

**Occupational Therapy Summit of Scholars:  
Research in a Virtual World  
Conference Proceedings  
Virtually Hosted by Colorado State University  
June 23 – 25, 2021**

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# WORKS IN PROGRESS

## Works in Progress Moderators

First Name	Last Name	WIPS Track	Date
Andy	Persch	AOTF Intervention Grant Possibilities	Wednesday June 23
Patti	Davies	AOTF Intervention Grant Possibilities	Wednesday June 23
Shelly	Lane	Autism Across the Lifespan	Wednesday June 23
Isabelle	Bellefeuille	Autism Across the Lifespan	Wednesday June 23
James	Graham	Performance in Degenerative Conditions	Wednesday June 23
Natalie	Rolle	Performance in Degenerative Conditions	Wednesday June 23
Emily	Kringle	Perspectives on Multi-Site Collaborations	Wednesday June 23
Joy	Hammel	Perspectives on Multi-Site Collaborations	Wednesday June 23
Rachel	Proffitt	SARS-COV2 Service Delivery Impacts	Wednesday June 23
Michelle	Woodbury	SARS-COV2 Service Delivery Impacts	Wednesday June 23
Karen	Atler	Aging Well Despite Disability	Thursday June 24
Julie	Silver-Seidle	Aging Well Despite Disability	Thursday June 24
Kerri	Morgan	Implications for Community Practice	Thursday June 24
Carol	Haywood	Implications for Community Practice	Thursday June 24
Jaclyn	Stephens	Novel Technologies	Thursday June 24
Valerie	Hill	Novel Technologies	Thursday June 24
Roger	Smith	Post-Secondary Education Implications	Thursday June 24
Jim	Lenker	Post-Secondary Education Implications	Thursday June 24
Stacey	Reynolds	Research in Pediatrics	Thursday June 24
Stefanie	Bodison	Research in Pediatrics	Thursday June 24
Tim	Wolf	Stroke Rehabilitation	Thursday June 24
Kristen	Pickett	Stroke Rehabilitation	Thursday June 24

## ABSTRACT

Regular physical activity (RPA) helps older adults preserve current daily activity performance and manage and prevent chronic conditions. However, older adults living at home with activities of daily living (ADL) limitations lack RPA. Older adults with ADL limitations may receive in-home therapy from occupational and physical therapists as part of Medicare home health care. Therapists typically incorporate physical activity into their therapy but with a focus on regaining and maintaining antecedent function. Evidence is limited regarding in-home therapists' roles in assessing and promoting RPA among older adults with ADL limitations. The overarching goal is to understand the roles of occupational and physical therapists in RPA assessment and promotion in the context of Medicare home health care. The specific aims are to understand: (1) what is needed to assess and promote RPA in community-dwelling older adults with ADL limitations, (2) which needs can and cannot be addressed by in-home therapists according to Medicare regulations, (3) how occupational and physical therapists differ in their roles to assess and promote physical activity (PA), (4) what roles other workers covered by Medicare (e.g., nurses, home health aides) can play in PA promotion, and (5) how therapists can partner with caregivers in addition to other professionals covered by Medicare to increase RPA.

To address the aims, I will first identify and qualitatively analyze regulations from the Centers for Medicare and Medicaid Services. I will then systematically search CINAHL, Pubmed, ProQuest, and Google Scholar for published and gray literature about Medicare regulations, the roles of physical and occupational therapists in the home, and others' roles. I will screen the literature for inclusion, perform data abstraction using thematic analysis, and map the available regulations and literature to address the above mentioned aims.

1. What is one major challenge that you foresee in doing the study, and how might you overcome the challenge?
2. Who are the researchers or experts that you would want to consult with before conducting the search for Medicare regulations and related literature?
3. How might this research extend to occupational and physical therapists' roles to assess and promote RPA among community-dwelling older adults with ADL limitations who do not receive Medicare home health care?

The knowledge gained from this research is significant since there are an increasing number of older adults aging at home who have or will

# The Role of Therapists in Physical Activity Promotion Among Older Adults with Daily Activity Limitations in the Context of Medicare Home Health Care

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## WORK IN PROGRESS: Aging Well Despite Disability

Thursday June 24, 2021

10-11:30 a.m. MT

have ADL limitations. A major challenge for our country is ensuring that the older adults aging at home remain as healthy as possible. This research will clarify occupational and physical therapists' roles in RPA assessment and promotion in the context of U.S. Medicare home health care so that we can make recommendations to promote interprofessional collaboration.

The Dr. Frederick J. Kviz Ph.D. Dissertation Scholarship supports the research.

## ABSTRACT

**Introduction:** This study aims to develop a cognitive classification criterion (normal, moderate, severe) using the cognitive items and daily task items of the 2016 Korean Longitudinal Study of Aging (KLoSA) database. We hypothesized an association between cognitive classification criteria and various social-behavioral characteristics, including depression, residential area, participation status (religion, social, reunion gathering), and grip strength.

**Methods:** Participants were 5,022 Korean adults who completed the 2016 KLoSA. The Korean version of the Mini-Mental State Examination and the number of limitations in instrumental activities of daily living were used to classify participants as cognitively normal, moderate impairment, and severe impairment. A series of multivariate regression models were used to examine the association between cognitive status and five social-behavioral characteristics, controlling demographics, and clinical characteristics.

**Results:** The average age of the study participants was 66.3 years (SD = 8.1). The majority of the participants were classified as having normal cognition (77.2%), followed by moderate (19.2%) and severe cognitive impairment (3.6%). Regardless of sex, the grip strength was statistically different ( $p < .0001$ ) across the cognitive status classifications. However, there was no significant difference ( $p = .8434$ ) between moderate and severe cognitive impairment in males. Individuals with depression were more likely to have moderate (odds ratio [OR] 1.21, 95% confidence interval [CI] 1.17-1.25) or severe (OR 1.25, 95% CI 1.18-1.34) cognitive impairment than those without depression. People living in rural areas were more likely to have an impaired cognitive status (moderate impairment OR 1.81, 95% CI 1.48-1.21; severe impairment OR 1.92, 95% CI 1.27-2.89) compared to those living in urban areas. Lastly, individuals classified as having a moderate or severe cognitive impairment were less likely to perform participation activities (OR 0.52, 95% CI 0.43-0.62; OR 0.40, 95% CI 0.28-0.56, respectively) compared to those classified as having normal cognition.

**Questions for Feedback:** Is it possible to apply it to other countries by the algorithm for dividing the cognitive classification criteria used in this study? This study covariate included age, sex, education status, marital status, weight status, employment status, self-rated health, diabetes, hypertension, cerebrovascular disorder, smoking status, and alcohol status. Are there any risk factors for cognitive impairment that need to be added?

**Conclusion:** In this study, the cognitive classification criteria were developed using domestic KLoSA data. These results will allow occupational therapists to accurately classify patients' cognitive status, which is important in creating patient intervention plans.

# Development of Cognitive Classification Criteria for Korean Adults: Findings from the 2016 Korean Longitudinal Study on Aging

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**WORK IN PROGRESS: Aging Well  
Despite Disability**

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10-11:30 a.m. MT

Funding Source/Potential Funding Source: This work was supported by the Yonsei University Future-leading Research Initiative of 2020 [RMS2 2020-62-0053]

## ABSTRACT

Introduction: Leisure Education Program (Searle et al., 1995) is a twelve-session intervention program developed for people with disabilities. The program provides participants with the education to improve knowledge and attitudes toward leisure. It also educates participants to analyze and adapt activities to align with their leisure goals. Strong evidence (Smallfield & Molitor, 2018) supports using this program to improve leisure participation among older adults with chronic conditions. However, the evidence in using this program to directly improve physical and mental health outcomes is limited, as only a few studies have reported an increase in self-reported health and a decrease in stress.

This proposed project is to 1) adapt the Leisure Education Program for delivery among community-dwelling older adults; 2) pilot the Leisure Education Program among community-dwelling older adults with chronic conditions. We hypothesize that modifying the Leisure Education Program based on an evidence-driven and tailored approach can better enhance health outcomes in older adults with multiple chronic health conditions.

Methods: The project includes two phases: 1) modifying the Leisure Education Program 2) examining the feasibility of the program in promoting health outcomes in people with multiple chronic health conditions. We will include older adults age 65 or older with five or more chronic health conditions. Older adults with dementia (as measured by Short Blessed Test  $\geq 10$ ) will be excluded. The first phase will be conducted through a qualitative study using semi-structured interviews with a sample of 10-15 community-dwelling older adults with multiple chronic conditions who have low participation in leisure. Results will be analyzed using pre-determined coding schemes; findings will be used to adapt the program. The second phase is a feasibility randomized control trial (n=30) piloting the modified leisure education program. The primary endpoint will be PROMIS Physical Function (SF). Exploratory secondary endpoints will include Geriatric Depression Scale, Neuro-QOL Positive Affect and Well-being (SF), MOHO interest checklist, and a question about frequency of leisure participation.

Questions for Feedback:

1. How can the aims of the project be further refined?
2. Based on the targeted potential funding agency, would you like to suggest a name change on this modified intervention program?
3. Welcome to critique the conceptual idea, methodology, and endpoints.

Conclusion: Given that leisure confers unique meaning and provides multi-facets health benefits to our clients, developing this modified leisure

# Developing A Modified Leisure Education Program To Improve Overall Health In Older Adults With Multiple Chronic Health Conditions

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## **WORK IN PROGRESS: Aging Well Despite Disability**

Thursday June 24, 2021

10-11:30 a.m. MT

education program and proven its feasibility on improving desired health outcomes will provide preliminary evidence for future efficacy and effectiveness trials.

Potential Funding Source: NIA, Goal C, Approach C-1: Develop efficacious and cost-effective strategies for promoting and ensuring adherence to healthy and safe behaviors among older adults.

## ABSTRACT

**Introduction:** In 2019, an estimated 13.1 million adults aged 18 or older in the United States had Severe Mental Illnesses (SMI). People with mental health diagnoses die at 2.22 times a higher rate than the general population (Walker, Mcgee et al. 2015). The link between mental illness and mortality is complex, as comorbidities such as cardiovascular disease are avoidable and primary contributors to mortality. Adherence and motivation to lifestyle habits is low for this population (Vancampfort, Rosenbaum et al. 2015). To close this gap, we propose an intervention to address the lifestyle habits of adults with SMI by providing a structured 14-week intervention in the community. We aim to test the IHOPE intervention outcomes that include a fitness and wellness program based at a YMCA Healthy Living Center to gauge the effects of exercise and wellness interventions on individuals with SMI.

**Methods:** This proposed study is an RCT with 10 participants in each group with an active control group. The control group will receive a video home exercise program and be wait-listed for the program. A six-month follow-up study will include follow-up measures for establishing long-term effects. Participants were recruited from a local assertive care treatment (ACT) program which provides services to reduce hospitalizations due to mental illness and keep members within their community. The IHOPE Intervention (Integrating Healthy Habits Optimized by Community Experience and Engaged Learning) utilizes interdisciplinary faculty and students (OT and PT) to deliver 1:1 coaching and interventions. The program is completed two days a week (30 minutes of group intervention and 1-hour exercise) and one day of home exercise for 14 weeks. Group interventions focus on habits, nutrition, stress management, and exercise concepts. Measures will be done at pre/post-intervention and 6-month follow-up and include COPM, SF-36, GAD scale, PHQ-9, Rosenberg's Self Esteem Scale, Adult Hope Scale, Step Test, and health biomarkers (A1C, BP, Cholesterol, and weight), and focus groups. Data analysis includes paired sample t-test on pre and post measures and qualitative analysis of focus group data.

**Questions:** 1) credible control group 2) overall feedback on purpose/novelty of program 3) a possible funding mechanism

**Conclusion:** We seek to study a manualized intervention protocol to increase physical and mental health and quality of life outcomes for adults with SMI. Occupational therapy practitioners can positively influence lifestyle habits in individuals with SMI, but we lack evidence-based protocols. This program utilizes routine-based training to improve health and wellness outcomes for individuals with a mental health diagnosis.

# Y-OU-IMPACT: Rebooting Healthy Habits for Adults with Severe Mental Illnesses

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## **WORK IN PROGRESS: AOTF Intervention Grant Possibilities**

Wednesday, June 23, 2021

10:20-11:50 a.m. MT

Potential Funding: AOTF Intervention Research Grant – priority is to “advance the science of occupational therapy to support people's full participation in meaningful life activities.” This funding may lay the foundation for future research.

## **ABSTRACT**

**Introduction:** Sensory symptoms are a core diagnostic feature of autism spectrum disorders (ASD) and cause substantial functional issues. Auditory processing is the most commonly affected domain and neurophysiological measures of auditory processing have been proposed as translational biomarkers in ASD. Using electroencephalography (EEG), we have shown that individuals with ASD show atypical neural auditory processing, and that voluntarily directing attention to sounds result in more efficient neural processing. There is a critical need for research examining interventions for sensory and attention issues in ASD. Ayres Sensory Integration (ASI) is an evidence-based therapy shown to improve sensory symptoms and enhance participation in children with ASD across several clinical trials. A key component of ASI theory is the child's active engagement in individually-tailored sensory-motor activities during therapy, which is assumed to improve function and behavior through neuroplastic changes in the brain. However, no studies have examined neurophysiological correlates of ASI therapy and the mechanisms of neuroplastic changes. We assert that the child's active engagement is a critical ingredient in ASI therapy and there is a need to examine the impact of child's level of engagement on outcomes. This project aims to: a) determine the sensitivity and validity of EEG measures of auditory processing as a response biomarker following ASI therapy, and b) identify the behavioral and neural mechanisms underlying improved outcomes with ASI in children with ASD.

**Methods:** In 15 children with ASD aged 6-12 years, we will collect behavioral and EEG data pre and post 24 sessions of ASI. We will examine attention and sensory processing using standardized behavioral outcome measures and examine the relationship between behavioral and EEG auditory processing measures. We will quantify children's level of engagement during therapy using a video-observation-based tool to examine the impact of child's engagement level on treatment outcomes. We hypothesize that a) children with ASD will show more efficient neural auditory processing (EEG measures) and improved behavioral attention and sensory processing post-ASI, and b) greater engagement during therapy will be associated with better neural and behavioral outcomes.

**Questions for feedback:** 1) best funding mechanism, R21 vs. R03, 2) behavioral outcome measures following ASI and 3) potential pitfalls with clinical trial research.

**Conclusion:** Results from this proposed work will provide further support for ASI therapy in ASD by examining the neurophysiological mechanisms that drive neuroplastic changes and identify the role of engagement in therapy. Our results will help establish the validity of EEG measures of auditory

# Neurophysiological Correlates of Sensory Symptoms and Sensory Interventions in Autism Spectrum Disorders

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## **WORK IN PROGRESS: AOTF Intervention Grant Possibilities**

Wednesday, June 23, 2021

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processing as a response biomarker and provide a framework for examining treatment effectiveness in future clinical trials.

Potential funding source: NICHD R03 mechanism. Priorities: Biomarker development.

## ABSTRACT

**Introduction:** Triggers and cravings interfere with daily living activities and mental health and well-being in adolescents with Substance Use Disorder (SUD). Among adolescents 12 to 17 years old, approximately 863,000 were diagnosed with SUD in 2018. Receiving SUD and cooccurring disorder treatment is crucial for adolescents due to the many contextual demands that occur during this life stage. As SUD disrupts an adolescent's ability to engage in activities and roles pertaining to academics, primary support may be provided through a Recovery High School (RHS). As the process of SUD recovery is lifelong, it is critical for researchers to understand the trajectory of recovery and how it impacts adolescents in their daily lives in real-time. Therefore, the research team seeks to investigate if cravings and triggers impact participation in activities of daily living and adolescent mental health and well-being.

**Methods:** Ecological momentary assessment (EMA) is a data collection method which assesses critical information in real time (Shiffman, 2009) and can be used as frequently as daily (Serre et al., 2015). By using EMA the research team can examine rich within-person behavior accounts in the moment (Wen et al., 2017) eliminating both recall bias and extraneous barriers to compliance with recovery treatment. Utilizing EMA would also allow for a greater fidelity in capturing the daily life lived experience to produce interventions that are theory driven. Each participant is expected to complete a total of 28 entries the entirety of the study. All participants are expected to complete 700 entries. We will use descriptive statistics to examine distributions of entries at each of these levels, and non-parametric statistics, including Mann-Whitney U and Kruskal-Wallis tests, to examine between-participant differences in compliance and completion. Reactivity will be measured by completing repeated measures ANOVA or Friedman's test to gauge week-by-week differences in the number of diaries completed per peer, and in number of triggers and cravings as well as average severity and bother.

**Questions for Feedback (WiP):** Is EMA compelling appropriate for use in creating occupation-based interventions?

Could occupational therapists also use EMA as part of their response to providing interventions for adolescents with SUD?

**Conclusion:** If my findings are true, then I can conclude these outcomes are expected to have a positive impact for occupational therapists when creating daily living, function-oriented interventions for adolescents with SUD. The critical implications will also clearly define occupational therapy's role in SUD treatment and recovery

# Utilizing Ecological Momentary Assessment with Adolescents in Recovery from Substance Use Disorder

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## WORK IN PROGRESS: AOTF Intervention Grant Possibilities

Wednesday, June 23, 2021

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Funding Source/Potential Funding Source: An AOTF Implementation Research grant was completed in November 2020 and is currently under review. This submission meets the priority areas as defined as: Cultivating interdisciplinary research teams and partner with communities.

## ABSTRACT

Introduction: Autistic females are increasingly being identified as an understudied, underserved group [1]. Emerging research suggests that autistic women may face disparities in women's healthcare access and utilization compared to the general population [2-4]. This is particularly alarming because autistic women may be at increased risk for numerous women's health conditions, such as premenstrual dysphoric disorder, dysmenorrhea, polycystic ovary syndrome, ovarian and breast cancer, STIs, and pregnancy complications [5-11]. The Academic Autism Spectrum Partnership in Research and Education (AASPIRE) created an evidence-based healthcare toolkit to improve primary care navigation for autistic adults. The toolkit has strong content validity, and patients reported a decrease in healthcare barriers and increase in healthcare self-efficacy and satisfaction [12]. The purpose of this implementation research study is to adapt the AASPIRE toolkit for women's healthcare access/utilization and implement it at Rancho Los Amigos National Rehabilitation Center. We will use the RE-AIM framework to guide the following phases [13-15].

### Methods:

1: We will compare women's healthcare utilization (e.g., cancer screenings, contraception counseling, STI testing, reproductive care) of autistic vs. non-autistic patients using electronic health record (EHR) data from Rancho Los Amigos.

2: We will conduct qualitative interviews with autistic women and healthcare providers to identify barriers and facilitators to women's healthcare access.

3: We will collaborate with autistic and provider stakeholders to adapt the AASPIRE Healthcare Toolkit for women's healthcare navigation.

4: We will pilot test the toolkit at Rancho Los Amigos, measuring implementation outcomes of acceptability, adoption, and sustainability [15].

### Questions for Feedback:

Helen Tran, DO, is a family medicine physician at Rancho with a caseload of 700-800 adult patients with neurodevelopmental disorders. The toolkit was designed for autistic adults, but we could consider using it with adults with a range of neurodevelopmental disabilities. Pros: Larger patient population, easier to recruit. Cons: The AASPIRE toolkit that we will adapt/implement was designed and tested specifically for autistic adults.

We could carry out the first two phases using existing funding, and submit a grant proposal building from those findings, for phases 3 and 4. Is this recommended over doing all 4 phases in one study?

# Adapting and Implementing a Healthcare Toolkit to Improve Women's Healthcare Utilization for Autistic Women

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## **WORK IN PROGRESS: Autism Across the Lifespan**

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Conclusion: This project will adapt and implement an evidence-based healthcare toolkit to improve women's healthcare utilization, and thus health outcomes, for autistic women. This aligns with occupational therapy and occupational science scholarship focusing on navigating and accessing health services as an occupation [16-17].

Potential funding source: AOTF Implementation Research Grant; NICHD R03 (PA-17-451); NIMH (e.g., PAR-19-274; NIMH has identified services for autistic women as a priority)

## ABSTRACT

Introduction: About 10% of youth with autism spectrum disorder (ASD) participate in equine-assisted services. Yet, only 4 studies have investigated occupational therapy incorporating horses for youth with ASD, all of which represent small pilot studies. Our team has systematically developed and evaluated an intervention called occupational therapy in an equine environment (OTEE) for youth with ASD. Previous studies demonstrated the manualized intervention is feasible to administer, acceptable to parents and therapists, and may improve goal attainment, behavioral regulation, and social functioning of youth with ASD. However, efficacy needs to be assessed in comparison to appropriate controls, and hypothesized mechanisms of change need to be interrogated. Therefore, this study aims to:

1. Examine the effect of OTEE on goal attainment, functional skills, behavioral regulation, and social functioning of youth with ASD in comparison to a) occupational therapy in a clinic, and b) a usual care waitlist-control group.
2. Characterize the social behavior of youth with ASD during OTEE in comparison to occupational therapy in a clinic
3. Explore preliminary effects of OTEE on hair cortisol content in comparison to a) youth with ASD in the two control groups and b) typically developing youth.

Methods: This study will implement a 3-arm randomized controlled trial of OTEE. Sixty youth with ASD, ages 6-16, with poor behavioral regulation will participate in an evaluation that results in 3 occupational performance goals in the domains of social communication, social play, or self-regulation. Youth will be randomized to receive OTEE, occupational therapy in a clinic, or to a usual-care waitlist control. Outcomes will be measured with goal attainment scaling, the Aberrant Behavior Checklist- Community, the Social Responsiveness Scale, and the Pediatric Evaluation of Disability Inventory, Computer Adaptive Test. In addition, hair cortisol content will be assessed before, during, and after the intervention. The OHAIRE behavioral coding tool will be used to assess social behavior of youth during the active treatment arms. We will implement linear mixed modeling to assess the effect of OTEE on outcomes in comparison to control conditions.

