMS and MBI instructors across interventional and personal levels characteristics a sense of accountability to facilitate and adhere to practices.

Significance and Implications for Person-Oriented Research: This study will provide valuable insights related to the experiences of PwMS and other key users to inform implementation considerations for developing an online MBSR program. Findings from this phase will be used to build an online survey; findings from both phases will be merged to inform the development of an implementation toolkit. This research has the potential to significantly improve the quality of life of PwMS.

Poster #17A: Implementation of Early Intensive Manual Therapies for Children with Cerebral Palsy Under Two Years of Age: A National Knowledge Implementation Science Project

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Funding: Kids Brain Health Network (Supervisor), Toronto Rehabilitation Institute Scholarship, CHILD-BRIGHT

Background: Cerebral Palsy(CP) is the most common motor disability in children. Hemiplegic CP(HCP)is the most common sub-type of CP at 38%. International clinical best practice guidelines emphasize the need to provide early intervention manual therapy for children with HCP before two years of age to maximize functionality. There is evidence that Baby Constraint Induced Movement Therapy (Baby CIMT), and Hand-Arm Bimanual Intensive Training (HABIT)can increase hand function of the affected hand(s) through play. However, there are few sites across Canada delivering these interventions. Using Graham et al's., 'Knowledge to Action Cycle' framework, the primary objective of the study is to identify barriers and facilitators involved in the implementation of these intervention programs across Canadian provinces.,

Purpose: Analysis of the barriers and facilitators involved in implementation of Baby/CIMT programs to identify appropriate implementation strategies to improve overall implementation of early intensive manual therapies for children with HCP.

Methods: Three likert-scale type surveys have been developed to assess the barriers and facilitators involved in the implementation of Baby CIMT/HABIT programs using the Consolidated Framework for Implementation Research (CFIR). The survey was created in active partnership with key stakeholders to ensure the survey questions are meaningful and applicable. Stratified purposive sampling strategy with convenience sampling techniques will be used to recruit three groups of participants:(1) caregivers of children with HCP,(2)occupational therapists who treat children with HCP and(3)healthcare administrators. For each province and territory, we aim to recruit one stakeholder from each group in one tertiary and one rural site(26 sites total)for a minimum of 78 participants. The survey responses will be analyzed using descriptive statistics and implementation strategies will be mapped to the identified barriers and facilitators.

Results: We anticipate that each stakeholder group will identify different potential barriers to the implementation of Baby CIMT/HABIT programs.

Significance and Implications for Person-Oriented Research: This project is using an integrated knowledge translation approach, such that the knowledge users are involved as meaningful partners throughout the survey process. Along with our stakeholders, identifying the barriers and facilitators impacting national implementation will inform the next steps in supporting the implementation of Baby CIMT/HABIT programs across Canada.

Poster #18B: Exploring Electrical Injury Survivors and Caregivers' Experiences with Social Support: A Qualitative Study

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Funding: Rehabilitation Sciences Institute, Dr. Marina Wasilewski (Supervisor)

Background: Although the importance of social support for alleviating stress following a traumatic injury has been well established, no research to date has focused on social support for electrical injury (EI) survivors and their caregiver's or its role in psychosocial recovery. The interplay of physical, neurological, and psychological deficits present in EI makes this population unique from other burn and traumatic injuries. Thus, research exploring this population within the context of social support would be meaningful in informing EI-specific support programming and rehabilitation.

Purpose: The overall goal of the study is to explore the lived experiences of EI survivors and their caregivers with recovery and social support engagement. We aim to understand how EI survivors and their caregivers adjust to and cope with daily life after an EI and the role that social support has played in their recovery process.

Methods: A qualitative descriptive approach was used to gain insight into EI survivors and caregivers' experiences with social support. We included survivors from the burn program at St. John's Rehab. We conducted semi-structured interviews with survivors and their caregivers. Following Braun and Clarke's thematic analysis, we analyzed the data to find repeated patterns of meaning and themes.

Results: In total, we included 12 survivors (mean age 41, male n=11, female n=1) and 4 caregivers (mean age 45, female n=4). Preliminary themes identified to date include: 1) naturally occurring peer support enhances ability to cope and improves general outlook; 2) lack of care integration results in suboptimal care and delayed recovery; and 3) socially constructed gender roles impacts engagement with support.

Discussion: Peers are important sources of support, providing a continual link to normalcy, personhood, and companionship. The male role, emphasizing independence and emotional control, makes it difficult for male-identifying survivors to acknowledge extent of injury and need for social support. Lack of care integration such as poor communication between survivors, families, and providers, leads to premature end of care. Such findings can inform interventions designed to augment support services to improve the recovery process and optimize the health of EI survivors and caregivers.

Significance and Implications for Person-Oriented Research: Shedding light on the unique experiences of EI survivors and caregiver's is the first step in developing the knowledge needed for healthcare professionals to provide timely, inclusive, individually-tailored, and holistic EI-specific support services.

Movement Science

The integration and synthesis of knowledge from basic sciences, social sciences and applied sciences for the purpose of studying questions related to understanding the prevention of movement-related impairments, and the maintenance, enhancement and rehabilitation of human physical activity for persons whose physical capabilities are, or are perceived to be, challenged by disease and injury.

Poster #19A: Standing Balance in Response to Visual and Physical Perturbations after Concussion

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Funding: Rehabilitation Sciences Institute

Background: 80% of concussions result in headaches and balance disturbances (Marar et al. 2012). Persistent symptoms can result in difficulties returning to work, school, and participation in sports and recreation activities. Environments such as busy streets or grocery stores have competing stimuli that an individual must pay attention to, which have been shown to provoke symptoms (Cripps et al. 2018).

Purpose: To observe the effect of visual and physical perturbations on standing balance responses after concussion. It is hypothesized that concussed individuals will have increased instability in response to the perturbations compared to controls.

Methods: 15 healthy adults (24. 46 +/- 1.99 years; F = 9, M= 6) and 3 concussed (31.66 +/- 8.73 years; F = 2, M = 1) individuals were tested. Participants were male and female between the ages of 18-40 recruited from UHN hospitals. All testing sessions took place in the FallsLab of the Toronto Rehabilitation Institute. The experiment used a 6m x 3m moving platform, AMTI force plates, a 12 camera VICON motion tracking system, and the HTC Vive Pro Virtual Reality Head Mounted Display. The experiment consisted of a standing testing block. The standing block consisted of 12-45 second trials. There were three randomized conditions including no perturbation, Anterior-posterior or medio-lateral visual shift of the virtual environment, or a AP or ML 2m/s2 shift of the physical platform. Data analyses were conducted using MATLAB R2020a (Mathworks, USA). Centre of Pressure (COP) path length was analyzed during a 4 second analysis window following the onset of the perturbation.

Results: COP Length: There were no significant differences observed between groups during the visual or physical perturbations (p=0.377). The concussed group showed no differences in perturbation direction for either the visual (p=0.090) or physical (p=0.094) perturbations. The healthy group demonstrated no differences in perturbation direction for the visual conditions (p=1.000). Significant differences were observed in the healthy in the direction of physical perturbation ($p < 0.001$), where perturbations in the AP direction (4.65m +/- 1.32m) resulted in longer path lengths than in the ML direction (3.70m +/- 0.81 m).

Discussion: Differences in COP path length were observed between perturbation direction in the healthy group, the lack of differences in the concussed group could be explained by the limited sample size. Long term outcomes of this research could provide therapeutic information for the need to determine a subgroup of concussed individuals who may benefit from balance perturbation therapy.

Poster #20B: Exploring the experiences and perceptions of adults aged 50 years or older with spinal cord injury or disease on participation in sport

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Funding: Dr. Kristin Musselman's Canada Research Chair in Multi-morbidity and Complex Rehabilitation, Ontario Graduate Scholarship, Toronto Rehabilitation Institute Student Scholarship

Background: Sport is a physical activity that provides physical, psychological, and social health benefits for individuals with spinal cord injury or disease (SCI/D). However, most research on sport has been completed on individuals with SCI/D aged <50 years. This is problematic because the majority of people with SCI/D in Canada are aged >50 years. Moreover, the average life expectancy after SCI/D is increasing, meaning more Canadians are aging with SCI/D and experiencing the associated health challenges. Despite substantial evidence supporting the role of sport for able-bodied older adults, there is currently no research examining the impact of sport for adults aged 50 years or older with SCI/D.

Purpose: The purpose was to explore the perceptions and experiences of Canadians aged 50 years or older with SCI/D who participate in sport in the community setting.

Methods: Fifteen adults aged 50 years or older with SCI/D were recruited from sport organizations across Canada. Participants had their SCI/D for at least one year and had participated in community-based sport for at least three months. Participants were interviewed over the phone or videoconference by two researchers. A semi-structured interview guide was developed and informed by the Model of Sport Development. Interviews were audio-recorded and transcribed verbatim. Conventional content analysis was applied to the data.

Results: The overarching theme identified was that sport participation is a fun and adaptable physical activity that has potential to optimize physical, psychological, and social health in all people with SCI/D, regardless of age. Within this overarching theme, two sub-themes surfaced. (1) Perspectives on sport while aging with SCI/D. Participants described needing to shift from a performance-based approach to a health-centred focus to maximize quality of life and reduce risk of injury. (2) Experiences participating in sport later in life. Athletes described their experiences as an older individual participating alongside other athletes of varying ages.

Significance and Implications for Person-Oriented Research: Sport is a promising physical activity that may address some of the health challenges experienced by individuals with SCI/D aged 50 years or older. Findings have informed the co-development of a peer-facilitated virtual sport program, which involved the collaborative effort of a team of researchers, physiotherapists, and a person with lived experience. This intervention will be led by a physiotherapist and an athlete with SCI/D who is aged >50 years.

Poster #21A: Functional electrical stimulation to augment reactive stepping in individuals with incomplete spinal cord injury

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Funding: Branch Out Neurological Foundation, TRI Student Scholarship

Background: Almost 80% of people with incomplete spinal cord injuries (iSCI) fall at least once per year. Prevention of falls requires intact reactive balance responses, such as taking a reactive step. Many individuals with iSCI cannot produce effective reactive steps. A potential solution is the use of functional electrical stimulation (FES) to facilitate a step when balance is lost. Applying FES to the common fibular nerve elicits a flexor withdrawal response causing flexion at the hip and knee and dorsiflexion at the ankle, theoretically assisting with the reactive balance response.

Purpose: To investigate the orthotic and therapeutic effectiveness of FES at improving the reactive stepping ability of individuals with iSCI. We hypothesize that individuals who receive reactive balance training combined with FES (RBT+FES) will show greater improvements in balance control and fewer falls in daily life than those who receive RBT without FES.

Methods: Twenty-two individuals with iSCI who demonstrate impaired reactive stepping ability will participate in a pilot randomized clinical trial. Participants will be randomly allocated to RBT+FES or to RBT alone and complete 18 one-hour training sessions over six weeks. Participants will don a safety harness and practice tasks that challenge their balance while also experiencing perturbations (i.e. manual pushes and pulls applied by a trained therapist). The RBT+FES group will also receive FES such that every time they attempt to initiate a reactive step, the stimulation will assist. Clinical assessments and the Lean-and-Release test will be completed before training, immediately after training and six months post-training. The Lean-and-Release test simulates a forward fall in standing and will be used to repeatedly elicit reactive steps. Falls will be monitored for six months after training through an online survey.

Results: Performance on the clinical assessments and the Lean-and-Release test, and the occurrence of falls will be compared between groups. A kinematic description of the orthotic effects of FES on reactive stepping during the Lean-and-Release test, a summary of the clinical and fall-related outcomes of the clinical trial, and an evaluation of the change in spatiotemporal characteristics of reactive stepping will be reported.

Significance and Implications for Person-Oriented Research: Using FES to improve reactive stepping ability is a novel approach. Therefore, the results of this study could guide the development of new balance training protocols. Improving reactive balance control in individuals with iSCI could translate into fewer falls and fall-related injuries.

Poster #22B: Determining perception thresholds of young adults to small continuous moving platform perturbations

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Funding: Dr. Avril Mansfield (Supervisor's), Rehabilitation Sciences Institute

Background: Using 'sub-threshold' perturbations that are not perceived by participants may be beneficial in studies that aim to determine the effect of unperceived small external errors on motor learning.

Purpose: The purpose of this study is to identify continuous moving platform perturbation magnitudes that are large enough to cause balance errors, but small enough that they are not consciously perceived by participants.

Methods: This study used psychophysics methods to determine the perception threshold of healthy young adults for small balance perturbations. Participants (age=20-35 years) completed one data collection session using a multiple staircase paradigm. Participants stood on a stabilometer mounted on a moving platform. During each 10-second trial, participants were instructed to try to keep the stabilometer horizontal while they experienced small balance perturbations from the moving platform. After each trial, participants were asked whether they perceived the platform movement. Perturbation magnitudes were scaled up in the next trial if participants could not perceive them, and scaled down if participants could. There were four perturbation waveforms; two waveforms followed a descending staircase whereas two followed an ascending staircase. Each staircase protocol ended when there were four reversals, and the perturbation perception threshold was defined as the average of the last two reversals. Following detection of the threshold, participants performed ten 40-second trials on the stabilometer, two trials in each condition: without perturbation, perturbation at the 100%, 80%, and 50% of the perception threshold, and perturbation at the perception threshold extracted from pilot data. Balance performance was defined as time-in-balance and RMS deviation angle of the stabilometer from horizontal.

Results: Our results from 16 participants show that perception thresholds vary between individuals. In addition, balance performance was degraded when increasing the perturbation magnitude.

Discussion: This study presents an approach for quantitatively measuring perception thresholds of young adults to small continuous moving platform perturbations. The final subthreshold for the magnitude of the perturbation waveforms will be used in a subsequent study. The present findings suggest that the perception threshold varies for different individuals.

Poster #23A: Examining the effects of dance on balance in people post-stroke

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Funding: Rehabilitation Sciences Institute

Background: After stroke, 26-33% of people will experience impaired mobility (1,2). Balance is invariably affected (3), and this impaired balance post stroke is associated with an increased falls risk (4,5). Although recovery is achieved with in-patient rehabilitation, balance deficits persist at discharge (6). However, dance may be a useful adjunct for improving balance following inpatient rehabilitation. Dance interventions in the post-stroke population are feasible and acceptable (7,8), and participants report enjoyment and demonstrate higher attendance rates compared to traditional group exercise (9). Further, preliminary evidence also highlights the potential of dance to improve balance (9–11). However, this must be confirmed with a randomized controlled trial comparing a dance program to a control intervention.

Purpose: To compare the change in balance between an in-person dance and exercise intervention in people with chronic stroke.

Methods: This was a pilot randomized controlled trial (RCT). People with chronic stroke (n=42) who were able to walk >10 m without physical assistance from another person, without hearing deficits, or orthopedic or neurological conditions that could impact mobility were recruited. Participants were randomized either to a 12-week dance intervention or a 12-week traditional exercise (consisting of strengthening with resistance bands and flexibility exercises, etc.) control intervention. In both groups, participants attended a 1-hour session, twice weekly for 12 weeks. The primary outcome, the Mini BESTest, was measured before and after the intervention. Mini BESTest scores will be compared between groups using repeated measures analysis of variance. A secondary analysis will be conducted to determine the potential influence of sex on changes in balance.

Results: Based on the effectiveness, feasibility, and acceptability of dance compared to traditional exercise programs in stroke, it is expected that there will be a greater increase in the Mini BESTest score in the dance group compared to the control group in this investigation.

Discussion: If dance is better at improving balance in people post stroke, the art form could be a viable alternative to traditional group exercise in post-stroke rehabilitation.

Significance and Implications for Person-Oriented Research: Results could inform further research on whether the effects of dance in stroke are sustained in the long-term following the intervention and the effects of dance in other clinical populations with balance impairments.

Poster #24B: Understanding how physiotherapists define and assess gait stability in older adults

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Funding: Walter and Maria Schroeder Institute for Brain Innovation and Recovery, Toronto Rehabilitation Student Scholarship

Background: Persons with dementia exhibit a lower gait stability, meaning they are less resilient to perturbations (e.g., turning head or external push) while walking. This is recognized as a falls risk factor. Presently, physiotherapists assess gait stability through visual observation. However, given its' ability to be a predictor of falling, it may be more beneficial for physiotherapists to have objective measures of gait stability.

Purpose: We now have gait technologies to provide objective measures of gait stability, but to understand the potential clinical role of these technologies, it is important to learn how physiotherapists define and assess gait stability.

Methods: Virtual interviews were conducted on Microsoft Teams with Canadian registered physiotherapists who have experience working with older adults. In the interviews, physiotherapists shared their understanding of the term gait stability, and then verbally described their gait stability assessment process while watching gait videos of older adults in a long-term care home. Interviews were recorded and transcribed and are being analyzed using a qualitative descriptive approach.

Results: A total of twenty-six physiotherapists were interviewed, of which 22 (85%) were female. Participants were a mean of 42.5 ±10.3 years old. In a preliminary analysis, physiotherapists tended to define gait stability as a gait pattern that does not lead to falls, or a gait pattern without impairments and/or compensations. Some discussed the importance of withstanding perturbations. The approach to assessment varied, but commonly included an observation of trunk sway, arm swing, and lower extremity movement.

Discussion: Preliminary results show that physiotherapists' definitions and assessments of gait stability vary considerably. Thus, there are opportunities for providing a consistent and common understanding of gait stability through education and practice supported by technology. A common understanding and approach to gait stability facilitated by technology may better identify patients with unstable gait and subsequent risk of falling.

Significance and Implications for Person-Oriented Research: This research is the first step in identifying the potential role of gait technologies in clinical practice.

Occupational Science

A basic science dedicated to the systematic study of human occupation. Using both qualitative and quantitative methods of inquiry, it addresses the form, function, and meaning of human occupation and its relationship to health and well-being. The science informs and is informed by many other disciplines including psychology, anthropology, sociology, human movement science, medical science and economics. living.

Poster #25A: An exploratory study on participation in adults with brachial plexus birth injury

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Funding: University of Toronto Fellowship, Supervisor Stipend

Background: Brachial plexus birth injuries (BPBIs) are trauma-induced injuries that result in partial or total nerve paralysis affecting muscles of the upper extremity. Current interventions for individuals with BPBI primarily include reconstructive surgery and hand therapy in early childhood, designed to optimize lifelong participation. Participation outcomes of current interventions are generally satisfactory into adolescence; however, recent literature indicates that participation restrictions in adulthood, related to social demands, education and career choices, and pain sequelae are currently unknown.

Purpose: The purpose is to identify how mental, physical, and socioeconomic factors relate to participation of adults with BPBI between 19 and 34 years. In adults with BPBI aged 19 to 34 years (1) are participation restrictions and satisfaction outcomes lower than normative population data of adults; (2) are participation restrictions outcome related to lower mental health status, lower physical health status, lower functional status, higher pain intensity and interference, and lower socioeconomic status?

Methods: This was a cross-sectional battery of standardized patient reported outcome measures for physical, mental, and socioeconomic determinants of participation in adults with BPBI. Participants were recruited from networks of BPBI partners and The Hospital for Sick Children, and enrolled between January 1, 2023, and December 31, 2024. Eligible participants were 19 to 34 years of age, not in high school, able to communicate in English, and without any cognitive or lower limb impairments. The standardized questionnaires measured upper limb function (QuickDASH), physical and mental health (Short Form-12), and participation satisfaction and restrictions (USER-P, primary outcome). Descriptive statistics were used to compare participant data to normative population data and correlation analyses were used to determine key predictors of participation.

Results: Preliminary results show that adults with BPBI aged 19 to 34 years, did not report significantly greater participation restrictions or lower participation satisfaction than a normative population. Furthermore, there was no significant correlation between socioeconomic status and participation restrictions or between functional impairment intensity.

Significance and Implications for Person-Oriented Research: This study will contribute new analytical insights to inform BPBI intervention planning in childhood and holistic health services.

Poster #26B: Understanding the pathogenesis of postmenopausal osteoarthritis linked to estrogen by examining its impact on bone and cartilage remodelling through medical imaging

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Funding: Rehabilitation Sciences Institute, University Health Network, Graeme Clark Institute for Biomedical Engineering Women in STEM Award

Background: Knee osteoarthritis (OA) is a degenerative joint disease with higher incidence in postmenopausal women (PW) due to decreased estrogen levels. Estrogen mediates bone and cartilage remodelling, and its deficiency is associated with microstructural changes in OA. Despite extensive research, the role of estrogen in postmenopausal OA (PM OA) progression remains unclear. Medical imaging techniques, e.g. magnetic resonance imaging (MRI) and high-resolution peripheral quantitative computed tomography (HR-pQCT), are non-invasive tools for assessing microarchitectural changes in bone and cartilage associated with OA. Quantifying these microstructural changes through automated algorithms can provide objective measurements for evaluating bone and cartilage integrity. These measurements can then be correlated with levels of estradiol.

Purpose: This research aims to investigate the effect of estrogen on bone and cartilage remodelling in PM OA using HR-pQCT and MRI scans.

Methods: A cross-sectional study of 60 PW with knee pain will be conducted. HR-pQCT scans will be analyzed to obtain bone microarchitecture measurements using a Python-developed open-source, automated algorithm. MRI scans will be performed to obtain cartilage morphometric measures. Geospatial analyses will determine the relationship between segmented bone and cartilage masks. Blood samples will be collected to measure serum levels of estradiol and progesterone. Statistical analyses will be performed to determine the quantitative relationship between bone and cartilage measures and estradiol levels.

Results: The custom HR-pQCT algorithm is predicted to be highly reproducible, with high validity, for quantifying bone microarchitecture in PW with knee OA. The results will demonstrate a quantitative and spatial relationship between cartilage morphometry and bone microarchitecture. Multivariable regression models are expected to reveal associations between estrogen and bone and cartilage metrics, indicating the role of this hormone in PM OA. Lower estradiol levels are expected to be associated with poorer bone and cartilage morphometry, and weaker bone-cartilage relationships.

Discussion: By quantifying the pathogenesis of joint damage, improved monitoring and follow-up can lead to improved quality of care for PW with knee OA.

Significance and Implications for Person-Oriented Research: The results of this project will be beneficial by identifying risk factors and ways of counteracting these to aid OA patients. The findings will help develop targeted interventions for prevention and treatment in PW.

Poster #27A: Engagement in meaningful activities post suicide loss: A scoping review protocol

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Funding: Ontario Graduate Scholarship, Toronto Rehabilitation Institute Student Scholarship, The Dawson Family Scholarship & The Peter Rappolt Family Scholarship for Research in Occupational Performance and Wellbeing,

Background: Each day, more than 10 Canadians die by suicide. Each suicide leaves entire communities to manage the traumatic aftermath of this loss. Individuals bereaved by suicide loss are at a higher risk of experiencing negative mental health outcomes. Current research suggests that engagement in meaningful activities may be an avenue to protecting mental health. It is important to understand if this is also the case for those experiencing bereavement post suicide loss. To date, there has not been a synthesis of the literature examining suicide loss and the nature and extent of engagement in meaningful activities post loss.

Purpose: 1) To describe the nature and extent of the peer-reviewed suicide loss and bereavement literature related to engagement in meaningful activities; and 2) to identify facilitators and barriers that may impact engagement in meaningful activities post loss.