Feedback:

We would like feedback to:

1. Refine specific aims in relation to the proposed funding source.
2. Decide upon the most rigorous methods for goal attainment scaling

# A Proposed Study of Occupational Therapy in an Equine Environment for Youth with Autism

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Wendy Wood, Ph.D., OTR/L  
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**WORK IN PROGRESS: Autism Across  
the Lifespan**

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3. Refine the intervention manual. In particular, we are interested in feedback regarding the balance of individualization and standardization.

Conclusion: The proposed study will begin to demonstrate the efficacy of OTEE in relation to appropriate controls, and explore behavioral and physiological mechanisms that may explain the intervention's effect. Results will inform the design of a fully-powered randomized controlled trial.

Potential Funding: NICHD R21 PAR-20-033; focused on "the evaluation of animal-assisted interventions for children and adults"

## ABSTRACT

Introduction: Childhood obesity is a public-health crisis with nearly 1/3 of the pediatric population overweight/obese. Children with Autism Spectrum Disorders (ASDs) are 40% more likely to be obese than typical children. High rates of obesity among children with ASDs are exacerbated by low levels of physical activity (PA). The communication and behavior challenges characteristic of ASDs make participation in PA challenging. Additionally, most children with ASD experience associated motor (79%) and sensory impairments (95%), making many PAs a poor match for their capacities. Swimming is the most preferred PA of children with ASDs. Our preliminary work developed Sensory Enhanced Aquatics (SEA), a specialized aquatics program for children with ASD. SEA is feasible, highly preferred by children with ASDs and their families, and improves children's swimming skills. Research of SEA and other water-based PAs with children with ASD is hindered by lack of validated measures and waterproof activity monitors. Our recent pilot study confirmed study participants could be randomized in a waitlist-control study, complied with twice weekly SEA, and tolerated wearing water-proofed Actigraphs during SEA. Exploratory analysis revealed significant differences between groups on Children's Health Questionnaire (CHQ) psychosocial subscale scores and family cohesion and emotional parent impact scores. SEA did not improve body composition. Analysis and interpretation of Actigraph data is in progress. Pilot study results inform our proposed clinical trial investigating the effects of SEA with overweight/obese children with ASD.

Primary Aim. To determine the extent to which SEA increases children's moderate to vigorous PA as assessed by accelerometry.

Secondary Aim. To determine the extent to which SEA improves child and parent function.

Methods: We will assess the effects of a 14-week randomized controlled intervention (SEA) on PA levels and quality of life on 60 (30 intervention/30 waitlist control) overweight/obese children (ages 6-12) with ASD. Two weeks before SEA, we will 1) obtain informed consent/assent 2) collect pretest measures and 3) instruct families on use of the Actigraph. Participants from both the intervention and control groups will wear the Actigraph 1 week prior to the intervention to provide baseline data, at the midpoint, and 2 weeks after the intervention ends. Researchers will collect posttest measures at the last SEA lesson.

Questions for Feedback: Should we use an active control condition; increase duration of SEA; modify the secondary aim for NIDLRR ?

# Swimming as Physical Activity Intervention for Children with Autism Spectrum Disorders

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## WORK IN PROGRESS: Autism Across the Lifespan

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Conclusions: Swimming is a preferred physical activity of children with ASD. Our pilot study showed some positive effects of SEA on children's health, but not body composition. More research is needed.

Funding: NIH R01, or NIDILRR Field Initiated Project (Research).

\*We presented pilot work as 2018 WIP resulting in funding and TIGRR workshop acceptance. We need feedback on NIH, NIDILRR plan.

## ABSTRACT

**Introduction:** Early Intervention (EI) services are mandated by the Individuals with Disabilities Education Act for children with developmental disabilities (DD) aged 0-3 years. Research shows that EI services (e.g., occupational, speech-language therapies), positively influence children's developmental trajectories, reduce parent stress, and result in decreased special education costs throughout the lifespan. There are clear disparities in access and utilization of EI services; under-resourced families (racial/ethnic minorities, low-income) are less likely to receive EI services, more likely to experience long wait times for services, and are less satisfied with EI services due to providers' lack of collaboration in the decision-making process. All in-person EI services across the country were suspended during COVID-19 and EI systems made a rapid shift to telehealth service delivery. The shift to telehealth delivery of EI services has exacerbated the disparities in EI service provision among underserved families due to a lack of technology, internet access, and provider availability. The purpose of this work in progress is to discuss the following aims: 1) Investigate the extent to which COVID-19 influenced EI service provision and utilization among families of children ages 0-3 years; and 2) Examine the influence of race/ethnicity on EI service provision and utilization among families of children 0-3 years.

**Methods:** In this Work in Progress, we are currently obtaining individualized family service plans (IFSPs) for children that qualified for EI from a large urban midwestern city from January 2019-January 2021. From these IFSPs, we will examine the influence of COVID-19 and the shift to telehealth on EI service provision. We intend to use mixed model regression; outcomes include timing of enrollment (i.e., child age of EI entry), and number, type, and frequency of services; predictors include pre/post COVID status, race, ethnicity, child gender, birth weight, medical comorbidities, and child cognitive scores. Children will be nested within zip code.

Questions for Feedback:

- 1) We would like general feedback on our specific aims and feedback on if this may be a better fit for NICHD or NIMHD.
- 2) We would also like others to discuss ways that they obtained prospective data on service utilization in situations where secondary reports (e.g., Medicaid reports) do not capture detailed utilization data. Prospective data collection on service utilization appears to be resource intensive; what are some ways to obtain this data?

**Conclusion:** This applies to occupational therapy because some families may not receive necessary services pre- or post-COVID based on race, ethnicity,

# Influence of COVID-19 on Early Intervention Service Provision and Utilization

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Anna Wallisch, PhD, OTR/L, Juniper Gardens Children's Project, University of Kansas

Anne Hoffmann, PhD, CCC-SLP, Rush University

## WORK IN PROGRESS: COVID 19 Service Delivery Impacts

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and/or availability of technology and data. As a profession, we need to understand and address access equity issues as they apply to families in EI.

Funding Source/Potential Funding Source: NICHD, NIMHD, AOTF, IES

## ABSTRACT

**Introduction:** Veterans Health Administration (VHA) has long encouraged use of telehealth to deliver clinical care; however, there has been limited uptake by VHA occupational therapy (OT) practitioners. Thus, many OTs were not prepared to utilize video telehealth (a live, synchronous encounter) during the COVID crisis, highlighting a significant gap in our understanding of best practices in video telehealth for OT services. This may be particularly salient for Veterans with complex care needs, including older Veterans. This project examines implementation of video telehealth OT services to serve diverse Veteran groups to identify factors affecting adoption and implementation of video telehealth OT.

**Methods:** This mixed methods project involves 1) retrospective analysis of OT clinical encounters since COVID to determine overall proportion of telehealth/in-person encounters, including what type of OT service was delivered and differences between specific Veteran groups (rural/urban, older/younger, and Veteran complexity). We also identified VHA OTs using video telehealth before and since COVID. Using this foundational data, we are 2) conducting one-to-one interviews with 25 OT users of video telehealth to determine factors influencing adoption and identify barriers and facilitators to implementation. Questions broadly address: clinician decision-making around use of video telehealth, including factors beyond COVID that led them to use video telehealth and what resources (if any) prepared them for video telehealth; whether video telehealth was offered to all Veterans or just some, and how Veteran factors (e.g., age, rurality, medical complexity, availability of caregivers) influenced offer of video telehealth; perceived ease-of-use, which OT services were more or less suitable, how care was adapted, and differences between rural/urban and older/younger Veterans.

**Questions for Feedback:** 1) My proposed project deliverable (a clinical decision guide for video telehealth) may no longer be relevant, since COVID has led to expanded resources related to OT and video telehealth. How can I flexibly adapt my project deliverable in response to a rapidly changing environment? 2) I am considering using interview findings to develop a national practitioner survey which would mirror a previous survey I conducted in fall of 2019 to examine use of video telehealth OT specifically for older Veterans; should I replicate any and all survey questions given before, or use the added knowledge gained to modify survey questions?

**Conclusion:** By examining use of video telehealth by OTs at VHA, the largest single employer of OT in the United States, and identifying barriers and facilitators to use of video telehealth at VHA, this work has the potential to inform sustained integration of video telehealth both inside and outside VHA.

# Use of Video Telehealth to Deliver Occupational Therapy Services to Veterans with Complex Care Needs and their Caregivers: A Mixed Methods Investigation

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## **WORK IN PROGRESS: COVID 19 Service Delivery Impacts**

Wednesday, June 23, 2021

10:20 – 11:50 a.m. MT

Funding Source/Potential Funding Source: This work is funded by VHA's Office of Rural Health, which focuses on expanding care to rural Veterans.

## ABSTRACT

Introduction: The experience of New Mexico (NM) state residents during the COVID-19 pandemic has drastically altered daily life. NM has diverse populations who often live in medically underserved communities (HRSA, 2021). This NIH funded study is investigating the following: 1) How are rural-living and urban-living people affected by the pandemic?; 2) What strategies of resilience are employed by people in rural and urban counties?; 3) What are perceptions of access to supplies and services in urban and rural counties?; 4) How technology used for acquisition of news, information, and communication?; and 5) What alterations in daily life self-care, care of others, commerce, and valued routines in urban and rural counties are occurring?

Methods: Both qualitative data and quantitative data is being collected. Inclusion criteria include residents of New Mexico over age 18 and English-speaking. Exclusion criteria includes incarcerated individuals, children, and those with an inability to consent. Participants complete an online survey including demographics, targeted questions regarding post-COVID-19 experiences compared to before COVID-19, and the WHOQOL-BREF scale. Participants may participate in a semi-structured interview focusing on participants' experiences during the pandemic. Data will be analyzed for differences between rural and urban residents. Qualitative data will be coded and analyzed for trends, examining adaptations of occupations, perceptions, access to health care, and changes in daily life. The sampling is purposive targeting geographic, age, education level, gender, and ethnic representation.

Questions for Feedback:

- 1)What measures can strengthen the next funding proposal?
- 2)What additional variables could be compared besides rural and urban?

Conclusion: The pandemic is a novel crisis. The role of occupational therapy professionals is to assist people deprived of occupation adapt to new daily challenges and find strategies and resources to maximize participation in routines. To support or recommend an understanding of daily challenges needs to be determined. A comparison of rural versus urban can illuminate unique challenges and evidence of strengths. Early data trends indicate the pandemic has disrupted daily life and quality of life. Rural dwelling residents lag in technology access, and travel further for services. However, rural dwelling residents do not report a lack of vital supplies than urban dwelling residents. Findings from this study may increase our understanding of how daily occupations were disrupted and possible coping mechanisms. This knowledge can help occupational therapy practitioners, health care

# Effects of the COVID-19 Health Emergency on the Biopsychosocial Health of Rural Residents of New Mexico using Mixed Methods

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## WORK IN PROGRESS: COVID 19 Service Delivery Impacts

Wednesday, June 23, 2021

10:20 – 11:50 a.m. MT

organizations and government institutions improve services and assistance to people during public health emergencies.

Funding Source: National Center for Research Resources and the National Center for Advancing Translational Sciences of the National Institutes of Health: Grant Number UL1TR001449.

## ABSTRACT

**Introduction:** Recent estimates suggest that youth and young adults with intellectual/developmental disabilities (IDD) may be diagnosed with mental health conditions (MH) 4-5 times more often than peers without disabilities. Mental health challenges contribute to increased difficulty with community living and participation. Research with people with serious mental illnesses suggests peer mentoring is a promising intervention approach to address MH management. In pilot research, we established the feasibility of a peer mentoring program for young adults with IDD and co-occurring MH conditions (IDD-MH). Yet, we observed that some content and skills were difficult for mentors to deliver with high fidelity. Prior to conducting additional research on the intervention, it is critical to establish a mentoring training protocol that supports mentors with IDD-MH to deliver the intervention with high fidelity.

**Aim:** To expand, refine, and adapt the previously developed training protocol and evaluate its preliminary efficacy for supporting high-fidelity intervention delivery.

**Methods:** We will collaborate with an advisory board composed of experts in peer-delivered MH services to refine the existing training protocol, develop additional training activities, and adapt the protocol for virtual delivery. The new protocol will target content and quality criteria implemented with <80% average fidelity across mentors in the pilot study. Next, after receiving training, 4-6 mentors with IDD-MH, ages 16-25 will deliver the 16-week peer mentoring intervention to 12-16 participants (young adults with IDD-MH, ages 16-25). We will then evaluate fidelity to content and quality criteria (% adherence).

**Questions for Feedback:**

- 1) What is the role of evaluating outcomes for participants (recipients of mentoring) in a study designed to evaluate a training protocol?
- 2) The match between the mentor and mentee (participant) impacts the intervention process and outcomes. To what extent can the quality of the mentoring match be measured, and how should it be accounted for in evaluating intervention fidelity?

**Conclusion:** The development of an effective peer mentoring training protocol is critical to move forward not only this peer mentoring intervention, but could serve as the foundation for other peer-delivered interventions for young adults with IDD that occupational therapists help implement. Findings from this study will drive additional refinements of peer mentor training prior to conducting larger scale experimental trials of the peer mentoring intervention, with the goal of supporting young adults

# Developing the Capacity of Young Adults with Intellectual/Developmental Disabilities and Co-occurring Mental Health Conditions to Deliver a Peer Mentoring Intervention

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**WORK IN PROGRESS: Implications for Community Practice**

Thursday June 24, 2021

10-11:30 a.m. MT

with IDD-MH to effectively utilize coping strategies to manage mental health, leading to greater quality of life, community living and participation.

Potential Funding Source: NIDILRR Switzer or Field Initiated Project. Funder priorities: maximize independence, inclusion, well-being, and health of people with disabilities; focus on health and function, and participation.

## ABSTRACT

**Introduction:** Successful transition from high school to adulthood traditionally involves taking on new roles in the contexts of employment or education. In addition to academic skills, successful transition also requires the ability to self-manage the daily life tasks (SMDLT) needed to meet societal expectations for participation in these adult roles. Managing these complex tasks involves coordinating the multiple skills needed to carry them out while adapting to changing contexts. It is well documented that many youth with disabilities who graduate from high school experience outcomes that are not commensurate with their academic abilities, and the literature suggests that difficulties with daily life functioning may contribute to these poor outcomes. Prior research on this topic has focused on the concept of adaptive behavior. However, the design of most adaptive behavior measures makes it difficult to define the exact nature of the problems in daily function because the scales encompass a wide range of skills and abilities ranging from discrete functional skills to complex tasks taking place within varying contexts. A more detailed understanding of the daily functioning challenges that youth with disabilities experience and the capacities underlying these challenges is needed to provide better-targeted interventions to address these challenges during the transition to adulthood. The aim of this study is to examine whether, as theorized, specific underlying competencies have a stronger predictive relationship to SMDLT than to acquisition of discrete functional skills in youth with disabilities.

**Methods:** The present study is a secondary analysis of the National Longitudinal Transition Study-2 dataset to explore the relationships between underlying capacities (social, communication, and behavior regulation skills) and SMDLT in a national sample of diploma-track youth with disabilities (n= 1,070). We developed models of the associations between youth capacities (social, communication, and behavior regulation skills) and SMDLT using structural equation modeling and compared the findings to a model predicting discrete functional skills.

**Questions:** Our findings demonstrate that these three underlying competencies are significantly associated with SMDLT and explain 55.1% of variance in this outcome. The same model explains less variance in discrete functional skills (36.9%), providing empirical evidence that functional skills and SMDLT are differentially influenced by underlying capacities. This WiP presentation will propose 2-3 next steps in this exploration and ask for feedback on the merits and possible funding mechanism for each direction.

**Conclusion:** Specifically targeting SMDLT for assessment and intervention may support successful adult outcomes, however more research is needed

# Self Management of Daily Life Tasks by Diploma-Track Youth with Disabilities

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## **WORK IN PROGRESS: Implications for Community Practice**

Thursday June 24, 2021

10-11:30 a.m. MT

to understand what contributes to challenges with these complex life tasks across various clinical populations.

Funding Source: None; will be a topic of WiP discussion.

## ABSTRACT

**Introduction:** Cumulated evidence confirms that frailty leads to a spiral of decline in various functional capacities, increasing the risk of geriatric syndromes. Older adults commonly use rehabilitation services to recover from illness and improve function when encountering major health conditions or life-threatening events, but not frailty. Few studies have explored if rehabilitation services from major health conditions mediate frailty progression. Therefore, this study aims to explore the relationship between rehabilitation service utilization and frailty trajectory using a nationally representative sample of older adults from the National Health and Aging Trends Study (NHATS). This study hypothesis is that exposure to rehabilitation services delay frailty progression among community-dwelling older adults. This study will further explore the level of impact of rehabilitation services by different health conditions.

**Methods:** NHATS data have been collected since 2011 from a nationally representative sample of Medicare beneficiaries in 8 rounds. Older adults who were 65 or older were interviewed annually once they entered the study. We will use data collected after round 5, where the rehabilitation services section was first added. The rehabilitation services section asks participants about the frequency and type of rehabilitation service participants received in the past year. The frailty index was assessed annually by the frailty index. Survival analysis and multivariate regression models will be used to test the relationships between service utilization and frailty progression.

Questions for Feedback (WiP):

1. We invite the audience to critique our conceptual models.
2. Were there any covariates that we missed?
3. Is there any funding mechanism that will support this study?

**Conclusion:** It is critical to expanding the evidence base for frailty prevention programs within rehabilitation services utilization for the US's growing aging population. The result from the proposed study will provide empirical support and guide for developing and translating evidence-based interventions.

Funding Source/Potential Funding Source: N/A.

# Rehabilitation Utilization And Frailty Progression Among Community- Dwelling Older Adults

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## **WORK IN PROGRESS: Implications for Community Practice**

Thursday June 24, 2021

10-11:30 a.m. MT

## ABSTRACT

**Introduction:** Severe motor impairments caused by neurological diseases, result in the loss of communication and interaction capabilities. For example, Amyotrophic Lateral Sclerosis patients will lose motor function almost entirely, including speech. Current assistive technologies are unable to address the needs of these individuals without invasive procedures. We assessed the feasibility of classifying the direction of Covert Visuospatial Attention (CVSA) and using it for a dichotomous control paradigm. Aside from a novel paradigm, we used a novel data analysis procedure to reduce the computational load and enable the design of a real-time system for communication and control. Our analysis procedure afforded us a classification performance of at least 70%, satisfying the criteria for a robust Brain-Computer Interface.

**Methods:** We collected EEG data from 4 healthy female participants (ages 21-27), using our novel Absolutely Volitional CVSA (AV-CVSA) paradigm, and providing no exogenous or endogenous cues to direct visual attention. We used 16 electrodes, mainly placed on the visual cortex. By using 9 machine learning algorithms for each participant, we isolated portions of the data that best enabled classification performance of at least 70%. For each participant, the portion of the data where at least 4 machine learning algorithms were overlapping in presenting a classification accuracy of at least 70%, was named High Distinction Period (HDP). We classified the direction of AV-CVSA using only the HDPs. HDP-Assisted Classification is, to the best of our knowledge, a unique and novel method.

**Results:** We had to discard data recorded for one of our participants due to an error in collection. However, for the remaining 3 participants, we were able to classify the direction of AV-CVSA with at least 70% accuracy (70-74.07%), using our HDP-Assisted Classification algorithm. This method improved upon the accuracy of classifying the average of the whole 3 seconds of attention period (average accuracy: 55.18%).

**Questions for Feedback:** 1) What procedures should we consider in our future data collection? 2) What parameters may contribute to a more successful classification?

**Conclusion:** The findings of this pilot study indicate that classification of AV-CVSA is feasible, and can be used to develop a communication and control method for individuals with severe motor function loss.

**Funding Source:** An EEG Triggered Robotic Stroke Rehabilitation Device UW System Partnership & A BCI-EEG driven robotic stroke rehabilitation device. CoPIs. UW-Madison ICTR, Inga Wang, Brooke Slavens, Roger O. Smith. Preparing for resubmission to NIH.

# Classifying the Direction of Covert Visuospatial Attention Using a Novel Analysis Method: Pilot Study

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## WORK IN PROGRESS: Novel Technologies

Thursday June 24, 2021

10-11:30 a.m. MT

## ABSTRACT

Introduction: Rett syndrome (RTT), an X-linked neurodevelopmental disorder characterized by an early period of regression, affects most aspects of daily living. Bilateral hand wringing and mouthing behaviors are prominent and hinder the development, maintenance and practice of purposeful arm and hand movements needed for play and self-care activities. To train arm use in this population, our lab has successfully used freely available computer games and activities. Gaming is widely known to increase the number of repetitions (practice) and accuracy of movement in multiple models studied due to its fun, self-motivating and inherently competitive features. To advance our user's independence in activating computer games with hand motions and to solve problems our former color tracking sensor had with consistently detecting movements, we developed a new paradigm (SCCG) of software to track wrist movement and novel animated games specific for individuals with dyspraxia. Our current aims are to evaluate 1) the efficacy and effectiveness of our paradigm on independent hand separation and reaching in RTT and 2) the national and international usability in a teleresearch environment of our paradigm and accompanying instruction manual. Methods: The new SCCG, developed specifically for individuals with RTT, utilizes a wristband color-sensing system created for use with a common webcam. The sensor calibrates the distance of hand separation and reaching, and uses that information to activate the controls for the CCG. Games are customized and advanced as needed to meet participant's interests. Variability in severity of dysfunction exists in RTT which necessitates a multiple single-subject design (n=8, 4-60 y/o), that analyzes both individual and group effects on self-initiated motor control and engagement in stereotypies. Analysis of progress will occur using the functional reach test (fRT) developed in our lab. Testing will occur at 5 time points: 1) 4 weeks prior to study commencement (baseline), 2) prior to initiating training (pre-training), 3) following a 2-week assessment period to evaluate the subject's ability to follow one to two step instructions (pre-intervention), 4) following a 12-week intervention period with the SCCG (intervention), and 5) following a four-week withdrawal of intervention period (post-intervention). Questions: We hypothesize that participants' hand stereotypies will decrease with consequent increases in hand separation and reaching abilities, and the newly developed teleresearch methods will be effective in national and international settings. Thoughts on our tests of efficacy/effectiveness are sought. Conclusion: We anticipate that the result of implementation of our SCCG will provide support for its use as a neuro-habilitative approach to treat dyspraxia by improving purposeful arm and hand use and minimizing hand stereotypies in Rett syndrome. Funding: Rettsyndrome.org (International RTT Foundation) awarded to P.S. Diener.

# Effect Of A Novel Software Program To Track And Encourage Independent Purposeful Arm Movement In Individuals With Rett Syndrome

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**WORK IN PROGRESS: Novel Technologies**

Thursday June 24, 2021

10-11:30 a.m. MT

## ABSTRACT

**Introduction:** Over 85% of Missouri is rural. Individuals in rural areas are older, poorer, and have more chronic conditions and disabilities. Those with disabilities, particularly older adults, comprise a higher risk population concerning contracting COVID-19. Regular visits for preventive healthcare and management of chronic conditions, such as stroke, have been severely disrupted. Worsening of disability after a stroke due to missed visits can lead to an irreversible path to costly nursing home care. There is a critical need to reduce disability and improve quality of life for community-dwelling older adults with stroke during and after the COVID-19 pandemic. We have developed a proven sensor-based technology solution for monitoring health-related behaviors in the home. These sensor alerts combined with care coordination has added 2.6 additional years to the average length of stay for older adults in independent living aging-in-place facilities. However, the sensor system has not been tested in the homes of rural, community-dwelling older adults, including those post-stroke, to reduce disability.

**Methods:** The purpose of this project is to deploy the sensor system in the homes of rural community-dwelling older adults with stroke and evaluate the effect of the sensor system paired with a telehealth occupational therapy intervention on reducing disability and improving health-related quality of life. Using a two-arm randomized controlled trial, the sensor system will be installed in the homes of 64 older adults post-stroke. Participants randomized to Study Arm 1 will receive a telehealth occupational therapy intervention paired with the sensor system. This intervention is based on the 5As self-management approach and is a direct translation of the nursing care coordination in our prior research. Participants randomized to Study Arm 2 will receive standard health education paired with the sensor system. To support rapid scale-up research following this study, a treatment-matching algorithm using participant baseline characteristics and sensor system data will be developed.

**Questions for Feedback:** 1. I want to include using virtual reality games as part of the intervention based on my prior research. How best to integrate this component of the intervention without introducing too many confounders? 2. My primary outcome is reduction in disability. What other outcomes would have the biggest impact in terms of being able to scale the findings?

**Conclusion:** COVID-19 has and will have large and lasting social, behavioral, and economic impacts on those living in rural areas of Missouri. For older adults with disabilities living in rural areas, the sensor system has the potential to change the approach to healthcare and disability management.

# Assessment and Intervention Post-Stroke Using Novel Sensor Technology

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## WORK IN PROGRESS: Novel Technologies

Thursday June 24, 2021

10-11:30 a.m. MT

Potential Funding Source: NIH NCMRR has a research priority of “Person-Centered Measures, Real-World Outcomes” and currently has a notice related to COVID-19 funding priorities.

## ABSTRACT

**Introduction:** The IADL of driving consists of three levels of driving behaviors: operational (human-machine interaction such as steering, pushing the brake/gas), tactical (following the rules of the road) and strategic (planning, navigation, wayfinding). Research has clearly shown that navigational tasks, or the strategic level, are the first driving tasks to be affected by cognitive impairment, including dementia of the Alzheimer's type (DAT). Studies by Roe/Babulal of Washington University (WU) have shown this to be true even when global cognitive tests did not detect any deficits. In fact, their studies using DAT biomarkers and naturalistic driving data (computer chip in-vehicle collecting data) support navigational skills as a potentially robust means of identifying drivers with early dementia. However, one drawback of their studies is that they are only using neuropsychological assessments to detect dementia and not performance measures of IADL tasks. To address this limitation, this study will be using the same computer chip, cognitive assessment tools, and CDE, but adding the AMPS as an occupational performance measurement. The AMPS was selected since in recent analysis, it demonstrated strong predictive values of fitness-to-drive (motor,AUC=0.79; process,AUC=0.92; both,ACU=.928). This research study will examine the relationship of the naturalistic data and AMPS to determine if AMPS is equally robust as a means of identifying drivers with early dementia as well as fitness-to-drive.

**Methods:** This is a prospective study limited by computer chips (n=14). Each participant will have computer chip installed in their vehicle that will track driving metrics (e.g., speed, braking, location) for 20 weeks. There will be two groups with ongoing recruitment. Individuals with cognitive impairment who have already completed a CDE/AMPS, but still be able to drive with/without restrictions will be recruited. The computer chip will track their driving behaviors over 20 weeks. Healthy controls will complete a CDE and AMPS during the time they are driving with the computer chip. A driving history will be completed with detailed information of destinations to examine navigational aspects of the data. Outcomes of the data will be compared between groups, with particular examination of the naturalistic driving patterns indicative of early dementia in collaboration with Washington University's data and the AMPS process scores.

**Questions for Feedback:** What assessments need to be included in the CDE? How long should naturalistic driving be collected? Should the AMPS be done more than one time?

**Conclusion:** If the AMPS is a both a measure for fitness-to-drive and for detecting early dementia, earlier intervention may be possible and occupational therapists have the opportunity to play a more significant role in this area.

# Comparing Naturalistic Driving Performance With Everyday Occupational Therapy Performance To Identify Early Dementia And Fitness To Drive

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## **WORK IN PROGRESS: Performance in Degenerative Conditions**

Wednesday, June 23, 2021

10:20 – 11:50 am MT

Potential Funding Source: WU is NIA funded; Collaboration may lead to additional.

## ABSTRACT

**Introduction:** The ability to identify Alzheimer disease (AD) in its preclinical stage may offer the best chance of therapeutic success. Preclinical AD is a clinically silent period of up to 20 years when biomarker changes are accumulating in the brain (i.e., amyloid plaques, tau tangles, hippocampal volume loss, weakened network connections). Individuals with mild cognitive impairment, a stage that may follow preclinical AD, have impaired functional cognition evidenced by worse performance on complex instrumental activities of daily living (IADL) tasks compared to those who are cognitively normal. Our preliminary data suggest preclinical AD may be also be associated with impaired functional cognition, but the role of functional cognition in preclinical AD is currently unknown. This study aims to explore the relationship between functional cognition and preclinical AD. We hypothesize impaired functional cognition will be associated with increased biomarkers of preclinical AD.

**Methods:** Data is collected as part of a prospective cohort study. Participants (n=169) are cognitively normal (Clinical Dementia Rating 0) older adults with or without evidence of preclinical AD. Measures to assess preclinical AD include amyloid and tau positron emission tomography (PET) magnetic resonance imaging (MRI) (using Pittsburgh-compound B), amyloid and tau cerebrospinal fluid (CSF) measures (A $\beta$ 40, A $\beta$ 42, t-tau, p-tau181), structural MRI (hippocampal volume), and resting-state functional connectivity (rs-fc) MRI (network connections). The Performance Assessment of Self-Care Skills (PASS) is used to assess functional cognition. PASS scores (independence, adequacy, safety) for three tasks (shopping, checkbook balancing, medication management) are collected. A general linear model (or nonparametric equivalent) will be used to determine whether biomarkers including PET (amyloid, tau accumulation), CSF (amyloid, tau accumulation), rs-fc, or hippocampal volume (all analyzed separately) are associated with PASS scores. Analyses will be adjusted for age, gender, and education.

**Questions for Feedback:** Should PASS performance be represented by subscale scores of the three subtasks or a different approach? Are there other covariates or variables that should be examined in this relationship? This cohort is well-characterized.

**Conclusion:** This study will examine the relationship between functional cognition and preclinical AD. This may lead to a better understanding of functional manifestations of underlying mechanisms present in AD. If we find impaired functional cognition is associated with markers of preclinical AD, findings could be used to identify individuals who may benefit from further neurological or biomarker testing. Further, this could add a more

# Functional Cognition and Preclinical Alzheimer Disease

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## **WORK IN PROGRESS: Performance in Degenerative Conditions**

Wednesday, June 23, 2021

10:20 – 11:50 am MT

optimal intervention point for therapies, prior to the onset of memory impairment, with potential to delay the onset of disability that impairs daily functioning.

Funding Source: TL1 Predoctoral Training Program, R01AG057680

## ABSTRACT

**Introduction:** Parkinson Disease (PD) affects about 930,000 people in the US. PD's misunderstood as a disease that affects only movement; however, research has shown patients experience significant non-motor symptoms. Healthcare leaders have called on OTs to expand treatment to address this issue. This study is the first step in developing effective OT interventions to address QoL and mental health needs of those with PD, and establish the feasibility and effectiveness of using telehealth for those with PD.

**Methods:** The current pilot study is a quasi-experimental, pre-posttest design. A convenience sample of individuals with PD and their caregivers was recruited in collaboration with the American Parkinson Disease Association (APDA). Each participant will receive an activity box containing educational brochures, adaptive and physical activity equipment, and APDA's "Be Active and Beyond" exercise curriculum. Once they receive a box, they may opt into the 3- month long study. Following baseline assessment, individuals complete a researcher developed PD specific modified occupational profile. Each week participants meet with either an OT student, supervising OTR/L or Level II FW student for 30 minute sessions. Sessions begin with 10 minutes of physical activity followed by alternating standardized or individualized modules. This format incorporates evidence-based interventions while addressing individual personal, environmental, and occupational needs. Sessions, delivered via a telehealth approach, follow a specific framework for the planning, delivery and documentation of each interaction. Interventions will be delivered via secured HIPAA platforms. To maintain client safety, ambulatory activities will not be performed.

The primary effectiveness outcome measures of this study will be perceived changes in occupational performance and satisfaction as measured by the Canadian Occupational Performance Measure. Secondary outcome measures include QoL, loneliness, balance, falls, and Parkinson symptoms. Feasibility and participant satisfaction will be qualitatively examined via mid- and post-test questionnaires and an exit interview. Effectiveness data evaluated using repeated-measures ANOVA. Themes related to feasibility and satisfaction will be extracted and used to inform the next phase of the study.

**Results:** This study is currently in recruitment and data collection phases.

**Questions for Feedback:** What other assessments could effectively measure the benefit of OT with this population via telehealth? Next phase questions: 1) NIH or PCORI; 2) scale-up concerns; 3) future delivery design (synchronous, asynchronous)?

# Managing Parkinson Disease and Addressing Caregiver Needs by Engaging in Movement and Meaningful Daily Activities

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## **WORK IN PROGRESS: Performance in Degenerative Conditions**

Wednesday, June 23, 2021

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Conclusion: This study would establish OT frameworks as effective and feasible in treating non-motor symptoms of PD. It would also add literature on using telehealth for provision of services.

Funding Sources/Potential Funding Source: Funding provided by Upper Midwest Agricultural Safety and Health Center (UMASH) Aging on the Farm Program

## ABSTRACT

**Introduction:** Care partners ('family members or friends') often provide support to older adults before, during and after hospitalization due to a major health event, such as a stroke, pneumonia, fall, or heart attack. National caregiving organizations and existing evidence acknowledge the importance of including care partners and assessing what needs they may have in fulfilling caregiving tasks during and after the older adult's hospitalization. Few tools currently exist that identify the information and training needs of care partners of hospitalized older adults. The Care Partner Hospital Assessment Tool (CHAT) was developed and validated to guide various healthcare practitioner's clinical decision-making for providing information or training to care partners during hospital care. Now, an opportunity exists to examine strategies about the implementation of CHAT. Therefore, this study will explore the strategies used by two health systems to implement CHAT.

**Methods:** We will conduct a descriptive mixed methods study guided by the integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) framework. Data collection will occur at two health systems in Wisconsin, SSM Health and UnityPoint Health. Specific strategies used across these health systems will be documented, including contextual factors and stakeholder attitudes toward implementing CHAT. Descriptive statistics and thematic analysis will be conducted.

**Questions for Feedback (WiP):** In addition to examining implementation strategies, what clinical outcomes, if any, should be captured? How much guidance for implementing CHAT, if any, should be provided to the health systems by the research team? What suggestions are there for documenting and analyzing the implementation strategies used by two different health systems? Are there specific recommendations for disseminating successful implementation strategies to facilitate widespread use of CHAT? How should feedback from occupational therapy practitioners be acquired? Are there specific ways in which occupational therapy practitioners could easily include CHAT in their flow of care?

**Conclusion:** Understanding implementation strategies that are applied by health systems and practitioners (including occupational therapy) could enhance widespread dissemination of CHAT in a timely and efficient manner. As a result, care partners can expect to be better included in the hospital process, and receive tailored information and skills training to fulfill their caregiving tasks.

**Potential Funding Source:** This study is being developed for a submission to the American Occupational Therapy Foundation's Implementation Research Grant. The priority of this funding mechanism is to support research that

# Exploring the Implementation of the Care Partner Hospital Assessment Tool: A descriptive Mixed Methods Study

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## **WORK IN PROGRESS: Perspectives on Multisite Collaboration**

Wednesday, June 23, 2021

10:20 – 11:50 a.m. MT

seeks to understand the processes used to implement evidence-based assessments into routine care.

## ABSTRACT

Introduction: Disparities in community participation affect health outcomes, quality of life and well-being for individuals with intellectual and developmental disabilities (IID/DDs) and their family members. This population is under-represented in research, so finding evidence-based solutions is difficult, which makes it harder to ascertain how patient-centered outcomes research (PCOR) can, and should, proceed. Additionally, COVID challenges require alternative research processes. Sustaining and expanding engagement with IID/DDs, family members and diverse community groups is critical for conducting PCOR. Our team completed a previous research capacity building project which identified stakeholder needs and potential strategies that can ensure IID/DDs and other stakeholders are the central driving forces in developing, designing, and analyzing research relevant to those needs.

Thus, in this next phase of engagement and research capacity building we ask the following questions:

1. In light of COVID, can our engagement strategies engage new communities?
2. What factors affect engagement for IID/DDs who identify with diverse cultural and/or linguistic communities?
3. When stakeholders express needs that are immediate, how can we sustain their engagement with evolving and iterative research?

Methods: To reach our goal of expanding our national multi-stakeholder network from 3 to 5 US regions, we will hold two community meetings in Minneapolis and Albuquerque. These meetings will focus on sustaining engagement of IID/DDs across diverse communities for research priorities on community participation as a determinant of health and well-being. COVID has challenged us to invent alternative data gathering processes.

The expected outcomes include:

- 1) an expanded and engaged PCOR community that shares common interests in research on community participation for IID/DDs and their families;
- 2) refinement of engagement strategies and tools that are adaptable and responsive to diverse communication, cultural, and linguistic needs; and
- 3) an enhanced Research Roadmap focusing on sustainability.

Questions for Feedback (WiP):

# Individuals with Intellectual and Developmental Disabilities: Stakeholder Development and Engagement in Research

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**WORK IN PROGRESS: Perspectives  
on Multisite Collaboration**

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1. How do we create more local initiatives that are sustainable while also maintaining a national conversation that impacts practice and policy? Is this possible?

2. As COVID has highlighted existing health and social disparities, showing the need for other information gathering methodologies, what can be done to augment typical in-person formats and alternative online formats?

Conclusion: Because occupational therapy unites research, practice, and policy development, the overarching research goal of this group is to study linkages between community participation's possible pivotal role in health and well-being in IID/DDs and family members.

Funding Source: This project is funded through the Patient-Centered Outcomes Research Institute: Community Convening Around Patient-Centered Outcomes Research (PCOR) EACC 18936

## ABSTRACT

**Introduction:** The accessibility barriers of buildings are a significant limitation in community participation for people with disabilities. Two major strategies for increasing the accessibility of buildings are: 1) construct or remodel buildings so they are accessible, and 2) provide information to building patrons so they can plan a successful strategy for using the building or avoiding the structure. Our funded R&D work deploys the second approach by developing assessments to document the accessibility of public buildings and an information system to make these data publicly available. A particular challenge in this work is that people with disabilities have widely varied accessibility needs. So, our information solution personalizes reports to avoid inundating a user with information they do not need or wish to see. After almost a decade of instrument development and piloting, our mobile apps are becoming available for use in larger research studies. The aims of this project are to a) assess the accessibility of buildings in a community, b) observe how helpful accessibility information is for improving community participation for people with disabilities, and c) examining how well students learn about community accessibility using this active learning protocol.

**Methods:** This study uses a quasi-experimental pre-post observational design. The intervention is threefold: 1) Use a lecture and lab instructional paradigm to teach students how to perform assessments of community restaurants using AccessPlace (for consumer raters like movie audience ratings) and AccessTools (for expert raters like movie critics ratings), 2) Assess public building accessibility, and 3) Publicly market this information to the community of people with disabilities.

We have piloted the training methodology in six OT training programs in New York, Florida, Texas, and Wisconsin and tuned the paradigm over two years with an N of >300 student participants. We plan to implement this training in the 2021-2022 academic year with invitations to OT professional training programs nationwide.

The outcome measurements of this community accessibility intervention include surveying people with disabilities on their dining experiences at restaurants in the community before and after the intervention, the quality and community saturation of building accessibility assessments, and measuring the student learning pre and post accessibility instruction.

Questions for Feedback (WiP):

1. What issues and challenges might we have missed as we roll this out this project?

# The Impact of Community Accessibility Assessment: A National Multisite Study

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## **WORK IN PROGRESS: Perspectives on Multisite Collaboration**

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2. Who are participating stakeholders we did not mention that should be involved in this project?

Funding Source:

This work was developed in part under a grant from NIDIRR/NIDILRR, grant numbers H133G100211 and 90IFDV0006, respectively. The content of this work does not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government.

## ABSTRACT

**Introduction:** Sleep is a biological human need, necessary for optimal development, health, and wellbeing. Poor sleep in Japan's college students are all too common with negative impacts such as poor school performance, and absenteeism. Electronics in bed, substance use, and irregular timing of waking and eating meals are likely behaviors to target for sleep-related lifestyle change.

**Methods:** SHUSH will use a mixed-methods – experimental design study and achieve three key objectives. The first objective in month one, is to determine the prevalence of sleep disturbances in YPUHS students. YPUHS students will complete a web-based survey of sleep problems and sleep-related behaviors (e.g. Insomnia Severity Index) and biopsychosocial indicators known to be related to sleep problems (e.g. chronotype, anxiety). Content analysis of qualitative data from open-ended survey questions will identify lifestyle-related beliefs and practices that may promote or impede students' sleep. Quantitative data will be used to identify students with sleep difficulties, and regression modeling will explore factors predicting sleep problems to better target the intervention.

The second objective, in month two is to create a culturally sensitive 3-hour sleep improvement intervention based upon a cultural adaptation of an existing cognitive behavioral therapy for insomnia (CBT-I) program developed by the first author. The SHUSH education program will reduce sleep problems by including principles and practices from CBT-I and the health belief model. The program will include personalized stimulus control therapy, and sleep efficiency education, and relaxation training. Health belief model principles will be used to ensconce sleep-related practices into individuals' day to day life. A fidelity tool will be developed for the waitlist control trial.

The third objective, in month three, is to implement a wait-list control trial of the 3-hour sleep intervention. Of 30 students with insomnia recruited for the study, 15 will be randomized to receive the intervention. A study trained YPUHS faculty will lead the intervention. Sleep-related outcome measures will be used at baseline and post-treatment for the treated and waitlist group. Analysis of variance will compare outcomes between the treated and control participants.

**Questions for Feedback:** What are some suggestions for combining qualitative data into the education intervention? Which models of behavior change may be more ideal for this project?

**Conclusion:** This 3-month project between occupational therapists in the U.S. and Japan can advance understanding of the personal and cultural factors contributing to sleep health. The SHUSH project could lead to a

# Sleep Health through University Student Habits (SHUSH)

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## **WORK IN PROGRESS: Post- Secondary Education Implications**

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growth in sleep-related education and clinical training at YPUHS, thereby enhancing capacity to promote sleep health within the Tohoku region.

Funding Source: Fulbright Research Grant – U.S. Department of State.

## ABSTRACT

Introduction: Research has found that cultural adaptation of interventions for underserved communities and their contexts improves efficacy (Benish, Quintana & Wampold, 2011; Smith et al., 2011). In this project we are using participatory action research, to culturally-tailor a hybrid in-person/app-supported micro-intervention 5Minutes4Myself wellness program, developed for caregivers of children with autism, for another group also experiencing significant stress--Latinx underclassmen attending a predominately white institution. Latinx students face significant educational disparities with only around half of Latinx college students persisting to graduation (NCES, 2019). In the caregiver 5Minutes4Myself version, coaches engaged participants using motivational interview and manualized lifestyle consultation to design occupation-based wellness programs that fit each person's interests, goals, and lifestyles. Individualized programs were supported weekly via a habit-building smart phone app, and monthly via face-to-face coaching sessions. One key app feature included mindfulness meditations, a wellness practice shown by our team to reduce psychological symptoms and promote well-being in both clinical and non-clinical populations (Goldberg et al., 2018).

Methods: We are currently working with Latinx upper classmen to tailor this wellness program. This includes: 1) delivering the current version of the program to these students and having them assess the program in focus groups, and 2) presenting new potential features based on effective brief interventions that have demonstrated impressive effects on the academic achievement of Latinx college students (e.g. self-affirmation and growth mindsets; Brady et al, 2016; Broda et al, 2018) or based in Latinx culture that students may select during a collaborative recursive redesign process. Focus groups and the Modified System Usability Scale will be used to evaluate the adapted program. We will then train these Latinx upperclassmen to be peer coaches for Latinx freshmen who will participate in new Latinx program.

Questions:

1-Do culturally tailored interventions need to be delivered by individuals of the same cultural group?

2-How can we create culturally responsive interventions that avoid casting culture as static and instead take a cultural humility approach to development of the intervention?