Methods: This paper describes a scoping review protocol that will be completed using stages identified by Arksey and O'Malley and updated by Levac and colleagues. Joanna Briggs Institute framework will guide this review. Four electronic databases will be searched for suicide and bereavement/loss concepts. Two independent reviewers will apply specific inclusion and exclusion criteria to identify articles discussing engagement in meaningful activities of everyday living post loss. Data will be descriptively summarized and charted, as well as analyzed using inductive content analysis. Results will be reported using guidelines provided by the PRISMA Extension for Scoping Reviews.

Results: A descriptive summary and conceptual map of the state of the literature will be presented.

Significance and Implications for Person-Oriented Research: Experiencing a suicide loss increases the risk of negative mental health outcomes. However, engagement in meaningful activities may improve mental health outcomes and have implications for improving supports and services for those bereaved.

Poster #28B: Understanding the Impact of Cognitive Impairment on Everyday Functioning in Adults on Chronic Hemodialysis Therapy

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Funding: 2023-2024 Canadian Institutes of Health Research (CIHR) Master's Scholarship, Dr. Janine Farragher's in-kind funding, Rehabilitation Sciences Institute Entrance Scholarship,

Background: The number of Canadians undergoing hemodialysis has doubled in the past 20 years. People on hemodialysis describe it to be arduous and ~64% of them need assistance when performing activities of daily living. Being functionally independent is important for quality of life, and patients with kidney failure choose it as one of the most important health outcomes to address. To date, the role of cognitive impairment in the disability reported by this population has not been clarified. This hinders the development of targeted interventions that could support people on hemodialysis with their daily routines.

Purpose: My objective is to estimate the proportion of people on hemodialysis who experience disability while performing tasks that are cognitive in nature using the University of California San Diego Performance-Based Skills Assessment (UPSA). The UPSA involves observation of people completing daily tasks that draw on cognitive skills. My hypothesis is that functional cognitive impairment will be common (>50%) in people on hemodialysis, and that the UPSA will illuminate problems with everyday living not detected by traditional pen-and-paper or self-report assessments.

Methods: 100 adults on hemodialysis for >3 months, have adequate vision, and are conversational in spoken English will be invited to participate in this study. Participants will complete the UPSA, the Montreal Cognitive Assessment, the Barthel Index, and Instrumental Activities of Daily Living scales. For the UPSA, I will observe participants perform everyday tasks across five domains: household chores, communication, finances, transportation, and planning of recreational activities. A score <60 on the UPSA will be categorized as functional cognitive impairment. I will calculate the proportion of participants scoring <60 on the UPSA to estimate the extent of cognitive impairment in this population. I will perform subgroup analyses to investigate differences in gender and racial subgroups. Pearson's r for parametric data and Spearman's rho for non-parametric data will be calculated to compare the UPSA with other study assessments.

Results: I expect 50% of participants will score 60 on the UPSA, signifying functional cognitive impairment is common in this population.

Significance and Implications for Person-Oriented Research: The UPSA will provide insight into which activities of daily living are affected by cognitive impairment in people on chronic hemodialysis so future research may investigate appropriate interventions (e.g., cognitive rehabilitation) for this patient population.

Poster #29A: Scoping Review on the Definition and Measurement of Functional First Web Space

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Field of Research: Occupational Science, Clinical Science

Funding: Rehabilitation Sciences Institute, Dr. Emily Ho's (Supervisor's) Research Grant - Connaught Fund

Background: First web space of hands has been understood to be important in daily activities involving the motions of cylindrical grasp and pinch. Participation in such activities is dependent on developmental stage, occupation, and/or, life context; making it difficult to define ‘functional’ first web space. Without clear definitions, identifying the need for reconstructive surgery based on its deficiency is challenging.

Purpose: The purpose of this scoping review is to synthesize what is known about the definition of functional first web space and evaluate the methods used to quantify measurement of the anatomical deficiency of first web space.

Methods: Following Arksey and O’Malley’s (2005) six-stage scoping review framework, 4440 term combinations were searched on MEDLINE from inception until January 2023 in conjunction with a medical librarian. Title/abstract and full-text screening processes were conducted followed by charting, collating, and summarizing included articles by two reviewers.

Results: Of 126 articles found, 69 full-text articles were reviewed and 21 were included. The age range of included papers was between 0.5 and 77 years; more focused on pediatric populations (n = 10, 48%). Traumatic (n = 9, 43%), congenital (n = 11, 52%), and healthy (n =1, 5%) hands were studied. There were 20 (95%) cross-sectional studies, and one (5%) comparative outcome study.
Of the included studies, varied qualitative descriptions of functional (n = 11, 53%) and deficient (n = 10, 48%) first web space were identified. The measurement of the first web space included soft tissue opening (n = 13, 62%), and radiographically (n = 8, 38%) or clinically (n = 5, 24%) measuring the thumb carpometacarpal (CMC) joint angle. CMC joint angle was measured in palmar (n = 5, 24%) or radial (n = 5, 24%) abduction, while the remaining did not specify. Takagi’s method of holding a cone was the only method used (n = 4, 19%) to measure cylindrical grasp.

Discussion: A consensus on the definitions of functional and deficient first web space is lacking, which is problematic in evaluating reconstructive surgical and rehabilitation plans for evidence-based practice. The methods of measuring the first web space angle and opening vary and the relationship between measured space and functional outcome is unknown.

Significance and Implications for Person-Oriented Research: Synthesis of the literature is the first step to operationalizing the definition and measurement of functional first web space for those who potentially need reconstructive surgery and rehabilitation.

Poster #30B: A Qualitative Study to Explore Family Centered Care (FCC) Across the Care Continuum in Family Caregivers to Individuals with Spinal Cord Injury (SCI) in the Context of COVID-19

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Field of Research: Occupational Science

Funding: Dr. Jill Cameron (Supervisor's) Craig H. Neilson Foundation Grant

Background: Family caregivers play a critical role in the wellbeing of individuals with spinal cord injury (SCI). Due to limitations in preparation for their caregiving role, family caregivers can experience reduced education and awareness related to their role, resulting in stress, burden, and anxiety. These challenges can be amplified if the individual with SCI experiences COVID-19, resulting in increased caregiving stressors, and a reduction in Quality of Life (QOL). Models of patient and family centered care are proposed to meet the needs of individuals with SCI and family caregivers.

Purpose: To examine the perceptions of family centered care (FCC) family caregivers of individuals with SCI within the context of COVID-19.

Methods: This study will use a qualitative descriptive design. Purposive sampling will be used to recruit 20-30 family caregivers to individuals with SCI with and without COVID-19. Semi-structured interviews spanning 40 to 60 minutes will be conducted via telephone. Interviews will examine experiences in caregiving and perceptions of FCC related to the development of patient care plans across the care continuum. Data will be analyzed using reflective thematic analysis.

Results: Family caregivers play a critical role in providing consistent, individualized, quality patient-centered care across the illness trajectory for individuals with spinal cord injury (SCI). Family caregivers can be recognized as a spouse, friend, or family member that provides consistent care without financial compensation to an individual requiring mental, physical, and psychosocial support. Across care settings, the timely delivery of care that meets the unique and individualized needs of patients with SCI is often inadequate. However, through the supplementing support of family caregivers, individuals with chronic illness have been able to receive consistent and high-quality care specific to their needs. Although family caregivers provide tremendous support to individuals with SCI, this care is not standardized practice for healthcare systems to support, prepare, and educate. Due to this, family caregivers have continued lack of support and preparation in their caregiving duties, creating a sense of isolation and anxiety, leading to poor quality of life (QOL) and by extension, the delivery of quality care. Through a foundational understanding related to caregivers' experiences of FCC, in the context of SCI within the five phases of the illness trajectory, researchers can co-design a new FCC model that ensures preparation and support through changing needs.

Discussion: One can recognize the many stressors, barriers, and challenges informal caregivers have faced post-acute COVID-19, and thus the importance in the need for resources to support them in the provision of care. Family caregivers play a critical role in maintaining the health, quality of life, and overall wellbeing of the individuals with SCI through the delivery of personalized care to meet the unique, changing needs of SCI patients. This responsibility may place significant burden on family caregivers due to the reliance of their care to meet the fundamental needs of SCI patients. The responsibility of providing care can create significant stress and isolation on informal caregivers, which may be particularly highlighted during the COVID-19 pandemic. Some examples include the increased isolation precautions within care environments, increased risk of COVID-19 contagion, and potential illness which can create a sense of uncertainty and stress. Due to the importance of the role of a family caregiver in providing mental and physical care and support across the care continuum, acquiring COVID-19 as a caregiver would detrimentally affect their presence and prevent the delivery of essential high-quality informal care. With the potential barriers in the delivery of quality care due to COVID-19, it is crucial to conduct research in examining the experiences of family caregivers during the COVID-19 pandemic to uncover and address the challenges in providing care through the development of supportive evidence-based resources and interventions.

Significance and Implications for Person-Oriented Research: Assuming the role of a family caregiver of within the context of COVID-19 can have detrimental effects on one's mental, physical, and psychosocial wellbeing, thus impacting one's ability to deliver quality family and person-centered care. Through understanding the experiences of FCC and changing needs of family caregivers, researchers can develop models of care to influence health care systems in enhancing the patient and FCC. In recognition of the complex role of family caregivers and experienced challenges due to a lack of involvement in patient care plans, as well as current limitations in literature examining their experiences of FCC within the context of COVID-19, it is critical to uncover their unique perceptions of FCC to implement appropriate resources and ensure adequacy in supports.

Poster #31A: Mentorship programs for women apprentices in skilled trades in Canada: A scoping review protocol

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Field of Research: Occupational Science

Background: Over the five years from 2021 to 2025, recruiting 195,800 new apprentices into the top 15 Red Seal trades will be required to close the shortage in skilled trades. Women could be a potential solution in addressing these shortages as apprentices and then as journeypersons. In 2020, the average female apprenticeship registrations were 5% based on an analysis of trades in the construction, manufacturing, and transportation sectors. This underrepresentation leads to additional barriers that prevent their success in the industry. A lack of social support is one of the barriers that women apprentices can experience during Apprenticeship training as skilled trades have a mainly male-dominated culture, which traditionally consists of working-class white men who largely exclude women. Mentorship is recognized as a critical element of apprenticeship training as apprentices are supervised by a journeyman-mentor for several years.

Purpose: Uncertainty surrounding interventions, delivery and access, and evaluation of mentorship programs for women apprentices need to provide an overall picture of these programs and identify the literature gap; thus, a scoping review will be conducted to synthesize the evidence to answer these questions. This review, moreover, can give directions for improving the retention of females in apprenticeship programs.

Methods: This Scoping Review will follow the Joanna Briggs Institute methodology for scoping reviews (2020 version). We will conduct a comprehensive literature search in all databases (medical and non-medical), including medical databases, such as MEDLINE, EMBASE, CINAHL, Occupational Therapy Systematic Evaluation of Evidence database (OTseeker) and grey literature.

Poster #32B: Understanding content validity for the Patient Reported Outcome Measure for Amputation (PRO-AMP): a cognitive interview study

Cimino, Stephanie R.[1]; Guilcher, Sara J.T.[2,1]; MacKay, Crystal[3,1]; Mayo, Amanda L.[4]; Kayssi, Ahmed[5]; Domingo, Aristotle[6]; Viana, Ricardo[7]; Devlin, Michael[3]; Dilkas, Stephen[3]; Hitzig,Sander L.[4,1]

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Funding: Dr. Sander L. Hitzig's (Supervisor's) Canadian Institutes of Health Research Grant

Background: Patient-reported outcome measures (PROMs) are useful tools that capture the perspectives of a patient’s symptoms, burden of their condition, and overall health. There is currently a lack of PROMs assessing quality of life in people with lower extremity amputation (LEA).