3-We have identified NIMH high-priority initiative to advance prevention, treatment and delivery of mental health services using digital health technologies. What pilot evidence is sufficient to show feasibility of this culturally adapted program?

# Developing A Culturally Responsive Wellness Intervention For Latinx College Students And The Quandaries Encountered

Elizabeth Larson

**WORK IN PROGRESS: Post-Secondary Education Implications**

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Conclusion: In this session, we will present our participatory action process for cultural tailoring and discuss challenges to the basic assumptions underlying the project such as: What does caring for oneself or wellness mean in a society that values communal connections?

## ABSTRACT

Madison Metropolitan School District (MMSD)-School Age Parent Program (SAPAR) aims to increase graduation rates, increase post-secondary enrollment, decrease repeat pregnancy, and increase parenting knowledge and skills. Teen mothers experience discrimination with stigma of parenting roles creating conflict with educational and parenting occupations. Ausderau Lab has collaborated with SAPAR for over seven years on providing infant developmental screenings, wellness programs, interactive activities on the prenatal effects of stress, alcohol, and drugs, developmental playgroups, and facilitating family-centered activities. SAPAR is transitioning from a stand-alone program into other MMSD alternative programming in a new building in the next two years. As part of a community-based grant, SAPAR staff and Ausderau Lab will collaborate on a program reevaluation to propose effective, evidence-based recommendations to provide education to pregnant and parenting teens. We hypothesize through the stakeholder collaboration project, the SAPAR program will integrate evidence-based practices to support the most effective practices in education for teen mothers. This study intends to integrate stakeholders as part of the research team to assess strengths/needs of the program, gather stakeholder data, peer program review, and literature analysis. Data will be collected by 1) a systematic review of best practices supporting school-age parents, 2) interviews/focus groups with stakeholders (current/past students, staff, and administration) from Wisconsin school-age parenting programs, and 3) observation, curriculum review, and descriptive data of Wisconsin school-age parenting programs. Multiple data sources will be integrated and findings presented to the MMSD Alternative Programs.

1. How can our expertise in occupation shape emerging evidence from a systematic review to support recommendations for evidence-based occupation-centered education for school-age parents?
2. What is the best methodology to define systematic supports that are necessary to empower teen parents who are at high-risk for occupational marginalization and how might we create a framework to be used in education administration for parenting teens?
3. What are key factors to consider for inclusion of our diverse team of stakeholders in dissemination and reporting of recommendations to the community and school administration?

This project aligns with occupational therapy social justice principles by working with MMSD-SAPAR to provide equity and access to a high-quality education addressing both the academic and parenting needs of pregnant and parenting teenagers. Recommendations will aim to support the development of an education program that allows the full participation of

# Establishing Occupation- centered Education for School-age Pregnant and Parenting Mothers

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## **WORK IN PROGRESS: Post- Secondary Education Implications**

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pregnant and parenting teenagers to achieve academic goals and facilitate their ability to assume effective parenting roles. Funding: Morgridge Center for Public Service: Community-based Research Project Development Grant.

## ABSTRACT

**Introduction:** Sleep impacts every aspect of health and is especially critical for children. Insufficient sleep can lead to severe consequences like obesity, poor cognitive functioning, and developmental delays. Sleep health is defined as a multidimensional construct that includes sleep regularity, satisfaction with sleep, daytime alertness, sleep timing, efficiency, and duration (Buysse 2014). Current valid methods to measure sleep health in typically developing pediatric populations include questionnaires and actigraphy. However, in diagnostic populations, measuring sleep health has historically been overlooked (Tester, 2018). We present initial data from an observational study that aims to measure sleep health in children with sensory processing disorder (SPD) to serve as an exemplar in sleep health measurement in diagnostic populations. We hypothesize that through these measurements, we will capture differences between children with and without SPD.

**Methods:** This study utilizes cross-sectional and longitudinal data collection methods to characterize multidimensional sleep health in children with and without SPD (nSPD=20, nControl=20). Caregivers complete a sleep questionnaire (Children's Sleep Habits Questionnaire; CSHQ) to characterize overall sleep concerns. Children wear a wrist-worn activity monitor all day and night for 2-weeks and parents complete a daily sleep diary. Subjective (parent-report) and objective (actigraphy) measures are captured for every sleep domain except sleep satisfaction, which can only be measured subjectively. Sleep regularity is measured through the CSHQ and actigraphy (interdaily stability). Daytime alertness is measured through the CSHQ and actigraphy (activity during 10 most active hours of a day). Sleep timing is measured through the sleep diary and actigraphy (fitted extended cosinor model; tleft and tright). Sleep efficiency and sleep duration is calculated using CSHQ and additional actigraphy variables. We will compare groups on each sleep health domain and explore potential relationships between sensory processing concerns and sleep variables.

**Questions for Feedback:**

Are there other important outcome measures to consider when exploring sleep health in children with SPD? In other diagnostic populations?

Beyond comparing groups within each domain, are there different statistical methods that we can consider to better lay the foundation for analyzing sleep health?

**Conclusion:** Our data will provide essential information to understand sleep health in children with SPD in comparison to age-matched controls. These data will guide clinical reasoning and inform future intervention trials.

# Sleep Health in Special Pediatric Populations

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## **WORK IN PROGRESS: Research in Pediatrics**

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Additionally, this study demonstrates the use of a comprehensive, remote measurement protocol that can be utilized in other special pediatric populations, expanding research possibilities.

Funding Source: Potential funders: Sensory Integration Education Foundation and University of Pittsburgh's Doctoral Student Award

## ABSTRACT

**Introduction:** Almost 100,000 Americans have sickle cell disease (SCD), the most common monogenic disorder in humans and primarily inherited by people of color. Children with SCD are at increased risk for early health complications that affect development. In fact, 30-50% of children with SCD exhibit developmental delay before the age of 3 years. Few, if any, studies have comprehensively evaluated development in this population. The goal of the proposed study is to describe development in children 0-3 years with SCD. We will explore caregiver factors related to utilization of Early Intervention.

**Methods:** This study will use a prospective cohort design to identify the rate of developmental delays in SCD in children at 9, 18 and 30 months of age. Children with (n = 75) and without SCD (n = 75) and their primary caregiver will be recruited. Children will be evaluated with the Bayley Scales of Infant Toddler Development-4 (Bayley). Caregivers will complete the Ages and Stages Questionnaire-3 (ASQ), the Knowledge of Infant Toddler Development Inventory (KIDI) and the Infant Toddler Activity Card Sort (ITACS). A brief caregiver survey will be completed 3 months following each evaluation to document if rehabilitation therapies were utilized. Semi-structured interviews will be conducted with 30 caregivers of children with SCD.

If recruitment is consistent with prior work, the proposed study will meet the recruitment goal. Scores on the Bayley will be categorized as typically developing or developmental delay (>1 SD below mean). Similarly, scores from the ASQ will be categorized as within normal limits or developmental delay. The sensitivity (true positive rate) and specificity (true negative rate) of the ASQ will be calculated based on the Bayley. Survey responses will be summarized with descriptive statistics. A thematic analysis approach will be applied to interview data.<sup>4</sup>

Questions for Feedback (WiP):

1. Outcome measures: Is KIDI data worthwhile to include?
2. Methodology: Guidance to develop next steps to test early intervention?
3. Funding: If K23 unsuccessful, alternative approach?

**Conclusion:** This study is significant because children with SCD are an understudied population at elevated risk for developmental delay emerging before 3 years of age. The disparities in evaluation and intervention are striking. The little work that has been done in this area has been limited in scope and the rate of developmental delay remains ambiguous. The proposed study will follow published recommendations to evaluate children

# Early Detection of Developmental Delay in Infants and Toddlers with Sickle Cell Disease

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**WORK IN PROGRESS: Research in Pediatrics**

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with SCD at 9, 18 and 30 months of age with caregiver report (ASQ) and clinical evaluation (Bayley) to inform future intervention.

Potential Funding Source: NIH NHLBI K23: priorities include SCD, early development, career development

## **ABSTRACT**

**Introduction:** Cerebral palsy (CP) is the leading cause of childhood motor impairment. Decades of research indicate effective neurorehabilitation needs to be appropriately challenging to facilitate beneficial neuroplastic change, yet little evidence exists defining optimal challenge level. This project provides preliminary evidence practically quantifying “the just right challenge” to provide more efficient and effective occupational therapy treatment. This proposal is innovative for two main reasons: 1) it utilizes a theoretically based, clinically applicable, objective methods to assess and modify challenge level and 2) it investigates the concept of challenge from physical and psychological perspectives. This feasibility study provides critical preliminary data needed to systematically investigate how altering challenge within a treatment session impacts 1) engagement in therapy and 2) changes in functional motor outcomes.

**Methods:** This is an assessor-blinded, matched pair randomized intervention study. **Participant Inclusion-** children ages 4-10 with a CP diagnosis, GMFC level 1-2, 10° AROM in the wrist, and 20° AROM for the elbow and shoulder; **Exclusion-** uncontrolled seizures, BoNT-A injections within 6 weeks of baseline. **Intervention-** Participants are assigned to either a high (40-60% success) or low challenge (80-100% success) condition. Challenge is defined as percent success on discrete tasks. Children remain in their treatment condition throughout a 5-day, 30-hour constraint induced movement therapy (CIMT) program. Challenge is tracked using a tablet displaying real time success rates as therapists record successes and errors. Matched participants work with the same therapists: alternating to spend ½ the day with each therapist. **Outcome Measures:** Change in motor performance- Melbourne Assessments (MAL-2) and Shriner’s Hospital Upper Extremity Evaluation (SHUEE); total repetitions, time on task.

**Questions for Feedback:** What other measures should be included to capture client engagement? What barriers in the study design would impact translation to clinical practice? What barriers in the study design may impact validity of results?

**Conclusion:** Pilot testing has shown that children tolerate treatment conditions well. This methodology allows treatments to be occupation based and tailored to the child. The only adjustment therapists need to make is to keep track of proportion of success. Findings could be especially applicable for OT education and new practitioners, providing a baseline, objective framework for gauging when to adjust difficulty within a session.

**Potential Funding Source:** NCMRR Early Career R03- support clinical research from rehabilitation scientists establishing independent research careers. Cerebral Palsy Alliance Research Foundation Emerging Research

# Defining the “Just Right Challenge” in Pediatric Neuromotor Rehabilitation

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## **WORK IN PROGRESS: Research in Pediatrics**

Thursday June 24, 2021

10-11:30 a.m. MT



Grant- support innovative CP research. Applicants should be researchers aiming to deepen their knowledge, increase their experience, and build their reputation in CP.

## ABSTRACT

**Introduction:** Telerehabilitation is becoming a common and feasible alternative to in-person therapy to improve dose and accessibility of rehabilitation for stroke survivors, but more research is needed to understand the factors that influence adherence at home (Chen et al., 2019). Adherence is a series of decisions in which clients balance provider recommendations with personal and contextual factors (Pyatak et al., 2013). As opposed to compliance, adherence implies patient and provider collaboration in treatment planning (World Health Organization, 2003). In this study, we will evaluate adherence among users of REINVENT, a game-based telerehabilitation muscle-computer interface that provides electromyography (EMG) biofeedback for chronic stroke survivors with upper extremity hemiparesis (Marin-Pardo et al., 2020). Based on previous research (Cramer et al., 2019; Donoso Brown et al., 2015) and pilot data, we hypothesize that increased social support and clinician involvement will positively correlate with adherence to a home program and perceived technical difficulty will be associated with decreased adherence.

**Methods:** Ten adults with moderate to severe hemiparesis in the chronic phase of stroke recovery will use REINVENT at home for 36 one-hour sessions over six weeks with intermittent clinician involvement. We will administer patient reported outcome measures and conduct semi-structured interviews to understand the experiences of participants before, during (three weeks), and after completion of the therapy protocol. Our primary analysis will evaluate three key factors that have been shown to influence adherence to home programs for chronic conditions, including social supports (Pyatak et al., 2013), perceived technical demands (Donoso Brown et al., 2015; Feldner et al., 2020), and clinician involvement (Cramer et al., 2019). Secondary analysis will also explore the influence of intrinsic client factors, including motivation, engagement, and patterns of participation on adherence to REINVENT.

**Questions for Feedback:** (1) Refining aims: Given there are many factors that influence adherence, do the three chosen for primary analysis align with your knowledge of adherence to home-based therapy/research protocols? (2) Outcome measure selection: In addition to interviewing, what are effective ways to measure intrinsic patient variables like engagement and participation in this context? **Conclusion:** REINVENT provides a novel, accessible alternative to in-person biofeedback treatment for upper extremity hemiparesis in chronic stroke recovery. The findings from this study can inform the design and implementation of new at-home technologies for occupational therapy telerehabilitation. Understanding factors that influence adherence can help personalize treatment, optimize the user experience, and enhance outcomes. **Potential Funding Source:** An

# Factors Influencing Adherence to an At-Home, Game-Based Telerehabilitation Platform for Chronic Stroke Survivors

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**WORK IN PROGRESS: Stroke Rehabilitation**

application has been submitted for an NIH Exploratory/Developmental Research Grant Award (R21) to fund this work.

## ABSTRACT

**Introduction:** Self-management support is increasingly being recognized as an important intervention for improving quality of life and self-efficacy post-stroke. There is emerging interest in enhancing stroke self-management programs with mobile health (mHealth) technologies (e.g., smartphones or other wireless devices) due to their potential to increase access, reduce costs, and improve patient outcomes. This emerging interest across various disciplines has resulted in a body of literature which is complex and heterogenous in nature, making it difficult to understand the scope of the evidence. This scoping review aims to answer two overall questions. Firstly, what types of post-stroke mHealth interventions have been studied to date? Secondly, what is the extent, range, and nature of alignment between post-stroke mHealth interventions and self-management theory?

**Methods:** We will search the following seven databases to identify articles on post-stroke mHealth interventions published in peer-reviewed journals: MEDLINE, EMBASE, PsycINFO, CINAHL, AMED, Cochrane Library, and Scopus. We will also search one grey literature database for dissertations and theses on the topic: ProQuest Dissertations and Theses Global. Search terms will be used to capture two search concepts: stroke and mHealth. Included sources will address the stroke population, the concept of post-stroke mHealth interventions (in any context) and will report original research written in English. The following data will be charted when available: (1) general study information (e.g., aims/objectives, technology development stage, outcomes etc.); and (2) scope of mHealth intervention (e.g., intervention purpose, format, process etc.). For data analysis, we will use a qualitative descriptive approach, a qualitative directed content approach, and frequency counts. Results will be presented using narrative summaries, summary tables, and a visual model.

**Questions for Feedback:** What assessments, checklists, tools, or guides may be helpful in terms of charting data around stage of technology development? What theories of self-management may be relevant to include in the qualitative directed content analysis?

**Conclusion:** This review will describe the scope of studied post-stroke mHealth interventions and will map this literature onto self-management theory. This mapping will provide a common understanding of the concept of mHealth enhanced stroke self-management which could help improve communication and efforts between researchers, clinicians (including occupational therapists), and technology developers. This review will also identify key gaps and opportunities for future research in this emerging field. Ultimately, it is hoped that this research will encourage the development of comprehensive, theory-driven mHealth interventions in stroke self-management.

# Mobile Health Technologies Following Stroke: A Scoping Review Of Studied Interventions And Their Alignment With Self-Management Theory

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**WORK IN PROGRESS: Stroke Rehabilitation**

Thursday June 24, 2021 10-11:30 a.m. MT

Funding Source: Queen Elizabeth II / Heart & Stroke Foundation of Ontario Graduate Scholarships in Science & Technology.

## ABSTRACT

**Introduction:** The Fugl-Meyer Assessment and Action Research Arm Test (ARAT) are widely recommended outcome measures that objectively capture upper extremity (UE) function across the stroke care continuum. Despite extensive efforts to maximize use of evidence-based outcome measures in stroke rehabilitation, rates of outcome measure implementation by occupational therapy (OT) practitioners remain alarmingly low. Core barriers to outcome measure use include practitioners' limited access to knowledge about outcome measures, a lack of team communication, and limited resources to create a positive implementation culture. In response to these barriers, the purpose of this study is to tailor and test a package of implementation strategies designed to support OT practitioners' use of the Fugl-Meyer and ARAT across the stroke continuum.

**Methods:** Design: This study will use an effectiveness-implementation hybrid Type 3 design to tailor and test the effectiveness of I-STROM (Implementation STRategies for Outcome Measurement) on Fugl-Meyer and ARAT adoption. Participants: Between 30-40 OT practitioners across acute, inpatient, and outpatient settings at one large academic medical center will participate in I-STROM. Measurement: Adoption of outcome measures will be assessed through retrospective chart reviews before and after I-STROM deployment. Pre/post surveys will capture changes in practitioners' perceptions of the core barriers (i.e., knowledge, communication, resources) to outcome measure use. Procedures: To overcome core implementation barriers, I-STROM will consist of (a) initial and follow-up outcome measure training sessions (b) knowledge sharing activities and (c) outcome measure "champions." OT practitioners and administrators will participate in focus groups and tailor I-STROM to the needs of the acute, inpatient, and outpatient settings. Using a randomized waitlist-control design, practitioners in the intervention group will participate in I-STROM over the course of 6-months. I-STROM will then be delivered to practitioners in the waitlist group for 6-months. Data analysis: Descriptive statistics and match-paired t-tests will be used to detect pre/post differences in Fugl-Meyer and ARAT adoption and practitioners' perceptions of core barriers to outcome measure use.

**Questions:** How can I justify my sample size given that I am applying for an R03/R21 and am only testing I-STROM at one site? How might I structure my aims so that I am using "mechanistic" language? What are important considerations when rolling out a randomized waitlist-control trial?

**Conclusion:** To capture the value of OT services in stroke rehabilitation, OT practitioners must consistently implement outcome measures that quantify functional UE improvements. I-STROM is informed by core barriers to

# Implementation Strategies to Facilitate Outcome Measure Use in Stroke Rehabilitation

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## WORK IN PROGRESS: Stroke Rehabilitation

Thursday June 24, 2021

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outcome measure use and serves as a promising and innovative approach to maximizing outcome measure adoption by OT practitioners.

Funding source: NINDS, AOTF Implementation Research Grant

# POSTERS

## ABSTRACT

**INTRODUCTION:** Autism spectrum disorder (ASD) is a neurological disorder characterized by impairments in social interaction, communication, and behavior, through restricted and repetitive patterns and interests. Art intervention had been found as a potentially valuable treatment of ASD. However, the efficacy of art interventions in ASD remains unsettled. The purpose of this scoping review is to evaluate the efficacy of art interventions for individuals with ASD and connect these interventions with the Occupational Therapy Practice Framework (OTPF) domains. Findings will help occupation therapists apply the OTPF-based art interventions for individuals with ASD in their clinical practice.

**METHODS:** We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) procedure to document the literature selection process from six databases: CINAHL, Cochrane, PubMed, Ovid, PyschInfo, and Scopus. We identified quantitative research between 2000 and 2020 of level 1B or 2B evidence published in peer-reviewed journals. Art intervention was defined in the forms of coloring, painting, music, or theater. Titles and abstracts of 1,787 articles were screened for eligibility. A total of 18 full-text articles were manually screened for eligibility and 15 met the inclusion criteria and were included in this study. Results from the studies were synthesized using the OTPF domains and art interventions were connected with occupation-based outcomes to facilitate art intervention use in occupational therapy practice for ASD.

**RESULTS:** Results indicated that art activities benefited children with ASD in two areas of the OTPF domain of performance skills, process and social interaction skills, and in the domain of client factors, specifically in the aspect of body functions. Efficacy of art intervention on the children with ASD was seen in self and group play, trait anxiety, social cognition, cortisol levels, communication symptoms, immediate and delayed memory of faces, theory of mind, engagement, parental stress, and joint attention. Findings also found a similar effect for the group and individual intervention sessions and suggest multiple sessions can produce more significant changes.

**CONCLUSION:** There have been no previous studies looking at the specific OTPF-domains that art interventions have been shown to target individuals with ASD. This scoping review supports that art activities could improve OTPF-based client factors, process, and social interaction skills for children with ASD. The findings provide efficacy evidence for occupational therapists to use art interventions to enhance occupation-based treatment outcomes for children with ASD. The findings provide efficacy evidence for occupational therapists to use art interventions to enhance occupation-based treatment outcomes for children with ASD. **FUNDING:** N/A

# Scoping Review of Art Interventions in Autism: Applications for Occupational Therapists

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**CATEGORY: Autism**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

## ABSTRACT

**Background:** Given the types of symptoms present in individuals with autism spectrum disorder (ASD), interventions should address deficits in motor control, social interactions, and emotional intelligence. Alternative interventions, such as exercise video gaming (exergaming) and dance movement therapy, may

address these deficits in an engaging, age-appropriate manner, thus meeting the unique needs of adolescents with ASD.

**Objectives:** The purpose of this paper was first, to review the current literature on ASD for innovative movement strategies feasible to address emotional, social, cognitive, and physical outcomes for adolescents ages 11-18; and second, to determine the effectiveness of these interventions.

**Methods:** The databases used were: Pubmed, Cochrane Library, Web of Science, EMBASE, CINAHL, Psycinfo, REHABDATA, Human Kinetics Journal, and PEDro. Search terms included: autism or autism spectrum disorder; and dance, dancing or dance therapy, or exergaming, exergame, video gaming or video game. Selected articles were published in the last 10 years, written in English, and included subjects with ASD who participated in dance or exergaming interventions. After the initial screening of articles with relevant titles and abstracts, we included studies with evidence levels of 1-4.

**Main results:** Five dance therapy intervention studies showed moderate effectiveness for social and emotional outcomes such as empathy skills, emotional regulation, and negative symptoms of ASD. Four exergaming studies had moderate effectiveness for motor and physical outcomes, such as energy expenditure and perceived object control.