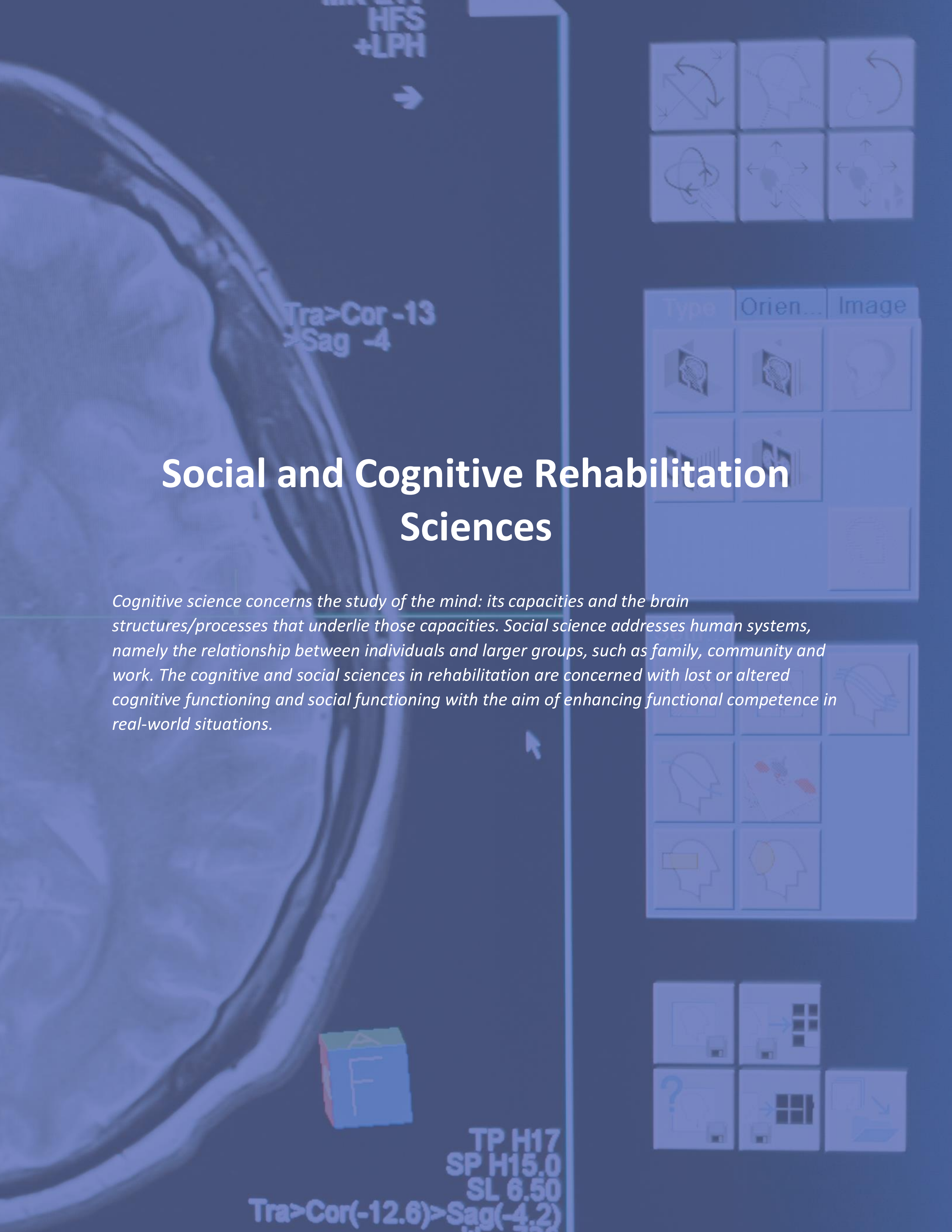
Purpose: To ensure content validity of the items developed for the PROM for quality of life (QoL) for persons with LEA (PRO-AMP).

Methods: PROM development was guided by the steps outlined by Haywood and colleagues. Item generation was guided by several data sources including qualitative interviews with persons with LEA to solicit meaningful patient identified areas of exploration, published knowledge syntheses and stakeholder opinion (clinicians and those with lived experience) to check the applicability of the initial item set. The resulting set of items (N=140) was administered to participants via cognitive interviews, which ensures that participants understand the items and that they are applicable to the target population. Participants were assigned into one of six groups based on item set domains (general health, mental health, mobility, occupation, physical health and relationships). The Question Appraisal System-99 was used to analyze the cognitive interviews.

Results: Twenty-four participants with LEA completed the first round and second round of cognitive interviews. The most common sources of error during the first round were vague terminology and lack of reference/time period. Six questions were refined and re-administered to four new participants with no additional major problems being identified.

Discussion: Cognitive interviews were pivotal in identifying problems with the items. This methodology ensured items were understandable and relevant to persons with LEA.

Significance and Implications for Person-Oriented Research: The creation of the PRO-AMP using an established PROM development process will ensure that the newly developed measure will be meaningful to the LEA population. PROMs are important tools that can help clinicians and researchers to understand: 1) how to best provide patient-oriented care; 2) how to provide more meaningful and individualized care; 3) how effective treatments are; 4) the quality and completeness of health services; 5) how research can address the impairments of living with LEA; and 6) how to develop and implement new policies to help improve QoL. Hence, the final PRO-AMP will fill an important gap in understanding the impact of LEA on an individual’s QoL, which will lead to improved care by allowing for a more nuanced understanding of the impact of living with LEA.



Social and Cognitive Rehabilitation Sciences

Cognitive science concerns the study of the mind: its capacities and the brain structures/processes that underlie those capacities. Social science addresses human systems, namely the relationship between individuals and larger groups, such as family, community and work. The cognitive and social sciences in rehabilitation are concerned with lost or altered cognitive functioning and social functioning with the aim of enhancing functional competence in real-world situations.

Poster #33A: Understanding Parallels and Peculiarities: A Protocol for a Multi-Site Pilot Study on Persistent Concussion, Anxiety, Neuropsychology, and Neuroimaging (PeCANN)

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Field of Research: Social and Cognitive Rehabilitations, Collaborative Program in Neuroscience

Funding: Rehabilitation Sciences Instituted

Background: Children and youth are at significant risk of concussive injury and prolonged recovery due to their developing brain. While most youth recover within four weeks, approximately 30% experience persistent post-concussion symptoms (PPCS), lasting months to years. Youth with PPCS often experience mental health concerns such as anxiety and depression. However, it is challenging to predict which youth are more likely to experience PPCS and require interdisciplinary support, as clinicians rely on self-report and patient history for diagnosis. Additionally, there are no consistently observed structural neuroimaging biomarkers to detect and predict outcome following concussion.

Purpose: The PeCANN study is a pilot project targeted at identifying differences and similarities in neuroimaging and neuropsychological outcomes between youth with PPCS (study group) and youth with anxiety (control group), to better understand the long-term emotional outcomes of pediatric concussion. Given the significant anxiety symptoms experienced by many youths with PPCS, the inclusion of an anxiety control group (without a history of concussion) provides a unique comparison targeting mental health concerns.

Methods: Two groups (12-18 years; PPCS and age- and sex-matched anxiety controls; n = 25 per arm) will undergo parallel procedures including neuropsychological assessment and MRI. Neuropsychological assessment is comprised of comprehensive battery testing cognitive domains (general intelligence, attention, memory, executive function) using standardized clinical measures. Self-report and parental questionnaires on emotional and behavioural outcomes are completed. Multi-modal MRI utilizes structural and resting-state functional modalities to provide comprehensive images. Data analysis will entail multivariate, logistic regression pipelines to compare neuroimaging data to neuropsychological assessment results. Variables assessed will include but are not limited to age, sex, medications.

Anticipated results: To date, 19 youth have completed the study with recruitment ongoing. We expect to see some differences between groups in MRI and/or neuropsychological assessment.

Discussion: Project outcomes will foster discussions by targeting youth at greatest risk for psychological morbidity post-concussion. By examining the underlying pathophysiology of PPCS, this research aims to identify neural targets for therapeutic interventions such as brain stimulation, which will enhance the diagnosis and management of chronic concussion symptoms.

Significance and Implications: Investigating the connections of emotional outcomes and neuroimaging in the two groups with similar clinical presentations will clarify ambiguities between PPCS and mental health symptom interconnection.

Poster #34B: Repetitive transcranial magnetic stimulation to promote positive self-regulatory behaviour in children with autism spectrum disorder: A pilot study

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Funding: Dr. Deryk Beal (Supervisor) Canadian Institutes of Health Research (CIHR) funded grant,2022-2023 The Azrieli Foundation COVID-19 Bursary

Background: Children with autism spectrum disorder (ASD) often present with comorbid self-regulation impairments that can impact physical and mental health. Self-regulation impairments manifest as poor managing of emotions or behaviours that often lead to negative social and communication outcomes. Furthermore, self-regulation is thought to contribute to the core symptoms in ASD and has been challenging to treat clinically. Thus, interventions to promote self-regulation are needed to improve the quality of life in autistic children.

Purpose: To address this crucial health gap, we asked: was it feasible and tolerable to carry out a randomized controlled trial to determine if 15 sessions of rTMS therapy could improve clinical outcomes associated with self-regulation in children with ASD?

Methods: With funding from CIHR and the Azrieli foundation, we carried out a pilot randomized controlled trial with a sham comparison group. All 6 participants were children with ASD. Participants were blind to condition, with 3 participants receiving active rTMS targeted to the left dorsolateral prefrontal cortex, and 3 participants receiving sham rTMS. All participants received 15 rTMS sessions, delivered 5 days/week for 3 weeks. To measure self-regulation, parents of participants completed clinical assessments at week 0, week 6, and week 18 of the study.

Results: Preliminary data analysis showed that: (1) participants assigned to the active condition tolerated rTMS much less than participants in the sham condition, (2) irrespective of group condition, participants with lower IQ had more difficulty keeping their head still and positioned under the rTMS coil; and (3) clinical assessment scores from week 0 to week 6 did not improve in the active group when compared with the sham group. Instead, both the active and sham group saw improvements in clinical assessment scores at week 6 when compared with their scores at baseline.

Significance and Implications for Person-Oriented Research: The demand from families and caregivers for novel alternative therapies to promote positive self-regulatory behaviour is high. Recent literature has suggested the potential of rTMS for managing poor emotional and behavioural regulation in ASD. In this context, there is an urgent need for a revised large-scale clinical trial, and subsequent evaluation of the efficacy of rTMS for improving self-regulation in ASD. This study fills an important gap in health knowledge globally by identifying key considerations for informing future clinical trials.

Poster #35A: Social Support and Concussion: Exploring the experiences of youth facing barriers

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Field of Research: Social and Cognitive Rehabilitation, Occupational Science,

Funding: 2022-2023 Ontario Graduate Scholarship, Dr. Nick Reed's (Supervisor's) Canada Research Chairs Program

Background: Social support is a process whereby an individual exchanges resources with another to enhance their well-being. It can also help improve concussion recovery by mitigating emotional, psychological, and psychosocial symptoms. However, social supports' health benefits are dependent on the recipient's appraisal of support which is influenced by one's demographic, socio-economic and geographical factors. Youth facing barriers to positive development includes youth who may require additional supports to reach their full potential (e.g., racialized, low income). Their perspective of social support is currently unknown and may differ from those previously described in the literature who do not experience similar life circumstances.

Purpose: This study will explore the experiences of youth facing barriers to positive development who have sustained a concussion to develop a detailed and rich understanding about what constitutes meaningful social support during concussion recovery.

Methods: The study will use an interpretive phenomenological methodology and operate within a constructivist paradigm that adheres to a relativist ontology and a subjectivist/transactional epistemology. Eight participants will be recruited aged 13 to 18 years who experienced a concussion during high school and that self-identify as a youth facing barriers to positive development. Data collection for the study will include a 90-minute one-on-one interview comprised of demographic and rapport building questions, a concentric circle activity and semi-structured interview questions. Data will be analyzed using interpretive phenomenological analysis. Each transcript will be analyzed before moving on to the next participant transcript. Member reflections and reflexive journaling will be used to account for multiple perspectives and recognize how analysis was influenced by researcher for-conceptions.

Results: Four interviews have been conducted and data analysis is currently underway.

Discussion: Through the investigation of participants' experience of receiving social support during recovery, aspects related to how and by whom social support is or is not provided and why participants of this population value it or not will be better understood.

Significance and Implications for Person-Oriented Research: This understanding may lend to better person-centered care through the provision of improved social support following concussion injury in an at-risk population significantly underrepresented across all concussion research.

Poster #36B: Co-designing and testing the usability of an autism disclosure decision-aid tool for autistic youth and young adults in employment settings

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Field of Research: Social and Cognitive Rehabilitation, Knowledge Translation & Rehabilitation Sciences

Funding: SSHRC Doctoral Fellowship, Dr. Sally Lindsay's (Supervisor's) CIHR-SSHRC Partnership grant and Kimel Family fund grant, CHILD-BRIGHT Graduate Fellowship in Patient-Oriented Research

Background: Deciding whether and how to disclose one’s autism at work is complex, especially for autistic youth and young adults since they are newly entering the workforce and still learning important self-determination and decision-making skills. This population may benefit from tools to support disclosure processes at work; however, to our knowledge, no evidence-based, theoretically grounded tool exists.

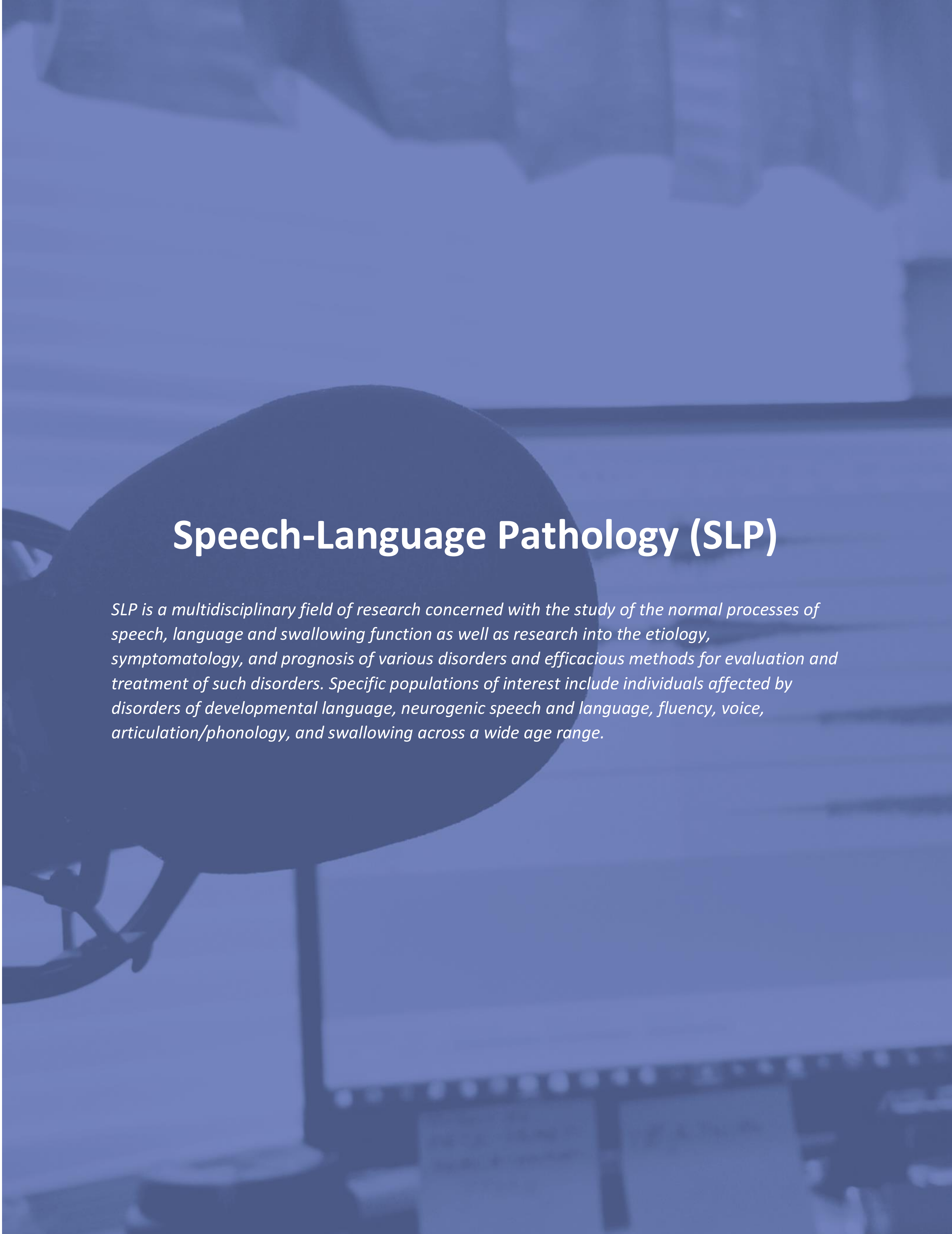
Purpose: 1) To co-design a prototype of a disclosure decision-aid tool with and for autistic youth and young adults; 2) to explore the perceived usability of (usefulness, satisfaction, ease of use) and experiences with the prototype; 3) and outline the process used to achieve the preceding objectives.

Methods: Taking a patient-oriented research (POR) approach, we engaged four autistic youth and young adults as collaborators. Prototype development was guided by co-design and POR principles and strategies. Prototype content was informed by a prior needs assessment led by our team, the collaborators’ lived experiences, considering intersectionality, and research and recommendations on knowledge translation (KT) tool and decision-aid development. We co-designed an interactive PDF prototype. To assess perceived usability and experiences with the prototype, we conducted four participatory design / focus group Zoom sessions with 19 Canadian autistic youth and young adults (mean age 22.8 years). We analyzed the data using combined conventional analysis (inductive) and modified framework method (deductive).

Results: We developed four categories to describe the data: 1) past disclosure experiences, 2) prototype information and activities, 3) prototype design and structure, and 4) overall usability. Participant feedback was favorable and indicative of the tool’s potential impact and usability. The usability indicator requiring the most attention was ease of use.

Discussion: We developed a novel decision-aid tool that may help autistic youth and young adults navigate disclosure processes. Our findings highlight the importance of engaging knowledge users, incorporating POR and co-design strategies and principles, and having content informed by relevant theories, evidence, and knowledge users’ experiences.

Significance and Implications for Person-Oriented Research: We present a co-design process that other researchers, clinicians, and KT practitioners may learn from and use to support POR. Our findings illustrate the importance of POR to co-create meaningful research.



Speech-Language Pathology (SLP)

SLP is a multidisciplinary field of research concerned with the study of the normal processes of speech, language and swallowing function as well as research into the etiology, symptomatology, and prognosis of various disorders and efficacious methods for evaluation and treatment of such disorders. Specific populations of interest include individuals affected by disorders of developmental language, neurogenic speech and language, fluency, voice, articulation/phonology, and swallowing across a wide age range.

Poster #37A: Attentional Effort during Linguistic and Nonlinguistic Processing in Monolinguals and Bilinguals: A Pupillometry Study

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Funding: Dr. Monika Molnar's (Supervisor's) Natural Sciences and Engineering Research Council of Canada Grant

Background: Despite half of the global population being bilingual, most language and cognition theories are based on monolinguals. This leads to a bias toward serving monolingual clients in speech-language pathology clinical practice. For more inclusive services considering bilingual individuals, we developed this study to advance theories of bilingual language and cognition. Specifically, we investigated how language profile (monolingual vs. bilingual) impacts attentional effort, indexed by pupil dilation (Sirois & Brisson, 2014), during linguistic and nonlinguistic auditory processing.

Purpose: Based on previous research (Borghini & Hazan, 2018; 2020), we hypothesize that bilinguals will have larger pupil size than monolinguals when attending to English. We also predict that only bilinguals will exhibit similar pupil responses when listening to English and an unfamiliar language. During nonlinguistic processing, pupil size will increase as the task becomes more difficult, yet there might not be group difference.

Methods: Participants - We will recruit 70 English-speaking young adults (18-25 years): 35 monolingual; 35 bilingual who learned both languages before age three. Sex and socio-economic status were controlled. Data collection and analysis- Participants performed an active listening task, in which they listened to short passages (i.e., linguistic session) and musical sounds (i.e., nonlinguistic session) then answered a question in the end to identify a target word/sound. Pupil data were collected, and analyzed via generalized additive mixed-effects modelling using the mgcv and itsadug packages in R.

Results: Preliminary results reveal different patterns of pupil dilation in linguistic and nonlinguistic processing. In the linguistic session, bilinguals had larger pupil responses than monolinguals when listening to English. Further, only bilinguals showed similar pupil dilation when attending to English and an unfamiliar language. However, there was no group differences in the nonlinguistic session.

Discussion: Using pupillometry, we found greater attentional effort in bilinguals than monolinguals when processing speech sounds, which supports previous evidence. Yet, we did not observe group differences when processing musical sounds, corroborating our hypothesis.

Significance and Implications for Person-Oriented Research: Our findings contribute to building language and cognition theories oriented toward bilinguals, which are lacking in the field. More importantly, they also provide insights into delivering more equitable and inclusive SLP services to bilinguals.

Poster #38B: Towards Equity in Early Literacy Screening: Establishing Predictive Validity of an Urdu Phonological Tele-Assessment (U-PASS) Tool

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Funding: SSHRC CGS-D

Background: Approximately 56% of children globally and 30.3% of Canadian children have inadequate reading skills (UNESCO, 2017; Conference Board of Canada, 2012). Early reading intervention is crucial for age-appropriate literacy and academic development. A major component of early intervention is literacy precursor assessment tools that can detect future reading difficulties prior to their manifestation. These tools have been predominantly developed for English monolingual children, despite 50% of the world's population being bilingual (Grosjean, 2010; Ryan, 2013). Literacy precursors include phonological processing (i.e., recognition and manipulation of spoken sound structures), which predicts future reading abilities.

Purpose: The community-engaged longitudinal project will focus on predictive-validation of an Urdu Phonological Tele-Assessment (U-PASS) Tool, developed in my MSc. Using the novel tool, we will examine whether kindergarten Urdu phonological processing skills (Timepoint 1) predicts Grade 1 Urdu word-reading (Timepoint 2) of Urdu-English bilinguals across Canada and Pakistan.

Methods: Similar to previous biliteracy research (e.g., Anthony et al., 2009; O'Brien et al., 2019) and based on G*Power Analysis, 160 Urdu-English bilinguals will be assessed on their Urdu phonological processing (Timepoint 1; status: completed) and word-reading (Timepoint 2; status: in-preparation for June-December 2023) in Canada (n=80) and Pakistan (n=80). Participants: We will assess typically-developing Urdu-English simultaneous bilingual Canadian and Pakistani children who are: in Senior Kindergarten at assessment timepoint 1 (i.e., 5-6 years), have no reported history of cognitive difficulties, and wereexposed to Urdu and English prior to 3 years.

Results: In line with our prior findings (Bhalloo & Molnar, 2021) regarding concurrent validity of the novel tool, I anticipate that kindergarten phonological processing skills will predict future Grade 1 reading.

Discussion: , Along with publishing our findings in an open-access journal, we will create a dissemination platform to share the novel tool with researchers and clinicians globally.