**Implications:** Based on the review of dance and exergaming intervention studies, the authors recommend providing the interventions to selected clients depending on individual circumstances. Both dance and exergaming may be cost-effective and feasible in school settings. Future studies should include larger and more diverse samples with rigorous randomization procedures.

**Keywords:** autism spectrum disorder, dance therapy, video gaming, motor skills, social skills.

# Innovative Movement Strategies for Adolescents with Autism Spectrum Disorder: A Review of Dance and Exergaming Interventions

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**CATEGORY: Autism**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

## ABSTRACT

**Introduction:** Research and theory support the complexity of families as transactional systems necessitating interventions targeting individual and system change. Family mealtime is frequently described as one of the most stressful occupations for parents. Further, children with ASD frequently have feeding challenges that impact mealtime. Parents of children with ASD have poorer outcomes on measures of self-efficacy, stress, wellbeing, and health. Research has overlooked the role of parent capacity and engagement for intervention success. Interventions are aimed at child outcomes when a superior option may be building family capacity. Pilot results from a parent-mediated feeding intervention identified that parents benefitted from the intervention despite a primary focus on child outcomes. Parents reported increased preparedness for mealtime challenges, altered expectations for mealtime, and decreased stress. This study aims to: 1) using a randomized control trial, determine the effectiveness of a parent-mediated intervention for children with ASD to address child eating and mealtime goals; 2) evaluate the effectiveness of a parent-mediated intervention to address parent-focused goals; and 3) characterize parent and family factors that are related to parent and child outcomes.

**Methods:** Parent-child dyads (N=40) will be enrolled in a 6-month in-home parent-mediated feeding intervention. Parents will complete pre- and post-measures of stress, parenting efficacy, and mealtime environment and routines. Parents will collaboratively identify 3-4 child-specific goals and 1-2 parent focused goals for intervention targets. Monthly parent training modules and weekly goal reviews will be used to build parent capacity. Observational measures of household routine stability and caregiver involvement will be collected throughout the intervention. Qualitative coding for parent-child relationship, family cohesion, and observed family routine stability will be completed using video data from play, feeding, and mealtime observations throughout the study. Goal attainment scaling for both child-focused and parent-focused goals, pre-post changes in parenting stress and efficacy, and qualitative measures will be used to identify factors related to intervention success as well as evaluate the effectiveness of the intervention for meeting child and parent goals.

Questions for Feedback:

1. What parent outcomes should be considered and are the selected outcome measures appropriate?
2. How can we consider that Parent-mediated interventions may only work well for specific types of parents?

**Conclusion:** Findings of this study may support the use of parent-mediated interventions to expand the capacity of parents to optimize the

# Optimizing Parent Capacity and Engagement During Parent-Mediated Intervention to Address Feeding Challenges for Children with Autism

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**CATEGORY: Autism**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

effectiveness of parent-mediated interventions for both child and parent goals. Results of this study may illuminate the broader implications of family-focused intervention approaches on parents' and families' wellbeing.

## ABSTRACT

**Introduction:** About 10% of youth with autism spectrum disorder (ASD) participate in equine-assisted services, yet research on occupational therapy incorporating horses for youth with ASD is sparse. The purpose of this study was to assess the feasibility, acceptability, and preliminary efficacy of a manualized occupational therapy in an equine environment (OTEE) intervention for youth with ASD. We hypothesized that youth who participated in OTEE would demonstrate improved goal attainment, behavioral regulation, and social functioning, and decreased hair cortisol content, in comparison to a waitlist control group of occupational therapy in a garden environment.

**Methods:** We conducted a randomized feasibility study. Twenty-four youth with ASD, ages 6 – 13, participated in an occupational therapy evaluation that resulted in goals related to self-regulation, social communication, or play. Participants were randomized to OTEE or the waitlist control group. Feasibility was assessed through ratings of attendance, attrition, fidelity, and assessment completion. Acceptability was assessed through satisfaction surveys and focus groups. Preliminary efficacy was measured with goal attainment scaling, the Aberrant Behavior Checklist- Community, the Social Responsiveness Scale, the Pediatric Evaluation of Disability Inventory, and hair cortisol content. T-tests were used to assess pre-post effects of OTEE, while Fisher's exact and Mann-Whitney U tests were used to compare OTEE outcomes (n=20) to a subset of waitlist control outcomes (n = 9).

**Results:** Twenty-three participants completed the study, attending 89% of offered OTEE sessions; three youth attended fewer than 7 OTEE sessions and were excluded from efficacy analyses. 100% of hair samples and outcomes measures were collected. Providers achieved 94% fidelity to OTEE and control interventions. Mean parent satisfaction score was 90% for OTEE and 80% for the control. Therapists expressed satisfaction with OTEE (90% satisfaction score), and offered suggested improvements. After OTEE, youth demonstrated significant improvement ( $p < .05$ ) in goal attainment, irritability, and social motivation, and non-significant trends for improvement ( $p < .15$ ) in hyperactivity, social communication, restricted and repetitive behaviors, and social/cognitive functional skills. Contrary to our hypothesis, hair cortisol content tended to increase after OTEE ( $p = 0.07$ ). In comparison to the control group, youth were more likely to meet or exceed their goals ( $p < .05$ ) and improve in social/cognitive functional skills ( $p < .05$ ) after OTEE.

**Conclusions:** OTEE was feasible to implement and acceptable to parents and therapists. Preliminary outcomes suggest OTEE may improve goal attainment, functional skills, behavioral regulation, and social functioning of

# The Feasibility, Acceptability, and Preliminary Efficacy of Occupational Therapy in an Equine Environment for Youth with Autism

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## CATEGORY: Autism

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

youth with ASD. Results will inform design of larger trials to further assess the efficacy of OTEE.

Funding Source: Horses and Humans Research Foundation

## ABSTRACT

### Abstract

**Introduction:** The purpose of this systematic review was to examine interventions to reduce bullying against autistic students. This review was conducted because bullying is a significant problem across all populations of youth but bullying directed towards autistic youth is more prevalent than their non-disabled peers. Previous systematic reviews have examined the effectiveness of bullying interventions; however, to date, none have focused on the effectiveness of interventions for autistic students.

**Methods:** The databases of MEDLINE via PubMed, PsycINFO, CINAHL via EBSCO, and Education Source with ERIC were searched with the key terms, “autism” and “bullying.” Inclusion criteria included: peer-reviewed articles of levels of evidence 1 to 3, published from 2000 to March 2020, written in English, participants had a diagnosis of Autism Spectrum Disorder (ASD), and participated in a bullying intervention. All of the studies were appraised using Law et al.’s Quantitative Review Form (Law et al., 1998).

**Results:** Thirteen studies met the inclusion criteria and were included in this review. This review identified strong evidence for social-emotional learning and social skills training as bullying interventions for autistic youth. The most effective way to reduce bullying amongst autistic youth was found to be to ensure that they have an understanding of social rules, norms, and skills and that they are able to identify the language, attitude, and demeanor from others that could be considered threatening. The interventions with the strongest evidence were those which were implemented in a Tier 2 setting (i.e., classroom curriculum/group program).

**Conclusion:** This systematic review provides evidence for the effectiveness of social-emotional learning and social skills training interventions that are implemented in the Tier 2 setting to decrease bullying against autistic students. Autistic students benefit from realistic situations, making interventions with their peers or in their classrooms most effective. These interventions can be used by pediatric occupational therapists in their practice to decrease bullying against autistic youth.

**Impact Statement:** Many autistic youths are bullied. Bullying impacts one’s school occupations, family life, and social participation, therefore, occupational therapists have a role in addressing bullying with all youth with whom they work.

**Funding Source:** The authors did not receive financial support to complete this paper. Access to databases was provided through student enrollment at New York University.

# Anti-Bullying Interventions for Autistic Students: A Systematic Review

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**CATEGORY: Autism**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

## ABSTRACT

**Introduction:** This study focuses on the personal narratives published by self-identified autistic women, a group whose storytelling and unique subjectivity has only emerged recently within autism research. Common narrative themes are identified and discussed pertaining to identity construction, navigating roles, and occupational participation. Informant storytelling will be contextualized through a combination of narrative and ethnographic approaches.

**Methods:** This study constitutes a narrative analysis of print and virtual data published by self-identified autistic women. As an ethical best practice, virtual data is selectively derived from content designated for informational purposes. For example, included blog posts are published through self-advocacy and educational organizations as opposed to personal user accounts. An inductive analysis with elements of grounded theory will be applied to texts and video transcriptions to identify themes. Data will be further assessed through a combination of narrative and ethnographic techniques, such as reflexivity, emplotment, and triangulation.

**Results (Poster):** Findings thus far may distinct narrative overlaps related to navigating roles such as motherhood and occupations including dating and health management. For example, informants commonly identify autism-specific strengths and challenges related to parenting. Specific barriers endorsed include fatigue from sensory overload and encountering stigma from health professionals.

**Questions for Feedback (WiP):** How can I be more rigorous with my methodology? What additional frameworks should I consider? What applications may these findings have related to further research? What funding sources for a larger-scale qualitative study may be available?

**Conclusion:** There is a scarcity of research conducted on the personal narratives of autistic women, particularly in regards to identity, roles, and daily occupations. This study may present novel and important implications for further autism-related research and occupational therapy practice.

**Funding Source/Potential Funding Source:** This analysis will form the foundation for a future qualitative study on the lived experiences of autistic women. Considerations for potential funding sources may include SSO:USA, OTAC, AOTF, the International Society for Autism (INSAR), and the Organization for Autism Research (OAR).

# From Mothering to Masking: Narratives of Autistic Women

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**CATEGORY: Autism**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT





## ABSTRACT

Introduction: Occupational therapy (OT) providers are well-suited to address the quality of life (QoL) of autistic individuals. Previous studies on QoL in autistic individuals focused on proxy reports and lacked an appropriate proportion of autistic females. The objectives of this review were to: (1)compare self-reported QoL in autistic and non-autistic individuals; (2)examine sex differences in QoL of autistic individuals; (3)review literature on QoL related to age, intellectual disability (ID), and report type; and (4)assess OT-related interventions for autistic adolescent and adult QoL. We hypothesize that self-reported QoL of autistic adolescents and adults will be lower than non-autistic counterparts; autistic females will demonstrate lower QoL than autistic males; QoL will be consistent across age, ID, and report type; and OT-related interventions will improve QoL in autistic adolescents and adults. Methods: We performed a rapid review of peer-reviewed articles published between January 2010 to April 2020, searching Academic Search Ultimate, PubMed, and OTSeeker, and four journals. PubMed searches utilized MeSH terms: “Self Report,” “Female,” “Autism Spectrum Disorder” OR “Autistic Disorder” OR “Asperger Syndrome.” Others used the search terms: “autis\*” and “quality of life” or “autis\*” and “well-being.” Articles needed at least 20% females in the autistic sample, participants  $\geq$  13 years old, and a self-reported QoL measure. Results: QoL of autistic adolescents and adults was lower than non-autistic counterparts (Franke et al., 2019; Jamison & Schuttler, 2015; Lin, 2014; Lin & Huang, 2017; Mahfouda et al., 2019; Mason et al., 2018; McConachie et al., 2018), consistent across self-reports and combined self- and proxy-reported QoL, with samples representing autistic females and participants with ID. We could not determine QoL differences in autistic females, as only one article directly compared sex differences in QoL in autistic individuals, finding that being female was a predictor of lower QoL in autistic adults (Mason et al., 2018). Several OT-related interventions improved QoL in autistic adolescents and adults (Curtin et al., 2016; Jamison & Schuttler, 2017; Siew et al., 2017; Garcia-Villamizar & Dattilo, 2010; Holmefur et al., 2019; Hesselmark et al., 2014; Nadig et al., 2018; Wentz et al., 2012). Conclusion: Lower QoL in autistic adolescents and adults is well-documented. Our findings indicate that QoL is malleable. Future research should examine QoL in autistic females, emphasizing on large sample sizes and random sampling. Funding Source: This work was supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) [U54 HD090256 to the Waisman Center] and National Center for Advancing Translational Sciences (NCATS) [UL1TR002373, KL2TR002374, and KL2TR00428]. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NICHD nor NCATS.

# Quality of Life Differences and Intervention Approaches in Autistic Adolescents and Adults

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## CATEGORY: Autism

Wednesday June 23, 2021

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## ABSTRACT

**Introduction:** Oral care is related to overall health and quality of life. Culturally influenced factors that affect dental care utilization may include behaviors, beliefs, attitudes, and values, such as diet, infant feeding practices, care of primary teeth, concern for oral health, and dental knowledge. Research has shown that Latinxs are less likely to believe in the need for regular professional dental care, more likely to have misperceptions about oral health, and less likely to have access to dental care than the general population. To date, minimal research has explored oral health beliefs and experiences in Latino families. Using a qualitative research methodology, this study examined oral health attitudes, beliefs, and practices in Latino families with and without children with Autism Spectrum Disorder (ASD).

**Methods:** Participants were 32 English or Spanish-speaking Latinx parents/caregivers from 18 families with children aged between 6 and 12 years. Eight families had typically developing (TD) children, and 10 families had a child with ASD. The qualitative description approach consisted of conducting two semi-structured interviews with a designated parent/caregiver from each family. One of two bilingual study team members, both with extensive interview experience, conducted interviews in either English or Spanish. Parent/caregiver interviews lasted 30-180 minutes, were audio-recorded, transcribed verbatim by a professional service, and translated if necessary. Interviews were coded and analyzed by the team to establish consensus about thematic findings.

**Results:** Three themes arose from the interviews, including Vulnerability and Mistrust, Our Kids are More Important, and Acculturation and Cultural Practices. The Latino families described dissatisfaction with dental treatments and costs. They highlighted fear of the dentist and health care providers, due to their ethnic minority status, as key factors inhibiting receipt of dental care. Additionally, families discussed prioritizing other occupations of daily living over oral care routines. Finally, they shared cultural influences on oral care habits that were passed on from their varied upbringing.

**Conclusions:** Understanding the importance of social and cultural influences on Latinx patients' health beliefs and behaviors, and considering how these factors interact at multiple levels of the health care delivery system, will assist in devising interventions that take these issues into account to assure quality health care delivery to diverse patient populations.

# Exploring Oral Health Beliefs and Experiences in Latinx Families with Children with and without Autism: A Qualitative Study

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**CATEGORY: Autism**

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Funding Source: This study was supported by the National Institute of Dental and Craniofacial Research (#U01 DE024978-02; T90DE021982; 1F31DE030006-01), the USC Center for Health Equity in the Americas, the CFOT Research Grant, and the SSO:USA Student Research Grant.

## ABSTRACT

### Introduction:

Autism Spectrum Disorders (ASD) are associated with comorbidities such as gastrointestinal (GI) symptomatology. GI symptomatology in the absence of known causes are potential indicators of gut status, including gut microbiota. Clinical indicators of GI status include diet, abdominal pain, and stool status. Studies have indicated the existence of the microbiota-gut-brain axis and its potential to influence behavior through multiple pathways. This study explores clinical GI indicators' relationships to social symptom severity in ASD.

### Methods:

A one-group cross-sectional design was used to examine clinical GI indicators and social and symptom severity in 33 children with ASD aged 3-14 years. GI variables were Diet, Abdominal Pain, and Stool. An open-ended parent questionnaire was used to obtain information regarding the status of GI variables. Social symptomatology was quantified using the Social Responsiveness Scale (SRS-2). Mann-Whitney U tests were used to test the effect of GI variables on SRS-2 overall and subscales scores. SRS-2 overall scores were each modelled by the GI variables using multiple regression. Post-hoc, Fisher's exact test was used to appraise relationships among Diet, Abdominal Pain, and Stool Status.

### Results:

There were no significant differences in typical and constrained diet groups with SRS-2 overall scores. There was a significant difference among abdominal pain and no abdominal pain groups on the overall SRS-2 scores ( $U=182$ ,  $z=3.010$   $p=0.002$ ) and all subscales scores. There was a significant difference among the typical and atypical stool status groups on the social motivation subscale scores ( $U=203.5$ ,  $z=2.480$   $p=0.012$ ). The multiple regression of SRS-2 overall score using the GI clinical variables as predictors was significant ( $F(3,32)=3.257$ ,  $p=0.036$ ). As assessed by Fisher's exact test, there was a significant association between abdominal pain and stool ( $p=0.021$ ).

### Conclusion:

Findings suggest that clinical GI indicators may have relationships to severity of social symptoms in children with ASD that should be further investigated. While our study indicates no significant relationships of diet and severity of social symptoms, there is a need for further investigations using larger samples to better establish relationships among clinical GI indicators and severity of social symptoms in children with ASD. If larger studies find directional relationships between clinical GI indicators of gut microbiota

# Relationships among Clinical Indicators of Gastrointestinal Status and Social Symptom Severity in Children with Autism Spectrum Disorders

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**CATEGORY: Autism**

Wednesday June 23, 2021

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status and ASD symptom severity, such studies will provide evidence for the development of dietary and/or nutritional interventions that may reduce social symptom severity in ASD. Results suggest that clinicians working with children with ASD who assess their patient's social symptom severity should also consider inquiring about the child's clinical GI indicators.

Funding Source:

The National Institutes of Health, National Center Medical Rehabilitation Research (NICHD) (K12 HD055929)

## ABSTRACT

### Introduction:

Autistic\* students experience challenges in peer engagement in inclusive education. Peer engagement involves bidirectional connections between a student and their peers, but research on autistic peer engagement mainly focuses on individualistic social metrics in isolation of peer contexts. Recent research demonstrates a need to shift the focus toward the interpersonal mismatch between autistic and non-autistic social characteristics. These patterns may provide more comprehensive information regarding the social barriers experienced by autistic people than the individualistic approach that has been predominant in the past. The double empathy theory suggests that social barriers between autistic and non-autistic people are caused by differences in social norms and expectations, which results in a “double empathy problem” as both people experience it and not just autistic people. Based on the double empathy theory, this study examined the effects of neurotype match among students and peers on peer connections in inclusive education.

\*We use identity-first language as it is preferred by many autistic individuals and their families than the conventional person-first language (Kenny et al., 2016).

### Methods:

With eight repeated observations of peer interactions among 12 in an inclusive school club over five months (six were autistic, N of observations = 96), we plotted peer connections networks among the students and compared the quantity and strength of within- and across-neurotype connections. We examined students’ tendency to connect with peers who share the same neurotype and compared it with their tendency to connect with peers who share the same levels of social activity and popularity.

### Results:

Results suggested that both autistic and non-autistic students had more within-neurotype peer connections than cross-neurotype peer connections. The number of relationships and strength were not different between autistic and non-autistic students. Students tended to connect with classmates who shared the same neurotype rather than ones who had the same social activity and popularity. In summary, autistic students did not exhibit weaker peer connections than non-autistic students, and within-neurotype student-peer dyads demonstrated stronger peer connections than cross-neurotype dyads.

### Conclusion:

# Student-Peer Neurotype Match Rather than Autistic Neurotype Predicts Peer Connections in Inclusive Education

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**CATEGORY: Autism**

Thursday June 24, 2021

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The study suggests autistic students' difficulties in peer engagement are not completely caused by their social differences and may partly be caused by an interpersonal mismatch between autistic and non-autistic social styles, as well as non-autistic peers' perceptions and attitudes. Interventions to support autistic peer engagement may shift from building students' normative social skills to creating supportive peer context and opportunities for within-neurotype connections.

Funding Source/Potential Funding Source:

This material is based upon work supported by the National Science Foundation (NSF) under Grant No. NSF Award#1614436.

## ABSTRACT

**Introduction:** Hospitalized patients with difficulty performing activities of daily living (ADL) may benefit from occupational therapy (OT) services. However, disparities in access to acute care OT are poorly understood. We sought to investigate whether need (i.e., ADL limitations) predicts acute care OT utilization, and whether this relationship differs across sociodemographic factors and insurance type.

**Methods:** This was a secondary analysis of electronic health records data from five regional hospitals within one health system. Participants included 56,022 adults admitted between 2014 and 2018 who received an OT evaluation. Participants' ADL performance was rated by occupational therapy practitioners using the Activity Measure for Post-Acute Care (AM-PAC) "6-Clicks" measure of ADLs. We applied logistic regression models to determine whether ADL performance predicted acute care OT treatment utilization (yes/no). Interactions between ADL performance and both sociodemographic factors (e.g., age; race/ethnicity; significant other status) and insurance type were included to investigate whether the relationship between ADL performance and OT utilization varied across patient characteristics.

**Results:** 44% of patients evaluated for OT received subsequent treatment. Patients with lower ADL performance were more likely to receive OT treatment (odds ratio = 1.08, 95% confidence interval = 1.08, 1.09). However, interaction terms indicated that among patients with low ADL performance, those who 1) were younger; 2) were white, non-Hispanic; 3) had significant others; and 4) had private insurance (vs. public) were more likely to receive treatment. These differences diminished in patients with greater ADL performance, who had similarly low probabilities of receiving OT.

**Conclusion:** Patients with greater need were more likely to receive acute care OT, but this relationship was moderated by age, minority status, significant other status, and insurance type. Findings provide direction for exploring determinants of disparities in OT utilization.

**Funding Source:** American Occupational Therapy Foundation.

# Unique and Interactive Effects of Activity Performance, Sociodemographic Factors, and Insurance Type Upon Acute Care Occupational Therapy Utilization

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**CATEGORY: Big Data / Health Services Research**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** The management of patients receiving reconstructive breast surgeries continues to evolve and grow. Our facility created an evidence-based enhanced recovery after surgery (ERAS) interdisciplinary protocol for patients undergoing breast reconstruction. The protocol included preoperative patient education, opioid and nonopioid multimodal medications, pre-operative PEC II blocks, postoperative occupational therapy (OT) education, and postoperative-scheduled nonopioid multimodal medication. Occupational therapy is a distinctive profession that looks at patient care in a holistic manner with the main goal of achieving maximum performance in meaningful daily activities despite physical, emotional, and psychological implications after surgery. The aim of this study was to examine the effects of postoperative OT on outpatient therapy referral rates.