Significance and Implications for Person-Oriented Research: The novel open-access tool will enable speech-language pathologists to screen vulnerable bilingual children – rather than waiting until the child gains sufficient English proficiency. Our theoretical findings will be relevant to languages linguistically-related to Urdu, including Arabic and Persian, which are spoken globally.

Poster #39A: Non-pharmacological interventions for bulbar symptoms in amyotrophic lateral sclerosis (ALS): A rapid review

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Funding: KITE–Toronto Rehab's TD Graduate Scholarship for People with Disabilities, Toronto Rehabilitation Institute Student Scholarship, Dr. Bernard Lau Memorial Scholarship

Background: To date, there are only two systematic reviews on dysarthria and dysphagia management in ALS for Speech-Language Pathologists (SLP). These reviews paved the foundation around the use of behavioural strategies and alternative interventions, and the disuse of exercises. It identified the need for effectiveness research and rigorous study designs. Later non-systematic reviews argued for the role of exercises for some patients, underutilization of speech supplementation, and emergence of new interventions. In light of these fragmented efforts and inconsistent conclusions, an updated systematic review is warranted to determine what interventions work and for whom these treatments might be beneficial.

Purpose: To synthesize and appraise research evidence on non-pharmaceutical interventions for dysarthria and dysphagia management in adult patients with ALS (pALS).

Methods: A rapid review was conducted on peer-reviewed articles. We searched CINAHL, EMBASE, and MEDLINE using text words and MeSH terms for ALS, dysarthria/dysphagia, and rehabilitation. Eligibility criteria included pALS, non-pharmaceutical interventions that reduce bulbar symptoms or improve bulbar function, interventions where SLPs are involved with decision-making, written in English, and original data. Two reviewers completed screening and data extraction; discrepancies resolved by consensus. Data was extracted for (1) participant and intervention characteristics; (2) intervention targets and outcome measures; and (3) study design (level of research evidence). Articles were appraised using the Mixed Methods Appraisal Tool; intervention effectiveness was rated using the NHMRC Hierarchy and GRADE system.

Results: 536 full-text abstracts were screened. Many interventions were designed for mild and moderate severity and were compensatory and rehabilitative in nature. Intervention options were limited for severe to profound severities and focused on alternative communication and/or nutrition. Dysarthria interventions targeted impairment, function, activity/participation; dysphagia interventions targeted impairment and function. The highest level of evidence was noted for gastrostomy (1 – Systematic review) and expiratory muscle strength training (2 – Randomized control trials). Lower-level evidence was noted for other behavioural and surgical interventions.

Significance and Implications for Person-Oriented Research: This research can help SLPs to personalize treatment to presenting symptom severity and communicate the effects of these options to support decision-making with patients and their families.

Poster #40B: Language and Cognitive Correlates in The Developing Bilingual Brain

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Field of Research: SLP, Social and Cognitive Rehabilitation

Funding: Dr. Monika Molnar's (Supervisor's) Natural Sciences and Engineering Research Council of Canada

Background: Behavioural neuroimaging of language and cognition in developing populations can broaden our understanding of functional brain plasticity and identify neural correlates in brain-behaviour relationships. However, studies have primarily recruited from monolingual populations; the experience of learning two languages, as opposed to one, from a young age may offer further insights.

Purpose/Hypothesis: This systematic review provides a preliminary exploration of (1) brain areas involved in typically developing, bilingual children's processing of language and/or cognitive tasks and (2) how these brain regions compare with those identified in monolingual children, using meta-analytic techniques. We hypothesize that children will recruit similar neurocognitive structures, regardless of their language environment, though certain domains can differ in activity depending on extent of bilingualism, age of participants and task type.

Methods: Three databases and an ancestral search identified studies. Only studies that were peer-reviewed, primary texts; had both bilingual and monolingual subjects <18 years of age; reported activations in Talairach/MNI coordinates for language and/or cognitive fMRI/fNIRS tasks; and did not evaluate literacy-related processes, were included in the review. Independent reviewers assisted in a title and abstract screening for relevance, a full-text screening to determine inclusion and a quality appraisal of the accepted studies.

Results: Twenty-seven fNIRS and fMRI studies met the inclusion criteria, of which 7 fMRI studies were included into an exploratory meta-analysis. The review of literature suggests that: (1) bilinguals' neural correlates of language and cognition revealed clusters primarily in left and right superior temporal gyrus; (2) functional differences between bilinguals and monolinguals were in the left inferior frontal gyrus. Overall, the frontal and temporal gyri are common denominators in the investigated processes across both groups; however, differences may lie in lateralization.

Significance and Implications for Person-Oriented Research: A better understanding of bilingual neurobiology and how differences may be task- and domain-related can inform the rehabilitative process, in case of damage to language and cognitive neural correlates (e.g., stroke, traumatic brain injury). Person-oriented care requires open communication between clinicians and young clients and caregivers. Sharing information regarding bilingual differences can enhance involvement of young people and their families during intervention and goalsetting.

Poster #41A: The Development and Assessment of the OPEX 'OroPharyngeal EXercises' App

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Field of Research: SLP, Rehabilitation Technology Science

Funding: Ontario Graduate Scholarship (OGS), Canadian Partnership for Stroke Recovery (CPSR) Collaborative Grant, Canadian Institutes of Health Research (CIHR), BranchOut Neurological Foundation

Background: Oropharyngeal exercises have emerged as a therapeutic option for treating obstructive sleep apnea (OSA) after stroke. These exercises deal directly with the underlying mechanism of OSA by improving the sensorimotor function of the upper airway muscles. We assessed the acceptance of a new smartphone-based application titled OPEX, which aimed to deliver oropharyngeal exercises to individuals with OSA at home.

Hypothesis: We hypothesized that participants would show high acceptance levels for the OPEX app.

Methods: This study included 30 participants from a clinical trial that assessed the feasibility of oropharyngeal exercises for OSA after stroke compared to a sham intervention. The OPEX application was used to deliver exercises to the groups at home. After completing the exercise program, all participants completed a 13-item questionnaire based on the Technology Acceptance Model (TAM) and a semi-structured interview. The relationship between cognitive skills and the level of acceptance of OPEX was also investigated in an exploratory fashion.

Results: The level of acceptance was relatively high among all participants with a global median of 43 (IQR: 43-45) out of 52 in the questionnaire. In the semi-structured interviews, three main themes emerged: (1) ease of use and accessibility, (2) usefulness and convenience, and (3) motivation and adherence. Our analysis did not reveal any relationship between cognitive skills and the acceptance of OPEX. This study also identified desirable and undesirable features related to the OPEX app.

Discussion: This is the first study to provide evidence regarding the acceptance of the new app, OPEX, among stroke patients with OSA. Our findings provide insights into the adoption of oropharyngeal exercise apps by stroke survivors with oropharyngeal impairments.

Significance and Implications for Person-Oriented Research: Given the high cost and limited feasibility of institutional care for long periods, many patients opt for home care as a more viable and cost-effective alternative. Future research should explore the possibility of integrating the OPEX app into stroke care to potentially supplement institutional rehabilitation. Furthermore, to ensure access and equity in OPE programs, it is essential to consider the needs and preferences of patients, families, and caregivers. This involves developing exercise programs that reflect diverse cultural values and can be translated into different languages. By tailoring exercise programs to meet these cultural preferences, we can improve patient engagement, increase cultural sensitivity and promote equitable access to OPE programs.

Poster #42B: Exploring the Feasibility of Obtaining Speech and Language Outcomes Following Childhood Stroke Across Rehabilitation

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Field of Research: Speech-Language Pathology, Social and Cognitive Rehabilitation

Funding: Ontario Graduate Scholarship

Background: Paediatric stroke is a neurological injury caused by the occlusion or rupture of cerebral blood vessels and can be classified as perinatal (< 28 days) or childhood stroke (28 days to 18 years). A staggering 41 to 75% of children demonstrate impairments in speech and language functioning following stroke. A crucial stage for recovery is during post-stroke rehabilitation. However, there is little research describing speech and language outcomes during the course of rehabilitation, as well as the underlying neural mechanisms that are associated with these impairments.

Purpose: We aimed to: (1) prospectively document the feasibility in obtaining clinical speech and language outcomes and their neural correlates throughout the subacute phase of recovery during an intensive rehabilitation program and (2) develop an assessment protocol to investigate neural correlates of speech and language outcomes following stroke.

Methods: To explore study and recruitment feasibility, inpatient childhood stoke census data were analyzed from the Brain Injury Rehabilitation Team (BIRT) at Holland Bloorview Kids Rehabilitation Hospital in Toronto, Canada.

Results: From September 2022 to February 2023, 161 clients (aged 6 months-19 years) were admitted to the BIRT program. 21 clients were admitted due to a childhood stroke diagnosis, 16 of which met the eligibility criteria.

Discussion: From the feasibility calculation, a study protocol was then developed whereby participants (3 – 18 years) will complete clinical speech and language assessments and a magnetic resonance imaging (structural, functional) scan at three time points: admission, discharge, and 3 months post-discharge.

Significance and Implications for Person-Oriented Research: This project will provide an enhanced understanding of speech and language outcomes across post-stroke recovery. Our data will inform the innovation of earlier, and more personalized, assessments and interventions for speech and language difficulties across post-stroke rehabilitation.

Poster #43A: BootleVoice!: An app for pediatric voice intervention

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Field of Research: Speech-Language Pathology, Rehabilitation Technology Science

Background: Voice disorders are among the most common communication disorders in pediatric populations. During critical periods of oral language and psychosocial development, vocal symptoms including hoarseness, fatigue, and aphonia are known to have adverse effects on children's communication skills and overall quality of life. Despite these known implications, an absence of technologically relevant and accessible tools designed to support known barriers to successful voice treatment presently exists.

Purpose: The design of BootleVoice! will be an interdisciplinary collaboration between the University of Toronto, Holland Bloorview Rehabilitation Hospital PEARL Lab and the speech-language pathology community. This project, guided by Design Thinking and will involve ongoing engagement with end-users in the voice community.

Methods: Three formal research studies: (1) a needs-based assessment of speech-language pathologists, (2) a BootleVoice! usability study, and (3) a single-case experimental adherence study with one child diagnosed with vocal hyperfunction will be utilized to achieve the objectives of this project.

Results: By the end of this 3-year project, we hope to have co-created and translated an innovative technology that supports children, caregivers, and clinicians in achieving clinical voice and service delivery goals.

Significance and Implications for Person-Oriented Research: BootleVoice! will be the first systematically designed mobile application for pediatric voice intervention, and the only mobile application for voice intervention geared toward use with younger children to the author's knowledge. In a population that has been historically underserved, BootleVoice! is anticipated to provide the pediatric voice community with (i) an accessible and effective technology that can reduce clinician preparation time and mitigate proximity barriers to intervention, (ii) an engaging and developmentally appropriate medium for children to participate in voice intervention activities, (iii) reliable biofeedback tools that augment current voice therapy practices, and (iv) an opportunity to learn and build upon existing literature in mobile applications for voice intervention and speech-language therapy.

Poster #44B: Quality of Life in Oncology: A Systematic Review

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Funding: Ontario Graduate Scholarship, Swallowing Lab

Background: Patients with head and neck cancer (HNC) may experience dysphagia related to cancer and its treatments, leading to poor quality of life (QoL). Considering dysphagia predicts poor QoL for patients, it may also negatively impact their caregivers. Early work suggests that caregivers of patients with HNC have poorer psychological wellbeing and higher levels of distress, even compared to HNC patients themselves. Yet, the factors that induce these stresses are unknown. Current caregiver QoL (cQoL) tools are not specific to HNC and dysphagia. It is thus imperative to develop a psychometrically sound tool that captures cQoL dimensions specific to HNC patients with dysphagia. A crucial first step is to conduct a systematic review to gather and assess cQoL tools in oncological patients, as this may identify tools applicable to HNC and dysphagia.

Purpose: 1) Collect an inventory of caregiver measurements that address cQoL used on oncology patients. 2) Critically appraise the psychometric properties of cQoL measurements.

Methods: The search strategy will include six databases and target four concepts: caregiver, cancer, QoL, and outcome development. Two reviewers will screen the title and abstract of all unique citations, then screen all full papers. Interrater reliability between raters will be evaluated via Cohen’s k for every 100 citations, setting sufficient threshold at k= ≥0.80. Psychometric properties of quantitative studies aimed at tool development will be assessed via the COSMIN Criteria, and qualitative studies will be assessed with the CASP Qualitative Checklist.

Results: We anticipate the preliminary search from Medline will yield at least 10 unique tools with questionable application to the head and neck cancer population.

Significance and Implications for Person-Oriented Research: To inform future work in developing a psychometrically sound tool in the context of HNC and dysphagia.

Poster #45A: Repetitive Transcranial Magnetic Stimulation and Speech Motor Adaptation

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Field of Research: Speech-Language Pathologist, Rehabilitation Technology Science,

Funding: Dr. Deryk Beal's (Supervisor's) Natural Sciences and Engineering Research Council of Canada Grant,2022-2023 The Azrieli Foundation Covid-19 Bursary

Background: The application of neuromodulation methods has furthered our understanding of speech-related brain networks. There is motivation to explore the specific neural mechanisms underlying various components of the speech process, including their role in speech adaptation. The DIVA model suggests that adaptive learning process involves modification of feedforward speech motor commands, represented in the left ventral premotor cortex (LvMC) (Tourville & Guenther, 2011). There is a gap in knowledge and need for evidence of functionally relevant brain regions in human models.

Purpose: The goal of this study was to investigate the role of LvMC in performance on a speech adaptation task using repetitive transcranial magnetic stimulation (rTMS).

Methods: 33 participants (age 18-36) were screened as responders to the speech adaptation task and randomized to receive excitatory (intermittent thetaburst stimulation at 90% Resting Motor Threshold), inhibitory (continuous thetaburst stimulation at 90% RMT), or sham rTMS. Anatomical T1-weighted MRI images were uploaded to Brainsight neuronavigation software for localization of the LvMC in each participant by reverse co-registration from the MNI 152 stereotaxic coordinate (x-40, y0, z+30). Immediately following rTMS, participant's completed an auditory perturbation experiment (APE) in a sound isolation booth. Wherein auditory feedback was gradually shifted over 150 trials until it reached a maximum of a 25% increase in the F1 formant and 12.5% decrease in the F2 formant.

Results: Preliminary results show a significant phase effect (baseline vs. perturbation) in F1 ($F_{2,30}=39.81$ $P<0.001$) and F2 ($F_{2,30}=15.04$ $P<0.001$), but there was no interaction between group and phase in F1 ($P=0.85$) or F2 ($P=0.38$). As per Tang et al., 2021, a priori power calculation, 75 participants are required to detect a statistically significant difference across groups, data collection is ongoing.

Discussion: Our results clearly replicate the speech adaptation response in all participants that is well documented in the literature (Tang et al., 2021; Scott et al., 2020). Our preliminary findings show a possible, but unclear, interaction across rTMS group and phase of APE that should be resolved as we approach our target sample size.

Significance and Implications for Person-Oriented Research: The understanding of auditory motor integration is essential for the establishment and maintenance of speech-motor programs. Neuromodulation paired with APE has the potential to delineate the role of LvMC in speech adaptation and advance our understanding of the underlying neural processes, as well as inform potential neuromodulation therapeutic options.

Poster #47A: Physiotherapists' approach to aerobic exercise prescription during stroke rehabilitation

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Field of Research: Practice Science, Stroke rehabilitation

Funding: Dr Avril Mansfield's The funding comes from Canadian Institutes of Health Research.

Background: After stroke, people often experience a low cardiorespiratory fitness. Aerobic exercise post-stroke improves cardiorespiratory fitness and decreases the risk of having another stroke. But the number of people participating in aerobic exercise during rehabilitation is low. Previous studies tried to better understand the reason for the low rate of participation from physiotherapists' perspective. However, they only asked general questions related to aerobic exercise implementation resulting in physiotherapists talking about their perceived influential factors rather than the actual factors they take into account in practice.

Purpose: The purpose of this study was to explore physiotherapists' decision-making processes in relation to aerobic exercise implementation in stroke rehabilitation by discussing the charts of their four most recently discharged clients with stroke.

Methods: We conducted a qualitative descriptive study using thematic analysis informed by a pragmatic worldview. Data were collected through semi-structured interviews. Both deductive (using Theoretical Domain Framework) and inductive coding were used for analysis.

Results: Ten physiotherapists participated in the study. Three themes were identified: 1) physiotherapists' implementation considerations (with subthemes of outcome expectation of exercises, monitoring and use of objective measures, discharge planning/continuity of care affect aerobic exercise implementation, challenges and opportunities of working in a multidisciplinary team, physiotherapists prioritizing patient's goals based on their assessments and group norms regarding aerobic exercise assessment and implementation); 2) specific profiles of people with stroke and their goals (subthemes of physical, cognitive and emotional well-being, patient's low tolerance for aerobic exercise, and their pre-stroke profile, and patients' preferences, motivations and goals); 3) policies and priorities that organizations should follow and their infrastructure (including three subthemes of access to resources, policies and priorities and time limitations).,,Discussion: ,Physiotherapists' perceived influential factors to aerobic exercise implementation differ from the actual factors they consider in practice.

Significance and Implications for Person-Oriented Research: Healthcare policies and limited resources were mostly discussed in general questions while specific profiles of patients with stroke, their goals and preferences were mostly discussed in patient specific questions.

Poster #48B: Women's Cardiovascular Health and Cardiac Rehabilitation: A James Lind Alliance Priority Setting Partnership

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Field of Research: Cardiovascular health and Cardiac Rehabilitation, Cardiovascular health and Cardiac Rehabilitation

Funding: Dr. Tracey Colella (Supervisor)

Background: In Canada, heart disease is a major contributor to premature deaths in women; approximately 25,000 women succumb to heart disease yearly. Historically research has focused on males, perpetuating cardiovascular disease as a man's disease. Unfortunately, following a cardiac diagnosis women are also less likely to be referred to and complete cardiac rehabilitation (CR) – a risk reduction program that can enhance or maintain heart health through individualized programming including exercise, education counseling and peer support. CR completion has been associated with up to a 50% reduction in future cardiac events and improvements in quality of life.

Purpose: This project will ask people with lived experience of cardiovascular condition(s) and/or procedure(s) (including women with lived experience, family, friends, and caregivers) and clinicians (physicians, nurses, kinesiologists, physiotherapists, occupational therapists, dietitians and social workers) to identify and prioritize research questions for women's cardiovascular health and CR using the James Lind Alliance (JLA) priority setting partnership approach.

Methods: The JLA methodology will bring together a steering group, including people with lived experience and clinicians, to oversee all aspects of the project, including refining scope, developing surveys, and involving partner organizations. First, a survey will collect questions regarding CR from Canadians with lived experience of women's cardiovascular health and clinicians involved in their care. The steering group will analyse responses and check against existing research. Next, the same groups will complete a survey to rank and shortlist the questions for discussion at a future workshop. The final workshop will use the nominal group technique to facilitate discussion and consensus on a shared list of top 10 research priorities.

Results: The Women's Cardiovascular Health and CR Priority Setting Partnership will identify the top 10 research priorities from the perspectives of multiple knowledge users.

Significance and Implications for Person-Oriented Research: This national study will develop a new collaboration among people with lived experience, clinicians and researchers to define research priorities in the area of women's cardiovascular health and CR. The project will impact women living with cardiovascular disease by focussing future research and funding on the priorities of those with personal and professional experience of CR.

Poster #49A: Overcoming Barriers to Outpatient Cardiac Rehabilitation for Transcatheter Aortic Valve Implantation (TAVI) Patients Post Prehab

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Field of Research: Cardiovascular Prevention and Rehabilitation

Funding: Walter & Maria Schroeder Institute for Brain Innovation and Recovery Foundation

Background: Prehabilitation (prehab) and Cardiac Rehabilitation (CR) are complex intervention programs that consist of supervised exercise training, patient education, nutritional counselling, and psychosocial interventions. Participation in outpatient CR is considered the standard of care following a cardiac procedure. However, recent evidence suggests significant underrepresentation of TAVI patients post prehab in outpatient CR. The challenges faced by older adults participating in CR is not well-understood, despite these patients representing a growing proportion of the population. Focusing on identifying the perceived barriers and facilitators to CR participation is an important first step in addressing this knowledge gap.

Purpose: Specifically, we want to understand the following: (1) What are TAVI patient's perceptions of outpatient CR? (2) What are the perceived barriers and facilitators to participation in CR? (3) What strategies can be implemented to increase patients' awareness and participation in CR post-TAVI?

Methods: Patients (N=20) will be recruited from the prehab program at UHN using a purposive sampling strategy. The inclusion criteria include: 1) aged 65 and above, 2) have recently underwent the prehab & TAVI procedure, and 3) have not completed or completed CR post prehab & TAVI. A qualitative interpretive description design will be utilized, and focused interviews will be conducted to gain insights from the participants' experiences. Data will be analysed using deductive thematic content analysis guided by the socioecological (SE) framework.

Results: We anticipate identifying perceived barriers and facilitators to CR participation based on the following themes: interpersonal, intrapersonal, institutional, and environmental.

Significance and Implications for Person-Oriented Research: The study will allow for detailed exploration of barriers to CR following prehab among TAVI patients. It will contribute to the advancement of knowledge by addressing access barriers for the older, frail adult population.

Poster #50B: The effects of transcranial direct current stimulation (tDCS) on motor sequence practice in people who stutter

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Funding: Dr. De Nil's (Supervisor's) Natural Sciences and Engineering Research Council of Canada (NSERC) Grant, Rehabilitation Sciences Institute.

Background: It is postulated that both speech and non-speech impairments stem from impaired overlapping neural circuitry in primary motor regions affecting how people who stutter learn new motor skills. Transcranial Direct Current Stimulation (tDCS), whereby electrical current is applied to specific brain areas, has been used to improve speech motor learning in people who stutter. However, the effects of tDCS on non-speech motor learning in stuttering has yet been investigated. Given that both speech and non-speech impairments are interrelated, it is worthwhile to explore how tDCS affects non-speech motor learning.

Purpose: The objective of this project would be to determine whether non-speech motor learning could be improved through tDCS. We hypothesize that speed, accuracy, and reaction time would be affected using tDCS during a finger sequencing task.

Methods: 30 right-handed adults who stutter and 30 adults who do not stutter, between 18-50 years old, are recruited. The task involves participants typing a 10-numbered sequence repetitively with their left hand. Each population is divided into two groups: a sham and active stimulation group. The active group type the sequences while the right primary motor region is stimulated at 2mA for 20 minutes. The sham group types the sequence as they undergo a mock tDCS set-up where no stimulation is applied. We will evaluate the variances in speed, reaction time, and accuracy between active and sham stimulation.

Results: The active group is expected to learn the sequences more accurately and quickly than sham.

Discussion: The primary motor region is primarily involved in motor execution as it sends out motor commands to targeted muscle groups. The motor learning circuitry therefore relies on the primary motor region, along with other structures such as the basal ganglia and cerebellum, to execute all movements, including newly learnt and known movements. The results from this project will be indicative of whether tDCS modulates neuronal activity at the primary motor region. tDCS has been proven to improve synaptic connectivity which is essential for learning. Therefore, stimulating at the primary motor region could potentially improve synaptic connectivity and motor execution.