**Methods:** A retrospective matched case control study was designed to examine two time periods where controls (pre-ERAS) did not receive OT and cases (enrolled in ERAS) did receive OT. Total sample size, determined by a priori power analysis was 288, so the final sample is 330 with 165 patients assigned to each group. Subject inclusion was female and over 18 years of age and subjects were matched on age within 5 years and type of surgery (subpectoral with Alloderm, prepectoral with Alloderm, and autologous). All cases received at least one OT session the day after surgery that included education on surgical restrictions, how to get in and out of bed, modified activities of daily living like putting on a bra, physician prescribed therapeutic exercises, lymphedema risk reduction strategies, and how to safely return to activities like child care, work, and leisure activities while healing.

**Results:** Patients who received an OT session were associated with lower probability of needing an outpatient therapy referral (OR = 2.181, 95% CI: 1.077-4.418). Binary logistic regression results indicated that patients who received inpatient occupational therapy were two times less likely to need an outpatient therapy referral ( $p = .0304$ ) up to 90 days after surgery.

**Conclusions:** Creation of the ERAS protocol and specifically the intentional post-operative occupational therapy education session resulted in significant reductions in necessity of needing an out-patient therapy referral. The cost benefits of having just one inpatient occupational therapy evaluation are significant in the survivorship period following surgical

# The Association Between Inpatient Occupational Therapy and Outpatient Therapy Referral Rates After Breast Reconstruction: A Matched Case- Control Study

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**CATEGORY: Big Data / Health  
Services Research**

Thursday June 24, 2021

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intervention. Successful multidisciplinary engagement including occupational therapy collaboration, has the potential to optimize functional status after breast reconstruction, reduce continued need for therapy services post-operatively, and improve the health economics of the healthcare industry in cancer treatment.

Funding Source/Potential Funding Source: NA

## ABSTRACT

Introduction. Although clinical competence is multidimensional, there is extensive support that clinical reasoning, evidence-based practice, and outcome measurement are critical components (Epstein & Hundert, 2002). Importantly, consensus is that competency is not only relying on actual skill and quality, but also is dependent on the habitual and routine performance of doing critical tasks such as critical reflection on practice, critical analysis of the literature, etc. (Guest, Regehr, & Tiberius, 2001). This is consistent with occupational science theory. Therefore, psychometrically sound and context-free/ inter-professional tools that provide insight into what practitioners are actually doing in daily practice and clinical competence are needed (Englander et al., 2013; Norcini, Holmboe, & Hawkins, 2008). The preliminary and secondary iterations of the Measure of Evidence-Informed Professional Thinking (EIPT) was developed using occupational science and Rasch analysis to identify which items probing activities of clinical reasoning, evidence-based practice, and measuring outcomes fit the parameters of a measure. Methods. The preliminary measure of EIPT was developed using a sample of occupational therapists, physical therapists, clinical social workers, speech and language pathologists, and nurses. The main goal was to reduce non-fitting items to reduce the initial pool to identify those items that fit the measure(s). The preliminary measure identified 32 items that probe the professional's habits of "doing" critical tasks in daily practice which fit two unidimensional scales, critical clinical reasoning habits, and EBP habits. The second iteration goal was to expand the inclusion of "high" items identified in the literature as critical activities and develop a third, EBP skills scale. The Rasch analysis identified 8-11 distinct strata of performance (depending on the specific scale), which was reduced to four interpretable levels. A small sample of published authors and instructor in allied health programs were solicited for the labels of the four strata. However, there is limited consensus of what are the expected frequency of engaging in critical reasoning, EBP activities, and specific EBP/statistical skills which would indicate competent practice. This is an unfunded project.

Questions for Feedback:

1. Looking at the descriptors, does the label would accurately describe that level?
2. What activities do you feel all competent clinicians should be doing and at what frequencies?
3. Which activities are expected all competent therapists? (or only for managers or clinic leaders advanced practitioners?) And at what frequencies?

# Measuring Competency using the Measure of Evidence-Informed Professional Thinking

Angela Benfield

**CATEGORY: Big Data / Health  
Services Research**

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4. What specific EBP skills and statistical skills should all therapists be able to use in assessing research and clinical evidence.

## ABSTRACT

### Introduction:

The burden of musculoskeletal conditions demands attention to multidimensional outcomes after orthopedic trauma, such as distal radius fracture (DRF). Variation in recovery may be related to clients' behaviors and cognitions, including self-efficacy, which can be framed using a holistic lens of self-management. The purpose of this exploratory convergent mixed methods study was to describe and understand self-management in adults aged 45 to 74 after DRF. This presentation focuses on two specific aims: 1) explore associations between self-efficacy for managing injury and self-reported physical, mental, and social health, and 2) explore convergence and divergence between qualitative descriptions of self-management based on quantitative scores of self-efficacy.

### Methods:

Participants were purposefully recruited from rehabilitation clinics and physicians' offices. They completed patient-reported outcome measures and a semi-structured interview 2 to 4 weeks after discontinuation of full-time wrist immobilization. Self-efficacy was measured using Patient-Reported Outcomes Measurement Information System (PROMIS) Self-Efficacy for Managing Symptoms, Managing Emotions, and Managing Daily Activities custom short forms. Self-reported health was measured using the Patient-Rated Wrist Evaluation and PROMIS Pain Interference, Depression, Anxiety, and Ability to Participate in Social Roles and Activities short forms. Spearman Rho correlations were used to assess the relationships between self-efficacy and health. Constructivist grounded theory techniques were used to analyze the qualitative data. High and low self-efficacy groups were created based on the self-efficacy scores, and qualitative descriptions of self-management were compared between the groups.

### Results:

The sample included 31 individuals (90.3% female, 86.7% White) with a unilateral DRF (64.5% operative management). Self-efficacy for managing symptoms and managing emotions were significantly associated with physical, mental, and social health. Self-efficacy for managing daily activities was significantly associated with physical and social health. Merging of qualitative and quantitative data highlighted variation in the self-management process and outcome based on level of self-efficacy. Qualitatively, the high self-efficacy group described more self-directed behaviors, decreased uncertainty, and improved multidimensional health.

### Conclusion:

# The Role of Self-Efficacy in Self-Management After Distal Radius Fracture: A Mixed Methods Exploration

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**CATEGORY: Big Data / Health  
Services Research**

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The study's results highlight the role of self-efficacy for managing multidimensional sequelae of DRF during recovery. Self-efficacy has the potential to assist with risk stratification for precision care and can be a potential intervention target to optimize value-based outcomes.

Funding Source:

American Hand Therapy Foundation Burkhalter New Investigator Grant and NYU Steinhardt Doctoral Research and Travel Grant

## ABSTRACT

**Introduction:** Falls are common and detrimental for older adults, with rural-dwelling individuals facing a greater risk than their urban-dwelling counterparts. Rural adults face barriers to accessing healthcare services, including options for engagement in physical activity which has been shown to reduce fall risk and fall-associated injuries. Yoga offers a safe and low-cost mode of group physical activity feasible for older adults as it can be easily modified and delivered, but its effects on balance and occupational performance have not yet been investigated with rural seniors. The goal of this study was to compare baseline and posttest balance (measured by the MiniBESTest) and occupational performance (COPM) scores following implementation of a 12-week chair-assisted yoga program.

**Methods:** In collaboration with local Aging and Disability Resource Centers (ADRCs), participants were recruited from five rural counties around WI with a goal of 12-15 individuals per class at each location. Inclusion criteria included 1) age 60 or older; 2) no formal yoga in the last 6 months; 3) ability to independently ambulate for 10 minutes; and 4) score higher than 18 on the t-MoCA. Enrolled participants were split into intervention and waitlist control groups. Individuals in the waitlist group crossed over into the intervention group after 3-months in order to collect usual care comparison data. Yoga classes were held in local facilities twice weekly for 12-weeks in 75-minute sessions and were led by a local, certified yoga instructor who completed an additional developer designed training. Participants completed a battery of assessments at baseline, pretest, posttest, and 3-month follow-up collection points. Data collection was significantly impacted by the COVID-19 pandemic and analysis is ongoing.

**Results:** Preliminary comparisons of pre and posttest data show significant improvements on both the MiniBESTest and COPM. Participants' total scores on the MiniBESTest improved by a mean of 2 points ( $p=.014$ ). Both the performance and satisfaction scores for participants' top three self-identified occupational performance problems each improved significantly ( $p\leq.01$ ), with physical activity, self-care, and balance being the most frequently reported.

**Conclusion:** Preliminary results from this study suggest that the Yoga for Seniors program has potential to improve balance and occupational performance for rural community-dwelling older adults, though a larger randomized control trial is needed to support our initial findings and expand to other yoga programs and practices. Promotion of physical activity behavior through accessible interventions such as yoga may help to improve the public health disparities of rural older adults.

# Balance and Occupational Performance Gains following 12-weeks of Yoga in Rural, Community-dwelling Older Adults

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Funding Source/Potential Funding Source: This project is supported by National Institutes of Health [UL1TR002373, KL2TR002374], the Conway Fellowship, and the Hilldale Undergraduate/Faculty Research Fellowship.

## ABSTRACT

**Introduction:** For clinical trials involving a health behavior change, the NIH Behavioral Change Consortium recommends implementing a comprehensive fidelity plan spanning across five domains of Study Design, Provider Training, Treatment Delivery, Treatment Receipt, and Treatment Enactment. The aim of this project was to (a) develop a comprehensive fidelity plan, (b) implement best practice fidelity strategies, and (c) establish inter-rater reliability to support a novel randomized control trial involving occupation-based coaching delivered through telehealth for rural-dwelling families whose children are affected by type 1 diabetes.

**Methods:** Following the NIH Behavioral Change Consortium guidelines, the interdisciplinary research team completed a series of training with content experts in occupation-based coaching, telehealth, and management of type 1 diabetes. Then, the research team developed a comprehensive fidelity plan that systematically outlined and organized strategies to support the establishment, monitoring, and assessment of treatment fidelity across the five domains. Several fidelity tools including standardized scripts, adherence checklists, and reflection tools were developed for providers (2 doctoral-level occupational therapy students) and blinded raters (1 nursing faculty and 1 nursing student) to account for adherence to and non-adherence from the key principles of occupation-based coaching.

**Results:** The finalized comprehensive fidelity plan systematically outlined multiple fidelity strategies for each domain of Study Design, Provider Training, Treatment Delivery, Treatment Receipt, and Treatment Enactment. The fidelity tools yielded quantitative and qualitative data, which allowed the research team to verify interventionist readiness to deliver high fidelity occupation-based coaching sessions and blinded rater readiness to accurately discriminate sessions on a continuum of low to high fidelity. Interventionists exhibited increasing trend in their scores received on the adherence elements and decreasing trend in their scores received on the non-adherence elements of occupation-based coaching. The blinded raters also demonstrated an increasing trend in their inter-rater agreement on occupation-based coaching videos over time.

**Conclusion:** Implementing a comprehensive fidelity plan can assist in securing higher reliability, validity, and scientific confidence in research processes – to safely attribute the observed change in health behavior to intervention effectiveness. The poster will inform occupational therapy students, educators, and researchers about creative methods and best practices to establish, monitor, and assess treatment fidelity in effectiveness studies and trials involving a health behavior change.

# Developing Fidelity Standards for a Novel Randomized Control Trial Involving Occupation Based Coaching Delivered through Telehealth and Rural-Dwelling Families Affected by Type 1 Diabetes

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**CATEGORY: Big Data / Health Services Research**

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Funding Sources: Health Science Strategic Investment Faculty Development Grant, Creighton University, Dexcom, Inc., and Sigma Theta Tau - Iota Chapter Winifred J. Ellenchild Pinch Research Award.

## ABSTRACT

**Introduction:** Researchers at the Rehabilitation Research Design and Disability (R2D2) Center sought to test the validity of AccessPlace, a project that has been under development for years using multiple research and development (R&D) methodologies to assess stakeholder perspectives. AccessPlace is a web-based application that provides building accessibility information for people with disabilities (PWD) to navigate within the community. This project deployed a new methodology to determine if a) the app's design strategies would meet user's needs, and b) to identify if there is longevity potential through monetization. Previous research has highlighted the importance of utilizing methodologies including iterative design, user-centered design, and participatory action research, which are conducive to including PWD perspectives in the technology design process. Core rehabilitation research funding agencies are implementing programs to address key R&D issues specific to product development. The customer discovery methodology is relatively new for R&D projects and requires the rehabilitation research community to contribute to product development processes.

**Methods:** To test the validity of AccessPlace from stakeholder perspectives, the R2D2 Center team participated in the Southeastern Wisconsin I-Corps (NSF) and Project IMPACT (NIDILRR). The Southeastern Wisconsin I-Corps is a 4-week program hosted by the University of Wisconsin-Milwaukee Lubar Entrepreneurship Center, and the IMPACT Project is a 10-week virtual program hosted by the University of Pittsburgh. The I-Corps and IMPACT program leverage customer discovery and the Lean Launchpad Methodology for researchers and entrepreneurs to test hypotheses to validate current product designs before all phases of R&D from early conceptualization to later phases of transferring products into the marketplace. Participants were recruited through convenience and snowball sampling of local disability organizations and community contacts via email and phone. Interview hypotheses were formulated week to week and data were collected as field notes with I-Corps data centralized in a password locked MS Excel spreadsheet and Project IMPACT data stored in a password protected system called LaunchPad Central.

**Results:** Stakeholder groups (N=91) included PWD (n=28), family member or friends of PWD (n=16), disability service providers (n=15), restaurant employees (n=16), other business employees (n=14), and a municipality employee (n=1). Validation of weekly hypotheses were consistently obtained from all team members across stakeholder groups.

**Conclusion:** Incorporation of inclusive design methodologies, customer discovery process, and the lean launchpad methodology can enable

# AccessPlace Stakeholder Product Validation: Southeastern Wisconsin I-Corps and Project IMPACT

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occupational therapists to leverage valuable insight during the product development phase to promote accessibility during the early stages of product development.

Funding: Work was implemented in part with NSF and NIDILRR.

## ABSTRACT

Introduction: Responsive Feeding Therapy (RFT) is a relatively new term for a concept that combines a variety of evidence-based feeding interventions. RFT is recommended by the American Academy of Pediatrics (AAP), the World Health Organization (WHO), and the American Heart Association (AHA) (AAP, 2017; WHO 2009; AHA, 2020) to develop positive eating habits and promote lifelong healthy weight. Despite recommendations from these organizations AND the fact that many clinicians and practices use responsive feeding in feeding therapy, limited evidence exists examining efficacy on tube weaning children.

This project aims to investigate the outcomes from RFI on:

- 1) children's feeding behaviors and skills using a clinical measure established and created for the THRIVE clinic, and
- 2) parent stress using the Parent-Stress Index Short-Form (PSI-SF)

Methods: This is a non-randomized, repeated measures study aimed at examining the behaviors and skills of children currently participating in a tube-weaning program and their caregiver's stress.

The intervention occurs in the child's natural environment, using meal-based interventions. Therapists coach caregivers in the use of developmentally appropriate foods and natural motivators such as hunger, interest, comfort, imitation and curiosity to facilitate eating. The intervention is part of current practice and the children's feeding skills and behaviors are collected as part of routine documentation. The Parent Stress Index – Short Form (PSI-SF) is a 36-item caregiver self-report measure (Abdin, 1995). The PSI-SF is not part of routine practice; caregivers will complete the assessment at the following intervals: Before therapy, Day 10 (end of wean), 3months, 6months and 12months.

Participants include a convenience sample of children who participate in a home-based tube-weaning program through the THRIVE clinic at Spectrum Pediatrics. THRIVE is a small private clinic staffed by OTs and SLPs. These children have passed a swallow study, have been medically cleared, consume more than 90% of their calories by tube, and do not have a diagnosis of autism spectrum disorder (ASD). We plan to recruit 30 families at a minimum.

Questions for feedback: What are other funding mechanisms for this project? What other assessment measures would capture behaviors and stress?

Conclusion: We want to know if children who have tube weaned tend to follow typical developmental progression with eating or if there are specific

# Behavioral and stress outcomes associated with a responsive feeding intervention

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skills and/or behaviors that they continue to struggle with. By understanding more about the eating skills and behaviors of tube weaned children therapists and caregivers can be better equipped with what successes and challenges may occur a year post wean.

Potential funding source: Children's Center for Healthy Lifestyle and Nutrition

## ABSTRACT

**Introduction:** This systematic review analyzed literature that measured cognitive and physical health items in China, Japan, and Korea via large nationally representative survey data. Representative survey data include China Health and Retirement Longitudinal Study (CHARLS), Japan Study of Aging and Retirement (JSTAR), and Korean Longitudinal Study of Aging (KLoSA). The purpose of this study was to identify whether measures of cognition and physical health between Northeast Asian have sufficient homogeneity to be used in cross-country comparisons.

**Methods:** We used Pubmed and Google Scholar to search for articles published from 2005 to 2020. The search included “CHARLS AND JSTAR AND KLoSA AND cognition AND health”. Eight papers met inclusion criteria. Quality of literature was assessed with the Center for Evidence-Based Medicine Levels of Evidence and the Risk of Bias for Nonrandomized Studies version 2.0 for non-randomized studies.

**Results:** There was one Level 2A study, six Level 2B, and one Level 5. The overall risk of bias was low in all studies. However, missing outcome data was a possible risk of bias in four of the eight studies. Three papers compared cognitive items between countries and five papers compared physical health items. The cognitive items compared between China, Japan, and Korea included verbal memory, orientation, numeracy, and numeric ability. Physical health items compared were chronic disease status, lifestyle, and daily activities.

**Conclusion:** Comparing the cognitive and physical health items using big data from three countries is essential for public health policy; however, researchers must overcome issues with missing data. We found only three items measuring cognitive function were used to make comparisons between China, Japan, and Korea. There is a need to develop a comprehensive measurement method to compare cognition across countries.

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# Comparison of Cognitive and Physical Health Items Using Big Data between China, Japan, and Korea: A Systematic Review

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## ABSTRACT

**Introduction:** There is no doubt that culture is profoundly and inextricably tied to matters of health and healthcare. Within healthcare, both the practitioner and the person seeking care each bring their own personal and familial cultures into their interactions. To provide effective care, health practitioners need to understand how culturally learned values and customs affect people's health beliefs and practices. Research has demonstrated that levels of healthcare, care outcomes and general health status are poorer for racial and ethnic minorities and underprivileged populations compared to their counterparts. Therefore, the purpose of this study was to develop an online cultural competence training for healthcare professionals. This study also evaluated the effectiveness of the developed online cultural competence training.

**Methods:** A mixed method study design that included a convenience sample of (N=12) healthcare professionals was used to assess whether their participation in a formal online cultural competence training increased their level of cultural awareness, cultural knowledge, and cultural skills. Each participant completed the Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals- Revised (IAPCC-R) pre-and-post-online training. In addition, each participant completed a 10-20-minute semi structured qualitative interview.

**Results:** All participants showed increase in IAPCC-R scores after receiving the cultural competence training. Mean scores increased from 74.08 to 88.42 with the average mean score change = 14.33 (SD= 6.38). Participants showed significant improvements in IAPCC-R constructs of awareness, knowledge, and skill ( $p < 0.001$ ). Qualitative responses revealed that each participant felt that their participation in the formal cultural competence training was effective in increasing their confidence levels, specifically when working with culturally diverse clients.

**Conclusion:** The results of this pilot study demonstrated the effectiveness of the developed online cultural competence training for healthcare providers. Our quantitative and qualitative data showed participants improved their cultural competence awareness, knowledge, and skills after completing the training. Our findings suggest the developed training can improve healthcare professionals' cultural competence and further help them deliver more effective healthcare to meet the cultural needs of their clients.

# The Effectiveness of Cultural Competence Training for Healthcare Professionals in Rehabilitation

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# Predicting Community-based Employment for Young Adults with Intellectual Disability and Co- occurring Mental Health Conditions

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**CATEGORY: Community**

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## ABSTRACT

**Introduction:** Young adults (YA) with intellectual disability (ID) are significantly underemployed. Given the added functional challenges of people with ID who also have mental health conditions (IDMH), this population may experience even greater employment disparities. Yet, little is known about patterns and predictors of employment for YA with IDMH.

**RQ1:** What are predictors of community-based employment for YA with IDMH?

**RQ2:** Are YA with IDMH less likely to have community-based employment than YA with ID only?

**RQ3:** Do YA with IDMH have similar wages, job duration, and weekly hours as YA with ID only?

**Methods:** Design: Secondary analysis of the 2017-2018 National Core Indicators Survey (conducted in 36 states). People with ID directly responded to the survey.

**Participants:** Random sampling of adults receiving state developmental disabilities services; each state included >400 respondents. Inclusion criteria for analysis: ages 23-30 and diagnosis of ID. Total n=2,149.

**Outcome measures:** Self-reported community-based employment (yes/no), hourly wages, job duration, weekly hours.

**Analyses:** RQ1: Logistic regression; DV: Community-based employment. Predictors: gender, age, race (white/non-white), autism diagnosis, level of ID, primary language, functional mobility, residential setting and location, access to transportation, and guardianship status.

**RQs 2-3:** Logistic and multiple regression, using diagnosis of MH condition as the predictor for outcomes; covariates: demographic differences between YA with IDMH and YA with ID only.

**Results:** RQ1: 28.8% of the 1,062 YA with IDMH reported having a community-based job. Race (OR=.77, p=.02), gender (OR=.70, p<.001), level of ID (ORs: .15-.68, p<.01), use of a mobility device (OR=.37, p<.001), primary language (OR=.68, p=.04), residential setting (ORs: .96-1.74, p: <.01-.97), location (ORs: 2.0-3.2, p<.01), and consistent access to transportation (OR=1.49, p=.04) predicted community-based employment.

**RQ2:** When controlling for group differences (gender, race, primary language, functional mobility, autism, residential setting, location, and guardianship status), MH condition significantly predicted community-based employment (OR=0.76, p=.022).