Significance and Implications for Person-Oriented Research: The study results will develop feasibility in using tDCS on non-speech motor learning in people who stutter. Additionally, we wanted to compare these improvements with people who do not stutter (typical speakers) as well. This will be the first study to directly compare the effects of tDCS on people who stutter and typical speakers, giving insight to tDCS between-group differences.

Poster #51A: Impact of Respiratory Versus Peripheral Muscle Dual Tasking on Cognitive Performance and Prefrontal Cortex Activity

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Funding: RAMP Lab Trust Fund

Background: Inspiratory threshold loading (ITL) is known to negatively impact cognitive performance and activate the cerebral cortex. However, previous literature has not investigated the impact of respiratory muscle loading versus peripheral muscle loading on cognitive performance and prefrontal cortex (PFC) activation. Thus, this study aims to compare ITL (dyspnea condition) to lower-limb pedaling (non-dyspnea condition) on Stroop task performance and PFC activation.

Purpose: We hypothesize that ITL-Stroop will have increased PFC activation and impaired cognitive performance compared to Pedaling-Stroop.

Methods: We conducted a cross-sectional repeated measures design in healthy adults. 30 participants (16 women; 21-35 years) performed five randomized tasks, three 3-minute single tasks: (1) Stroop task; (2) ITL (20 cmH2O); and (3) pedaling, and two 3-minute dual tasks: (1) ITL combined with the Stroop task; and (2) pedaling combined with the Stroop task. Pedaling resistance was adjusted during familiarization until a score of 2-3 (light-moderate) was reached on the Rating of Perceived Exertion Scale (0-10 scale). PFC activation was assessed throughout each task by measuring the change in oxygenated hemoglobin (ΔO2Hb) using functional near-infrared spectroscopy (fNIRS). Cognitive performance (percentage error and reaction time) was assessed in each Stroop task condition.

Results: We anticipate that ITL and ITL-Stroop will result in greater PFC activation than pedaling conditions, and that ITL-Stroop condition will result in greatest PFC activation (largest increase in ΔO2Hb). We also anticipate that ITL-Stroop will result in increased reaction time and percentage error compared to Pedaling-Stroop and Stroop conditions.

Discussion: There will be greater cognitive-motor interference in the ITL-Stroop condition suggesting dyspnea competes with cognitive resources.

Significance and Implications for Person-Oriented Research: Dyspnea is known to be a subjective perception of breathing discomfort, yet the mechanisms of the cognitive impact of dyspnea still need to be elucidated. By examining PFC and cognitive activity under loaded breathing, greater understanding regarding the holistic perception of dyspnea can be appreciated. The implications for person-oriented research are that by examining the PFC one can gain a deeper insight into the individual differences of dyspnea perception.

Poster #52B: Exploring predictors of participation from preschool to school aged children with cerebral palsy

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Funding: Dr. Darcy Fehlings (Supervisor's) Ontario Brain Institute Funding (CP-NET)

Background: Cerebral palsy (CP) is the most commonly occurring childhood physical disability. Children with CP engage in more sedentary, home-based participation compared to actively in their community. A knowledge gap exists in understanding preschool-to-school-age participation and its child-related determinants.

Purpose: Aims: 1a) Describe participation patterns at preschool and school age (frequency/types of activities, environments) and 1b) Investigate the association between child factors at baseline on community participation at school age

Methods: The ‘CP-NET Clinical Database’ collects data on children with CP at two time points: at ages 2 to <6 years and at 6 to 8 years from treatment centres across Ontario. Parent proxy reported participation (Young Children’s Participation and Environment Measure, Participation and Environment Measure-Children and Youth) in home and community at two time-points. Higher values on an 8-point scale specify increased frequency. A linear regression determined associations between baseline child factors: CP-subtype, gross motor (Gross Motor Function Classification System) and manual function (Manual Ability Classification System), sex, pain (HUI-3-Pain), mental health (Prosocial Scale- Strengths and Difficulties Questionnaire), and community school age participation.

Results: Two hundred forty-six of 415 children with two time points of data were included (57% male, 43% female, 65% GMFCS Level I/II). Median age at baseline was 45 months (IQR=26) and at school age was 77 months (IQR=11). Children participated infrequently in their community at two time points (preschool ($\bar{x}$ =2.2 +2.06) to school age ($\bar{x}$ =3.1 +2.02) and change in frequency over time was non-significant (t=0.39, df=395, p=0.69, 95%CI [-0.18, 0.27]. A linear regression identified lower gross motor function and manual ability, decreased social behaviour, maleness and increased pain at pre-school age were associated with lower community participation at school age (R2=0.29, F=3.50, p=0.001).

Discussion: In children with CP, community participation remains restricted overtime from preschool to school age. Preschool factors (lower gross motor and manual ability, decreased social behaviour, maleness, and increased pain) predicted lower community participation at school age.

Significance and Implications for Person-Oriented Research: Knowledge of these factors will aid in designing a community participation intervention for young children with CP that can prioritize modifiable factors (i.e., pain, pro-social behaviour).

Poster #53A: Exploring the Self-Diagnosis Experiences of Autistic Women and Non-Binary People at the Intersection of Gender and Autism

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Field of Research: Social Sciences Perspectives, Social and Cognitive Rehabilitation,

Funding: Rehabilitation Sciences Institute, CAMH Azrieli Adult Neurodevelopmental Centre, Ontario Association on Developmental Disabilities

Background: Many Autistic adults, particularly women and non-binary people, have relied on or arrived at self-diagnosis either by choice or because they lack access to adult Autism assessment services. Limited understandings of Autism for non-men contribute to misdiagnosis, under-diagnosis, and diagnosis later in life. Moreover, males are two to three times more likely to receive an Autism diagnosis than females. Autism, commonly diagnosed as Autism Spectrum Disorder in medicine, has been heavily researched from a neurobiological perspective focused on deficits in communication, interaction, and expression. Less attention has been paid to lived experience perspectives of self-diagnosed Autistic people.

Purpose: This study explores the self-diagnosis experiences of Autistic women and non-binary people at the intersection of gender and Autism and aims to: (1) describe self-diagnosis experiences of Autistic women, (2) examine how understandings of diagnosis, gender, and Autism shape their self-diagnosis experiences, and (3) explore the implications for them and their lives.

Methods: This critical qualitative study elicited the perspectives of seven Autistic women and non-binary people in Ontario through either a virtual interview or an open-ended written questionnaire. Drawing on reflexive thematic analysis procedures, interview and questionnaire data were analyzed both inductively to describe self-diagnosis experiences and deductively to examine assumptions and power relations underlying understandings of diagnosis, gender and autism using critical Autism studies and intersectionality as theoretical lenses.

Results: Gendered understandings about Autism presentation and prevailing assumptions about Autism as deficit-based pathology contribute to women and non-binary people relying on or choosing self-diagnosis. Some participants chose self-diagnosis because they could not access clinical assessment, whereas others preferred self-diagnosis. Autism self-diagnosis provided a basis for self-acceptance, connection to other Autistic people, and informal accommodations.

Discussion: This analysis will provide a critical foundation for creating needed support to address Autism diagnostic barriers, health care apprehension, and provides insight into a process undertaken by many Autistic adults.

Significance and Implications for Person-Oriented Research: This research centers the lived experiences of a group that has not had equitable access to Autism assessment services and challenges the extent that Autism health and diagnostic services are person-centered vs system-centered.

Poster #54B: A content analysis of the concussion education provided to Canadian high school students during a peer-led concussion education program

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Funding: 2022-2023 Ontario Graduate Scholarship, Dr. Reed's Canadian Institutes of Health Research (CIHR) Project Grant

Background: Concussion education delivered in the school setting has the potential to improve concussion knowledge and behaviours in youth. In particular, peer-led education programs may be beneficial as they allow youth to adapt concussion education to their needs. However, to date, no studies have assessed the content shared during a peer-led concussion education program. An analysis of the content shared and dissemination strategies used by students during a peer-led concussion education program can provide insights into the extent of the concussion education provided to students and students' preferred dissemination strategies.

Purpose: Explore the information shared within three high schools' peer-led concussion education programs and describe the dissemination strategies applied by students to share concussion content with peers.

Methods: Three Canadian high schools delivered peer-led concussion awareness campaigns during the 2021-2022 school year as part of the Youth Concussion Awareness Network (You-CAN) program. Campaign details and materials were retrieved from each school through email and an online campaign details form. A coding framework comprised of eight concussion topics was created to describe the content included within each school's concussion awareness campaign. Topics covered by each school and the dissemination strategies used by students during their concussion awareness campaigns were summarized using descriptive statistics.

Results: Results: Students covered an average of 42% of concussion topics within their concussion awareness campaigns. In total, students used six different dissemination strategies (e.g., videos and posters) to share concussion information with their peers. No schools used the same dissemination strategies.

Discussion: Significance: Concussion education initiatives self-directed by high school students may not address all pertinent topics related to concussions. As such, additional program guidelines may be needed to support the creation of more holistic concussion education interventions.

Significance and Implications for Person-Oriented Research: Education programs directed at schools should take a person-centred approach by tailoring dissemination strategies to students' unique environments as school context and students' learning needs and preferences can vary. Meanwhile, research should continue to explore students' concussion education needs and preferences to facilitate the design and implementation of more personalized and impactful education programs.

Poster #55A: Voluntary Elimination of Nasality in Typical Speakers using Forward Voice Focus and Biofeedback

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Funding: Dr. Tim Bressmann's Natural Sciences and Engineering Research Council of Canada (NSERC)

Background: Nasality disorders, such as hypernasality, impact speech intelligibility and cause social stigma. Hypernasality results from the failure of the velopharyngeal sphincter to regulate nasality. Current speech therapy interventions have limited efficacy due to the difficulty in voluntary control of the sphincter. Therefore, there is a need to explore new approaches for reducing nasality. Two techniques have been reported to have promising results in reducing nasality; forward voice focus by constricting the vocal tract and aiding velopharyngeal sphincter closure, and biofeedback to monitor nasality in treatment. This study aims to assess the efficacy of combining these techniques in eliminating nasality.

Purpose: The combination of forward voice focus and biofeedback will lead to a significant reduction in nasality in the speech of typical speakers, as indicated by a decrease in nasalance score after the intervention.

Methods: Twenty typical speakers were divided into two groups to receive visual or tactile biofeedback. Nasometer collected Nasalance Scores for sentences with nasal sounds in different conditions, beginning with a baseline, followed by reducing nasality using forward voice focus and biofeedback, ending with a recording without biofeedback. Descriptive and inferential statistics were used to compare the nasalance scores between the baseline and the final recording.

Results: Both visual and tactile biofeedback groups showed significant reduction in nasalance scores after treatment ($p<0.001$). The visual biofeedback group showed a decrease in scores (ANOVA: $F(2,18)=49.06$, $p<0.001$), dropping from 59.99 (SD 7.85) at baseline to 28 (SD 14.75) without biofeedback. Similarly, the tactile group had ';9reduction (ANOVA: $F(2,17)=21.83$, $p<0.001$), dropping from 61 (SD 8) at baseline to 32.9 (SD 18.94) without biofeedback.

Discussion: The results of this study provide evidence for the effectiveness of combining forward voice focus and biofeedback in reducing nasality in typical speakers. However, further studies are needed with hypernasal speakers to validate these findings.

Significance and Implications for Person-Oriented Research: This study extends beyond clinical practice to the knowledge base and suggests that forward voice focus facilitates velopharyngeal closure, which has implications for understanding the mechanisms of nasality control. This program's design allows for a person-oriented approach by customizing it to the individual's needs through adjusting its intensity and combining it with other interventions such as flap surgery and speech prosthesis.

Thank you!

From the 2022/23 RSI Research Day Committee

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