RQ3: When controlling for group differences, MH condition did not significantly predict job duration ( $\beta = -2.29$ ,  $p = .46$ ) and weekly hours ( $\beta = -4.59$ ,  $p = .06$ ), but did predict hourly wages ( $\beta = -.693$ ,  $p < .01$ ) with YA with IDMH reporting lower wages than YA with ID only.

Conclusion: Functional abilities and demographic and environmental factors may predict employment status for YA with IDMH. OTs can advocate for policies that may mitigate these disparities, including access to transportation. As YA with IDMH are less likely have community-based jobs than those with ID only, OT evaluations and interventions should carefully evaluate and support development of job-related skills for YA with IDMH, such as communication and self-regulation.

Funding: NIDILRR-ARRT(90AREM0001)

## ABSTRACT

**Introduction:** The transition from high school to university is challenging for college students. The ability to cope with the change of contextual, academic, and social demands is essential as poor adjustment can negatively affect college students' health and well-being. Studies have shown that involvement in certain extracurricular activities is related to higher levels of adjustment. However, it is unknown how participation in extracurricular activities relates to students' overall health. The purpose of this study was to describe how college students participate in extracurricular activities, illustrate how participation changes over time, and analyze how participation in different occupations relates to overall physical and mental health.

**Methods:** 136 students who enrolled in occupational therapy or dental hygiene programs were recruited. Data were collected through self-reported surveys at the beginning of their academic program and at the end of the first and second academic years. Students reported the total hours of participation in various activities over the past six months on an extracurricular activity checklist. Activities were grouped into eight occupational categories: Fitness, Sports, Creative, Leisure, Social, Work, Caregiving, and Animal care. Overall physical and mental health was measured by the Rand 36-Item Short Form Health Survey, namely Physical Component Summary (PCS) and Mental Component Summary (MCS). Mixed effects models were developed to examine the impact of participation in each occupational category on PCS and MCS.

**Results:** Average time spent in sports, fitness, social, and work activities decreased across time, while the average time spent in creative, animal care, and caregiving activities remained similar throughout the 2 years. There was no significant change in the average PCS score across the time points, but the average MCS score significantly decreased at the 1-year ( $47.4 \pm 8.6$ ) and 2-year ( $48.2 \pm 8.1$ ) follow-up compared to baseline ( $50.4 \pm 7.0$ ). Students who engaged in work or volunteer activities had a lower PCS score ( $\beta = -1.35$ , 95%CI: (-2.22, -0.48);  $p < 0.01$ ) compared to students who did not. Changing from not engaging in work or volunteer activities to some amount of participation was associated with a decrease in the PCS score of 1.58 (95%CI: (0.09, 3.06);  $p = 0.03$ ) and an increase in the MCS score of 2.59 (95%CI: (0.32, 4.87);  $p = 0.04$ ).

**Conclusion:** Students engage in fewer activities and for shorter durations as time progresses in their academic programs. Although students' physical health maintained, mental health deteriorated over time. Engaging in work or volunteer activities impeded students' physical health but improved mental health. Therapists providing services to college students in

# The effect of participation in eight types of extracurricular activities on college students' health

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occupational therapy should consider how to best support students' mental health, potentially by exploring opportunities for students to engage in volunteer activities.

Funding Source: CDC/NIOSH R01-OH010665.

## ABSTRACT

**Introduction:** Although individuals with intellectual disabilities (ID) can be successful in competitive, integrated work, employment outcomes of working-age adults with ID are consistently poor. Recent data suggests that only 19% of individuals with ID receiving support from state agencies obtain paid community employment and only 14% work in competitive, integrated jobs. Even when individuals with ID obtain employment during early adulthood, they often fail to maintain employment as they age. Project SEARCH is a business-led internship model preparing individuals with ID to achieve competitive, integrative employment by uniting resources towards a cooperative goal. In Project SEARCH, individuals with ID are matched with multiple jobs/internships. This study seeks to identify the factors that enable or disable the job matching process for individuals with ID in transition to employment with Project SEARCH.

**Methods:** Employing a grounded theory approach, this study uses qualitative data (open-ended responses to surveys and focus groups) to explore the factors associated with achieving quality job matches for individuals with ID. First, narrative data was collected from a survey of job matching professionals who were purposefully recruited from a list of Project SEARCH conference registrants. This survey included demographic information and open-ended questions about the professionals' experience with job matching and the transition to employment. Results from the survey were used to guide the facilitation of focus groups of professionals, postsecondary students with ID, and secondary students with ID using a multiple case study design. Individuals with ID were selected from a pool of Project SEARCH transition-to-work sites. Focus groups were transcribed by a third party and coded by the research team. Two researchers (CP; SM) engaged in inter-rater checks to verify and refine codes. The research team worked together to iteratively develop a thematic structure.

**Results:** Researchers confirmed there are factors that enable and/or disable the job matching process. The worker and the job are the most direct predictors of the quality of the job match. Themes and subthemes that modify this relationship are identified. Findings suggest that factors can act as enabling or disabling to the job matching process, dependent of context.

**Conclusion:** By gaining a greater depth of understanding of job matching, specifically factors that enable or disable the process, we can begin to develop and implement more reliable systems for matching individuals with ID to work in competitive, integrative jobs.

# The Job Matching Process: Enabling/Disabling Factors for Individuals with Intellectual Disabilities Transitioning to Employment.

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## **CATEGORY: Community**

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## ABSTRACT

**Introduction:** Historically, racialized students' experiences in higher education vary from their non-racialized peers due to the need to overcome several barriers, such as the university's unwelcoming climate fostered by systemic racism. A mid-size Canadian University formed a subcommittee to examine the effectiveness of the university programs addressing diversity, equity, and inclusion (DEI). Regardless of the initiatives, racialized students voiced their concerns with the programs' quality, as their development did not include students' perspectives and needs. The researchers and racialized students will form a collaborative partnership to develop and implement a training resource.

**Research Questions:** What are the experiences of racialized, domestic, full-time, undergraduate and graduate students at a mid-size Canadian University? How can a Canadian University take action to engage with the experiences of racialized students?

**Methods:** A narrative inquiry qualitative study design with a Critical Race Theory lens using Community Based Participatory Research principles. The participants will be individuals who self-identify as racialized, full-time, domestic, undergraduate or graduate students from any department/program at a mid-size Canadian University. Counter-narratives will be used as this form of narratives strive to achieve educational equity by providing a platform for silenced and marginalized populations. The participants will choose whether they will participate in an individual interview or submit their responses online through a confidential repository. Once the interview/online repository data collection is completed and integrated, an intensive five-step narrative thematic analysis will occur.

**Questions for Feedback (WiP):** What ethical guidelines exist to support the proposed research?

How would focus groups augment the data collection methods?

**Conclusion:** The proposed research is critical to operationalize meaningful programs, practices, and policies for racialized students at one Canadian university. Occupational justice aligns with the proposed research based on the importance of ensuring that individuals feel welcome and included while engaging in meaningful occupations such as education regardless of race.

**Funding Source/Potential Funding Source:** NA

# Changing the Landscape: A Critical Race Informed Narrative Inquiry of a Canadian University told by Racialized Students

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**CATEGORY: Community**

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## ABSTRACT

**Introduction:** The long-term goal of research is to influence practice, which requires occupational therapy practitioners to implement complicated procedures. Currently, there is limited research guiding how to train occupational therapy practitioners in completing highly protocolized procedures. The purpose of this study was to test the feasibility of a self-paced learning protocol designed to teach occupational therapy students how to evaluate community environment accessibility.

**Methods:** This randomized feasibility study had five objectives. To evaluate: 1) recruitment capability and sample characteristics, 2) data collection procedures and outcome measures, 3) the acceptability and suitability of the training procedures, 4) the resources and ability to implement the study, and 5) the participants' responses to intervention. Occupational therapy students across 3 institutions completed a Canvas-based online-training module and building evaluation using a novel standardized assessment. Students were randomized to complete either the modules or evaluation first. Students indicated their satisfaction (4-point Likert-like scale), self-perceived learning (4-point Likert-like scale), and knowledge (20-item quiz). Data were analyzed using descriptive statistics.

**Results:** 218 students participated in the study representing over 95% of the students who were invited to participate. Students indicated that they were satisfied to very satisfied and learned much to very much in 8 of 9 learning modules. The knowledge quiz performed well, demonstrating a normal distribution free of ceiling or floor effects. The use of Canvas to implement the training was well received by the students and instructors. However, some difficulties were encountered with the randomization and the locking of modules. Student scores on the knowledge quiz increased from approximately 60% to 85% after completion of both learning experiences.

**Conclusion:** It is essential for occupational therapy practitioners to be able to implement protocolized procedures. This study demonstrates the feasibility of using centralized self-paced approach for instruction on a novel standardized assessment. The training was acceptable, and the preliminary response demonstrated clinically significant gains in learning. Minor changes to the protocol are warranted to increase the ease of implementing the study. More research is warranted.

**Funding Source/Potential Funding Source:** This work was developed in part under a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90IFDV0006). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this work does not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government.

# Feasibility of a Self-Paced Training on Standardized Assessment of the Community Environment

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## **CATEGORY: Community**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** Research teams must collaborate with people with intellectual/developmental disabilities (IDD) to identify effective and inclusive responses to COVID-19 and other public health emergencies. This requires telecommunication and other technologies to collaborate remotely. We designed and evaluated a digital “Toolkit for Remote Inclusive Research” to provide research teams with evidence-informed strategies to make remote (virtual) research accessible to and inclusive of people with IDD.

**Methods:** We used a three step iterative development process. First, we completed a rapid review to identify technology used by people with IDD on collaborative research teams. We searched three databases using a detailed search strategy, supplemented with a hand search. Two independent reviewers screened 1,498 abstracts and titles for inclusion criteria; 81 full text articles were further reviewed. One reviewer extracted information about each type of technology in a spreadsheet, categorized how technology was used during the research process, and documented accommodations described. Extraction was checked by a second reviewer. Second, the toolkit was evaluated by 3 graduate-level trained researchers with experience conducting IDD research (median= 7 inclusive projects, range 6-20) and 3 co-researchers with IDD (median = 3 projects, range 1-4). Evaluators independently reviewed the toolkit and then engaged in a semi-structured interview. Interviews were transcribed, and two reviewers identified broad categories of response topic (i.e., distinct components or features of the toolkit) and each response was coded as a “strength” or “needs improvement.”. Third, we revised the toolkit based on feedback.

**Results:** Across the 47 included articles, we identified technologies used by people with IDD collaborating across the following components of the research process (number in articles): issue identification and team building (2 each), research training (5), decision making (7), communication (14), data collection and analysis (15 each), and dissemination (18).

The digital toolkit featured 23 evidence-informed strategies cross-referenced with the above parts of the research process. Evaluators provided feedback on the navigation, aesthetics, accessibility of the toolkit, and steps of the research process. Evaluators provided positive feedback about the video directions for commonly used technologies, suggestions for free or low cost software and apps, and customizable word templates. Based on evaluator feedback, we made modifications to the summary list of strategies, home page layout and text, and reduced redundancy.

**Conclusion:** The use of technology in the literature by team members with IDD demonstrates promise for remote research collaborations with people

# Collaborating with people with IDD during public health emergencies: Toolkit for Remote Inclusive Research

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**CATEGORY: Community**

Thursday June 24, 2021

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with IDD during public health emergencies such as COVID-19. The toolkit will be broadly disseminated for free download to support inclusive approaches to public health emergencies.

PCORI EAIN-00109

## ABSTRACT

**Introduction:** Deleterious effects of Parkinson disease (PD) are often magnified for rural care dyads, who must navigate structural inequities. To improve clinical practice, it is essential to develop interventions that enhance health and well-being of underserved, rural PD care dyads. Though the benefits of exercise for improving some symptoms of PD are well known, research has largely overlooked two critically underserved groups: family caregivers and rural-dwelling PD dyads. For both groups, many barriers preclude their ability to participate in exercise. Dyadic interventions may overcome barriers to exercise and provide an opportunity for care dyads to respond to the health threat of PD with a shared focus and co-opted sense of ownership. This qualitative study examined factors influencing PD dyads' interest for co-participating in an existing in-home cycling program, currently being delivered via telehealth exclusively for individuals with PD.

**Methods:** Semi-structured interviews were conducted with dyads of rural-dwelling individuals with PD and their family caregivers. Interviews were conducted independently with each member of the dyad, and lasted 1½ to 2 hours. During interviews, the Canadian Occupational Performance Measure was administered first, followed by questions to identify factors influencing PD care recipients' and caregivers' attitudes, barriers, and facilitators to participating in a dyadic, in-home telecycling intervention. All interviews were audio recorded and transcribed verbatim. Two researchers independently coded transcripts using open coding to identify underlying themes. Researchers grouped responses from interviews by codes to identify frequency, patterns of responses, and recurring themes using NVivo, version 12.

**Results:** Data extraction is ongoing. Preliminary caregiver themes include 1) diminished self-care and leisure; 2) concern about ability to caregive; and 3) a general state of worry. Care recipients' themes include: 1) worry about disease progression; and 2) impact on care partners. Common themes for the dyads include 1) need for preventative action; 2) loss of shared activities; 3) exercise as being advantageous to both; and 4) lack of support and facilities to offer exercise for PD dyads living in rural communities.

**Conclusion:** Dyadic interventions may be especially relevant when each member of the PD dyad is motivated to respond to the health threat for the benefit of one another and their relationship. Our preliminary findings highlight the extent to which the everyday occupations of PD caregivers are impacted by their caregiving role. These data will help to inform the development of a dyadic telehealth program for underserved communities of individuals with PD and their care partners.

# Exploring Tele-Exercise for Rural Care Dyads Living with Parkinson Disease: Results of a Qualitative Study

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## CATEGORY: Community

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Funding: National Institutes of Health [UL1TR002373, KL2TR002374] and The Conway Fellowship.

## ABSTRACT

**Introduction:** Providing occupational therapy services within a biomedically oriented acute inpatient mental health setting comes with many challenges. Risk averse approaches and payment systems present barriers to implementing justice-oriented, occupation-centered interventions, leaving therapists dissatisfied with their practice. Practice-based enquiry (PBE) is an action-oriented research approach in which knowledge generated by practitioners has been used to empower and transform practice. However, there has been limited use of PBE in the United States (US). Therefore, the purpose of this study is to describe how PBE can be used to inform the redesign and delivery of occupational therapy services in the US.

**Methods:** As part of the PBE design, a community of practice scholars (COP) was formed. Seven occupational therapists working in mental health inpatient setting and two university affiliated scholars comprised the COP. The research process was guided by Whiteford's (2020) "C" model of facilitation. Coaching, challenging and connecting provided a framework for engaging members of the COP in an iterative cycle of reflection, analysis, and action to improve practice. Individual written or recorded reflections provided a basis for discussion in audio recorded bi-weekly group sessions over the course of a year. Relevant literature discussed in these sessions grounded the group's discoveries within theory. An iterative process of data collection and analysis occurred. Coding of reflections by the COP resulted in themes which were then shaped into a narrative. Group sessions were analyzed separately, providing a form of triangulation.

**Results:** At the start of the study, the participants articulated a commitment to justice-focused occupation-centered practice but noted many barriers to enacting what they considered 'best practice.' They often felt "trapped," "undervalued," and "powerless" leading to frustration and high levels of stress. As the study progressed, participants deepened their understanding of occupation-centered practice and individually felt empowered to make changes on the units where they worked - to "just do it" - to take risks, "stand my ground," and create occupational opportunities for their clients. As a result of taking action, practitioners were more hopeful and "fired up." This new appreciation led them to take action and collectively address systemic barriers. As a result, the practitioners felt emboldened to work together to advocate and inform justice-oriented services for sustainable change.

**Conclusion:** PBE provided a powerful process and platform for practitioners to examine practice and unpack occupation-centered practice. It led to individual and collective transformation and validated PBE as a feasible and valuable method to use in an in-patient mental health setting. This reflective

# Practice Based Enquiry in Mental Health: Justice, Hope and Action

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**CATEGORY: Community**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

process provided hope and inspired action toward more just services within a risk averse setting.

Funding Source: N/A

## ABSTRACT

**Introduction:** COVID-19 has created an unprecedented, rapidly changing environment that has significantly impacted daily life for all. Necessary restrictions significantly disrupted, limited, or completely shut down participation in occupations related to leisure, work, education and social participation. While COVID-19 has affected the entire population, people with Autism Spectrum Disorders (ASD) were more extensively impacted<sup>1</sup>. Community mobility is one domain where restrictions had a substantial impact. New guidelines for transit systems combined with event cancellations and sustained closures or remote operation of programs and services, limit means or reasons to travel and possible destinations. This study used GPS methods and daily logs to explore the impact of COVID-19 on activity space use, community mobility and participation in young adults with ASD.

**Methods:** Researchers used a single subject design to examine patterns of change over time in activity space as measured by GPS. Additionally, changes in transportation modes and participation activities were measured. Six young adults with ASD between the ages of 21 to 27 (4 males, 2 females) participated in the study. Participants were collecting data using cell phones with the AccuTracking app for another study, allowing researchers to have access to both pre-COVID and post-COVID GPS data. Participants completed daily activity and transportation logs on the cell phones through Qualtrics. Data was available for two weeks pre-COVID and four weeks after post-COVID restrictions were implemented. Data was analyzed using common single subject methodology through visual analysis and standard deviation band method.

**Results:** Visual analysis identified that all participants demonstrated a decreased in activity space area from pre- to post-COVID time periods. The same trend was observed with the amount of participation in activities in the community. Participants continued activities often deemed as essential including instrumental activities of daily living and employment, although at a decreased level. A decrease in participation in medical and therapeutic services was also identified for all participants. Furthermore, the variability in the type of transit used decreased post-COVID to only the two modes of walking and being driven by another person.

**Conclusion:** This study identified important considerations for understanding the impact of the COVID-19 on community mobility and participation for individuals with ASD. As there are long lasting implications of the current pandemic and concerns for future ones, it is necessary to understand participation patterns to identify needed supports and resources.

# Impact of COVID-19 on Community Mobility and Participation for Individuals with Autism Spectrum Disorders

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**CATEGORY: Covid-19 service impacts**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

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## ABSTRACT

**Introduction:** People with intellectual and developmental disabilities who have mental health needs (IDD-MH) are at risk of crisis and rely on supports provided through services systems. COVID-19 added an additional layer of complexity for people with IDD-MH and their caregivers to access services, particularly for those who may experience service disparities secondary to race, ethnicity, or linguistic differences. Our aim was to identify the supports and service systems used or needed by caregivers of people with IDD-MH at the beginning of the COVID-19 pandemic.

**Methods:** START is an evidence-based model of services and supports for high-risk people with IDD-MH. The Center for Start Services distributed the “COVID-19 Family Survey” from 3/15/2020- 7/13/2020 nationally to 1413 caregivers of people with IDD-MH (M age=21.4 years, range 4-67.5; 69.6% mild-moderate ID); data were entered into a centralized database, de-identified and exported for analysis. Informed by the convergence of cultural contexts framework, a team of six reviewers independently coded unique services or systems referenced in caregiver open-ended responses. Discrepancies were resolved through consensus discussion. First, we coded data of caregivers identifying as Black/African American, Asian, or Latino/Hispanic of any race (45.6%). Second, we coded data of caregivers identifying as White (alone) (54.4%). Third, we examined code frequencies to identify unique and shared experiences across caregivers.

**Results:** Across both samples, caregivers' responses most frequently referenced navigation of disability services (~ 40%), START services (~ 30%), and education services (~ 20%). For many, services were disrupted abruptly due to COVID-19. About 30% of caregivers expressed the need for or use of two or more services. White (alone) caregivers express more concerns with changes in rehabilitation services provided during COVID-19 compared to caregivers of other races and ethnicities. Black/African American, Asian, or Latino/Hispanic caregivers more frequently reference telecommunications, financial (e.g., unemployment, social security), housing, and food systems compared to White (alone) caregivers. Our poster will include direct quotes that demonstrate caregivers' use and need of each of these supports and service systems.

**Conclusion:** Caregivers of individuals with IDD-MH at high risk for crisis invest time and effort to navigate complex and disaggregated systems to access needed supports (Goode et al., 2017). During the COVID-19 crisis, families continued to use or need numerous supports across multiple service systems. Occupational therapists can play a role in helping families navigate these multiple systems. This analysis of START data also demonstrates the need for supports and service systems, including

# Supports and Service Systems Used or Needed by Families of People with Intellectual Disabilities and Mental Health Needs During the COVID-19 Pandemic

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**CATEGORY: Covid-19 service  
impacts**

Wednesday June 23, 2021

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rehabilitation, to be flexible and identify ways to safely continue services even during public health emergencies, like COVID.

Funding: PCORI Engagement Award (EA #15364).

## ABSTRACT

The COVID-19 pandemic has affected the daily routines of people around the world. The pandemic has also exacerbated underlying disparities with some communities being significantly more affected than others. For example, Latinx and Black children are twice as likely to experience health and economic hardships during the pandemic than White and Asian American children<sup>1</sup>. At the same time, individuals with developmental disabilities (I/DD) are also disproportionately affected by the pandemic. In addition to being at higher risk of mortality from COVID-19 across age groups<sup>2</sup>, they are also vulnerable to significant life changes from loss of community caregivers, suspension of in-person schooling and day programs, and discontinuation of regular disability-related services<sup>3</sup>. Thus, Latinx families with children with I/DD are vulnerable to COVID-19-related life changes compounded by the intersections of race, ethnicity, and disability status<sup>4,5</sup>. Methods: A cross-sectional survey was conducted as part of a larger study on health and health behaviors of Latinx children with I/DD and their family caregivers using community-engaged research methods. A COVID-19 survey including closed and open-ended questions was added to data collection efforts to understand the impact of the COVID-19 pandemic and shelter-in-place guidelines on Latinx children with I/DD and their families. Surveys were completed during phone interviews conducted by trained bilingual research assistants. Quantitative data were analyzed descriptively. Qualitative data were analyzed using a deductive analytical approach<sup>6</sup>. Results: To date 31 families have completed surveys with an average age of 43.5 (S.D. 7.3) years for caregiver respondents and 11.8 (S.D. 3.6) years for children. Twenty-one families (65%) reported at least one negative economic change; 28 families (90%) reported changes in their family's eating and physical activity routines; 87% of the children and 74% of the caregivers reported being more sedentary, 24 (77%) families has access to online special education, 23 (74%) families had access to usual therapy services, and 7 (23%) families had access to other disability-related resources. Qualitative themes indicated that families identified both concerns (e.g. loss of in-person therapies) and opportunities (e.g. working on developmental skills at home) related to the pandemic. Access to community-resources and social supports appeared to influence how families were balancing concerns with opportunities as they navigated their daily lives and routines. Conclusion: Latinx families of children with I/DD are experiencing significant changes in family routines during the COVID-19 pandemic, with potential impact on health and wellbeing of children and caregivers. Occupational therapists can play an important role in helping families find community resources and establish new healthy routines. Funding Source: National Institute on Disability, Independent Living and Rehabilitation Research

# Impact of the COVID-19 Pandemic on Latinx Families and Children with Developmental Disabilities: Role of Occupational Therapy

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**CATEGORY: Covid-19 service  
impacts**

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## ABSTRACT

**Introduction:** The COVID-19 pandemic has required changes to care delivery, including telehealth, for many older patients with advanced chronic kidney disease (CKD), a population especially vulnerable to severe complications from COVID-19. Little is known about the patient, carepartner, and clinician experiences of telehealth versus in-person care among older patients, in particular barriers and facilitators. The information gathered can be used to inform specific CKD telehealth visits and enhance engagement.

**Methods:** Qualitative study using semi-structured interviews (August-December 2020) with purposively sampled patients (70 years and older, CKD stage 4-5, non-dialysis), carepartners, and clinicians from nephrology clinics in Boston, Portland, Maine, San Diego and Chicago. Participants described experiences using telehealth vs in-person care during the pandemic.

**Results:** We conducted 76 semi-structured interviews (20 clinicians; 39 patients and 17 carepartners), following purposive sampling criteria with balanced participation across sites; 85% of the clinicians were nephrologists; 49% of patients' had carepartners (dyads); 56% were Non-Hispanic White, 33% were Non-Hispanic Black. Three themes emerged that clarified participants' experiences about shifting to telehealth for CKD care during the COVID-19 pandemic with respective subthemes: 1) Discordant perspectives about telehealth (satisfaction; improvements in quality care) 2) Facilitators of telehealth (conveniency; safety; carepartner participation) 3) Barriers to telehealth (loss of interpersonal relationship; difficulty of emotional conversations; technology gaps).

**Questions for Feedback:**

Do themes make sound sense?

What are other useful applications or implications of this work from the OT perspective?

**Conclusion:** Improving patient and clinician's interpersonal engagement when using online platforms, technological tutorials, involvement of carepartners and further research on the integration of translators are strategies that can help facilitate the shift from in-person visits to telehealth for patients with CKD.

**Funding:** Research reported in this publication was funded through a Patient-Centered Outcomes Research Institute (PCORI) Award (CDR-2017C1-6297).

# How has the shift to telehealth affected person-centered care, quality of life and carepartner participation for persons with advanced CKD during the COVID-19 pandemic?

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## ABSTRACT

**Introduction:** The COVID-19 pandemic has drastically altered the way in which employment, education, and social participation are conducted, with many of these critical occupations transitioning to a virtual format when required for function or safety. With these changes comes the need for research that examines the impact of COVID-19 on populations' lived experiences. Such research should demonstrate the ability to be completed in a time-flexible, easy-to-access, secure manner. This study has two major aims: 1.) To examine the feasibility (acceptability, perceived ease of access, level of engagement at the personal and social level) of virtual Photovoice methods, and 2.) To understand the lived experience of being an occupational therapy student while living in the ever-changing (political, psychosocial, economic, and physical) environment of the COVID-19 pandemic.

**Methods:** In recognizing the need for virtual research methods, the Principal Investigators (PIs) translated Photovoice as a participatory action-based research method to a virtual format. Photovoice typically occurs in face-to-face synchronous groups in a single geographic location. With the virtual approach, Photovoice methods include synchronous and asynchronous sessions on a secure electronic platform that are accessible from wherever the participant lives through a program like Microsoft Teams.

Photovoice engages participants in taking photos that they feel describe varied aspects of their lived experience and create personal narratives that accompany the photos. Participants engage in early discussions reviewing pictures and possible stories they represent. They then generate narratives, share their work, and refine the final draft of their Photovoice piece (picture and narrative). Each group identifies an audience with whom they hope to share their Photovoice pieces to highlight the impact of the changing environments on their learning experiences, and their state of health and well-being, as well as to identify actions that will optimize their circumstances.

**Results:** The poster will highlight the responses to the virtual adaptations to Photovoice methods, and preliminary findings regarding occupational therapy students' lived experiences during the COVID-19 pandemic.

**Conclusion:** Virtual Photovoice methods examining the occupational therapy students' lived experiences will allow for deeper exploration of not only the feasibility of implementing Photovoice methods in a virtual environment but finding unique and student-driven ways to better support student learning and resilience in the future.

**Funding Source:** N/A

# Photovoice: Using Virtual Methods to Understand Occupational Therapy Students' Lived Experiences During the COVID-19 Pandemic

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**CATEGORY: Covid-19 service impacts**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** Veterans with mild traumatic brain injury (mTBI) and associated post-concussive symptoms are at increased risk for suicidal thoughts and behaviors. Evidence supports a relationship between: 1) post-concussive symptoms and participation restrictions; and, 2) participation restrictions and suicidal ideation. Thus, in this study, we hypothesized that the relationship between post-concussive symptoms and suicidal ideation would be mediated by participation.

**Methods:** This was a cross-sectional, exploratory design of 145 Veterans with mTBI receiving care from one Veterans Health Administration facility. Structural equation models were used to investigate whether participation mediated the relationship between post-concussive symptoms and suicidal ideation. The Ohio State University TBI-Identification Method was used to establish mTBI diagnosis. We identified latent variables for post-concussive symptoms and participation using the Neurobehavioral Symptom Inventory and select domains of the Medical Outcomes Study Short Form-36, respectively. We used the Beck Scale for Suicide Ideation to measure the presence of suicidal ideation. We adjusted analyses for age, sex, and presence of posttraumatic stress disorder.

**Results:** The indirect effect indicated that participation mediated the relationship between post-concussive symptoms and the presence of suicidal ideation (OR=1.09,  $p=.011$ ). More severe post-concussive symptoms were associated with lesser participation ( $\beta=-0.86$ ,  $p<.001$ ); greater participation was associated with lesser odds of suicidal ideation (OR=0.92,  $p=.007$ ).

**Conclusion:** Post-concussive symptoms may heighten risk for suicidal thoughts among Veterans by limiting successful participation. Participation is a primary target of occupational therapy intervention. Thus, while further research is needed, results suggest that occupational therapy practitioners can play a substantial role in suicide prevention services for Veterans with mTBI. Preventative services could mitigate suicide risk among Veterans with mTBI by enabling sustained engagement in meaningful and health-promoting activity and by minimizing post-concussive symptoms.

**Funding source:** None.

# Participation Mediates the Relationship Between Post-Concussive Symptoms and Suicidal Ideation among Veterans

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## ABSTRACT

**Introduction:** Burnout in healthcare is well documented, including high rates of emotional exhaustion and low personal achievement in occupational therapy (OT). Contributors to burnout in OT include feeling overworked, doubt regarding the profession, and limited coping strategies. We examine the prevalence of self-reported well-being, professional quality of life, resilience, stress, and mindful self-care to inform knowledge of well-being in OT practitioners.

**Methods:** Data was collected from OT practitioners in the United States. Data included a demographic survey, WHO Well-being Index (WHO), Professional Quality of Life Scale (ProQOL), Brief Resilience Scale (BRS), Perceived Stress Scale (PSS), and Mindful Self-care Scale (MSS). Participants described their supports and barriers to wellness in the workplace using open-ended responses. Multiple logistic regression was used to evaluate the predictive power between the WHO and other variables of interest. Open-ended questions were analyzed using a thematic analysis approach.

**Results (Poster):** Occupational therapists (n=192, 90.6%) and OT assistants (n=20, 9.4%) participated in the study (n=212). Practitioners indicated a sense of well-being “more than half of the time” on the WHO (M=3.68, SD=0.86), high stress on the PSS (M=2.78, SD=0.61), and low resilience on the BRS (M=2.98, SD=0.32). On the ProQOL, practitioners reported average scores for Compassion Satisfaction and Burnout (M=4.04, SD=0.59 and M=2.32, SD=0.58 respectively) and low scores for Secondary Traumatic Stress (M=2.18, SD=0.60). Highest frequency of self-care practices was reported for Supportive Relationships on the MSS (M=4.06, SD=0.77), followed by Supportive Structure (M=3.53, SD=0.76), Mindful Awareness (M=3.35, SD=0.88), Self-compassion and Purpose (M=3.26, SD=0.75), Mindful Relaxation (M=3.13, SD=0.73), and Physical Care (M=2.96, SD=0.73).

Practitioners’ scores on the ProQOL Compassion Satisfaction, BRS, PSS, as well as the Physical Care and Supportive Relationships on the MSS explained a significant proportion of variance on the WHO,  $R^2 = .712$ ,  $F(5, 206) = 101.698$ ,  $p < .001$ . Common self-care practices included mindfulness activities and exercise. The majority (n=169, 79.7%) of practitioners identified not having access to health and wellness resources through their employer beyond basic healthcare coverage. In the workplace, practitioners identified co-workers and leadership as their strongest supports. Productivity demands and structural changes as a result of COVID-19 pandemic were reported as the greatest barriers.

**Conclusion:** High levels of reported stress and low levels of resilience, underscore the growing importance of addressing well-being in OT. Leadership must be cognizant of workplace practices that support self-care

# Well-being in Occupational Therapy Practitioners: Exploring Professional Quality of Life, Resilience, Stress and Self-care Practices

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**CATEGORY: Emerging research area**

Wednesday June 23, 2021

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in the interpersonal and physical health domains. Future research must explore wellness initiatives to address mental, interpersonal, and physical wellbeing in OT.

Funding Source: NA

## ABSTRACT

### Introduction

Autonomous vehicle (AV) technologies, i.e., in-vehicle information system (IVIS) and advanced driver assistance systems (ADAS), may promote the safety, comfort and convenience of drivers. Although those AV technologies are being used, and early evidence indicates benefits to healthy drivers, we are uncertain if they will also benefit drivers who are medically-at-risk (e.g., those with Parkinson's disease, PD), for continued driving. This study evaluated the feasibility of the procedures and outcome measures, and examined the effects of IVIS (e.g., blind spot monitor) and ADAS (e.g., adaptive cruise control), on the driving performance of healthy volunteer drivers. We expect that the findings will lay the foundation for pursuing follow-up work in studying the effects of such technologies on the driving performance of people with PD.

### Methods

Using a pretest-posttest experimental design, three healthy drivers drove a 2019 Toyota Camry XLE vehicle equipped with cameras and the Freematics ONE+ telematics system. Cameras recorded the forward driving scene and activation of the IVIS (i.e., blind spot monitor and lane departure warning) and ADAS (i.e., adaptive cruise control and lane steering assist). The ONE+ collected telematics data such as speed and location. During the experiment, participants drove two congruent drives: one with and the other without enabling IVIS and ADAS. A driver rehabilitation specialist (DRS) seated in the front passenger seat provided instructions to the driver, monitored the overall safety, and recorded driving errors by type (i.e., lane maintenance, speeding, and signaling errors) and frequency, in a data log. Data (video data from cameras, telematics data, and DRS collected data) were analyzed by comparing driving errors under two conditions (i.e., IVIS and ADAS (dis)abled).

### Results

Two participants made fewer lane maintenance errors with IVIS and ADAS enabled (vs. disabled), while the third participant showed no difference. Although two participants had no signaling errors, one made fewer signaling errors with IVIS and ADAS disabled. The telematics and DRS data didn't capture the same amount of speeding errors. However, both datasets showed that two participants made more speeding errors (beyond the acceptable range, i.e.,  $\pm$  5 mph over/under the speed limit) with IVIS and ADAS enabled, while the third participant made fewer speeding errors with IVIS and ADAS enabled.

### Conclusion

# Feasibility Study to Assess Procedure and Outcomes for Drivers using Autonomous In-Vehicle Technologies

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This study confirmed that the procedure is feasible and that two measures, i.e., telematics and the DRS log data, captured the driving errors with IVIS and ADAS (dis)enabled. Considering the limitation of telematics data (i.e., relying solely on vehicle speed and the speed limit to determine speeding errors), it is necessary to include the DRS data. This study is a necessary precursor for our efficacy study in people with PD.

#### Funding Source

National Institute on Disability, Independent Living, and Rehabilitation Research

## ABSTRACT

**Introduction:** Severe motor impairments caused by neurological diseases, result in the loss of communication and interaction capabilities. For example, Amyotrophic Lateral Sclerosis patients will lose motor function almost entirely, including speech. Current assistive technologies are unable to address the needs of these individuals without invasive procedures. We assessed the feasibility of classifying the direction of Covert Visuospatial Attention (CVSA) and using it for a dichotomous control paradigm. Aside from a novel paradigm, we used a novel data analysis procedure to reduce the computational load and enable the design of a real-time system for communication and control. Our analysis procedure afforded us a classification performance of at least 70%, satisfying the criteria for a robust Brain-Computer Interface.

**Methods:** We collected EEG data from 4 healthy female participants (ages 21-27), using our novel Absolutely Volitional CVSA (AV-CVSA) paradigm, and providing no exogenous or endogenous cues to direct visual attention. We used 16 electrodes, mainly placed on the visual cortex. By using 9 machine learning algorithms for each participant, we isolated portions of the data that best enabled classification performance of at least 70%. For each participant, the portion of the data where at least 4 machine learning algorithms were overlapping in presenting a classification accuracy of at least 70%, was named High Distinction Period (HDP). We classified the direction of AV-CVSA using only the HDPs. HDP-Assisted Classification is, to the best of our knowledge, a unique and novel method.

**Results:** We had to discard data recorded for one of our participants due to an error in collection. However, for the remaining 3 participants, we were able to classify the direction of AV-CVSA with at least 70% accuracy (70-74.07%), using our HDP-Assisted Classification algorithm. This method improved upon the accuracy of classifying the average of the whole 3 seconds of attention period (average accuracy: 55.18%).

**Questions for Feedback:** 1) What procedures should we consider in our future data collection? 2) What parameters may contribute to a more successful classification?

**Conclusion:** The findings of this pilot study indicate that classification of AV-CVSA is feasible, and can be used to develop a communication and control method for individuals with severe motor function loss.

**Potential Funding Source:** Preparing for resubmission to NIH

# Using a novel analysis paradigm for classification of Absolutely Volitional Covert Visuospatial Attention

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**CATEGORY: Emerging research area**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** The occupational therapy (OT) profession has acknowledged the need to improve the inequities in the education, recruitment, and retention of Black, Indigenous, and people of color in OT educational programs to meet the diverse needs of the communities practitioners serve. However, due to the lack of systematically collated anti-racist instructional practices within the occupational therapy literature, OT educators have limited evidence for ways to address inequities in OT higher education. Our scoping review focused on the question: What is known about anti-racist instructional practices educators can employ in occupational therapy students' education? **Methods:** We conducted a scoping study to map the literature on anti-racist instructional practices in OT education. We searched six electronic databases (PsycInfo, ERIC, CINAHL Complete, OT Seeker, Web of Science, Scopus) using terms related to OT, education, and anti-racism. Inclusion criteria included journal articles published in English between 2000 and January 2021. Two reviewers independently screened the publications and then charted data from each eligible article. Data synthesis included a modified thematic analysis approach to identify all anti-racist actions or strategies, and then strategies were grouped in themes. **Results:** Twenty articles were included in the scoping review. The four themes for implementing anti-racist actions within OT educational programs included anti-racist educational teaching strategies, decolonizing the curriculum, increasing representation of BIPOC students and faculty, and strengthening educator's capacity to engage anti-racist practices and actions through unconscious bias training or considering their position in relationship to colonization. **Conclusion:** Considering the dearth of educational strategies identified, education specific to anti-racism has yet been embraced by OT but will proliferate given the shift in health education broadly. Anti-racism should be embedded throughout occupational therapy program's curriculum, including in ACOTE accreditation standards. To establish trust in classrooms, educators must implement a collaborative approach to teaching and learning anti-racist topics and foster inclusion of Indigenous and non-Western perspectives to decenter Eurocentric views and theories in OT education. This requires students and faculty to engage in self-reflexivity and challenge their perspectives and actions towards individuals whose backgrounds differ from their own. Education programs can also increase BIPOC students and faculty recruitment and retention by addressing systemic barriers to occupational therapy programs such as cost, mentorship, and biased metrics for admission. This study provided a systematic scope of OT literature describing specific anti-racist actions to implement in OT educational programs and provides a foundation for advancing anti-racism in the OT profession. **Funding:** N/A

# Anti-racism and Occupational Therapy Education: Beyond Diversity and Inclusion

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**CATEGORY: Emerging research area**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** Falls are a threat to older adults over the age of 65 and can significantly affect their ability to complete tasks included as part of their daily routine. Additionally, falls among older adults carry a substantial economic burden for the individual as well as society. Evidence shows that falls are a predictor of future falls among older adults and can decrease ADL/IADLs and increase depression status. OTs have a critical role in addressing fall behaviors and the related fear of falling which substantially impacts quality of life and occupational performance. However, limited evidence addresses the role of OT in reducing fall risk behaviors in older adults. The purpose of this study is to examine the extent to which balance variability (as measured by the Mini-Balance Evaluation Systems Test (Mini-BESTest)) is predicted by clinically relevant predictors in a multiple regression model.

**Method:** Data from 64 (54 female, mean age 73.43 +/- 7.0) rural, community-dwelling older adults were included in this cross-sectional analysis. Multiple assessments were completed including the COPM, Mini-BESTest, number of medications questionnaire, and the Activity Specific Balance Confidence Scale (ABC). Participants who had missing data were excluded from analysis. The dependent variable in our model is the Mini-BESTest score. The independent variables are COPM satisfaction and performance scores on the occupation indicated as most important to each individual, number of medications, ABC score, age, and gender. Regression analysis was performed in R to examine which variables significantly predict Mini-BESTest variability.

**Results:** Preliminary results of the regression indicated two predictors have significant values in the model. It was found that if the number of medications increases by one, the Mini-BESTest score drops (indicating worse balance) on average by 0.4 points ( $r = -0.41086$ ,  $P < 0.0384$ ). Additionally, the data indicated a one point increase in ABC score results in a 0.1 point improvement in Mini-BESTest score ( $r = 0.15772$ ,  $P < 0.0002$ ). The other independent variables showed no significant effect on predicting balance score outcomes.

**Conclusions:** This cross-sectional analysis sought to better understand areas of everyday function that affect falls outcomes in an attempt to define possible roles for OT intervention. The study's preliminary findings indicate a clear path for OTs to design fall prevention interventions that modify fall risk behaviors. OTs can intervene with older adults to improve their medication adherence and management to avoid missed doses, unintended overdoses and medication side effects. OTs can also work to address balance confidence and determine appropriate interventions, including psychosocial

# Factors that Contribute to Mini- BESTest Balance scores in Older Rural Dwelling Adults

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## CATEGORY: Geriatric

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skills training. In parallel, these approaches may lead to an increase and improvement in ADL/IADLs.

Funding Source: This project is supported by NIH [UL1TR002373 and KL2TR002374], and Bader Philanthropies, INC

## ABSTRACT

**Introduction:** Falls and fear of falling present a major public health problem, negatively influence quality of life and are a leading cause of death in individuals over the age of 65. Physical activity interventions, particularly yoga, present a promising age adaptable solution. Yoga is cost effective, easily implemented in a variety of settings and accessible for adults with varying abilities. While falls are a difficult metric to assess, standardized gait assessments have long been used by clinicians and researchers to measure multisystem function in individuals throughout the lifespan and may allow for prediction of future falls. Increased variance of spatiotemporal gait values are indicative of increased falls and risk of fall in older adults with and without pathology. The goal of this 12-week experimental randomized crossover study was to evaluate changes in spatiotemporal outcome measures to quantify the effect of a 12-week chair-assisted yoga program focused on balance in older adults. We hypothesized that significant improvements in selected spatiotemporal variables would be observed following the 12-week program.

**Method:** As part of a larger data collection effort, data were collected from rural-dwelling older adults using a GAITRite® walkway system and a standardized gait testing procedure. Straight-line gait evaluations occurred prior to beginning and immediately following the completion of the yoga program. One additional baseline data point was collected from individuals assigned to the waitlist control group which allowed for comparison to a 12-week normal care condition. The spatiotemporal variables examined in this study include cadence, stride length, time spent in double support and velocity as well as variance for each measure. Participants completed five trials, one trial of each type of straight-line walking: preferred speed forward, forward fast, backward, tandem and dual. For this preliminary analysis, a repeated measures ANOVA was used to compare pre-post data for 18 participants.

**Results:** Preliminary analysis reveals no significant improvement in the selected spatiotemporal variables ( $p > 0.05$ ). Directional trends in the data do indicate non-significant changes in the expected directions all with low effect sizes.

**Discussion:** Preliminary findings from this study do not support our hypotheses. 12-weeks of yoga did not result in significant improvement of gait velocity, cadence, stride length/width or percent of the gait cycle spent in double support. However, significant changes were observed in measures of balance and occupational performance. While it is possible that the small sample size of the preliminary analysis is limiting the observed effects, we hypothesize that standard gait measures may not be sensitive enough to detect change in a study of community dwelling older adults.

# Spatiotemporal Gait Changes Following a 12- Week Yoga Intervention for Rural Older Adults

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## ABSTRACT

**Introduction:** Exposure to nature has a positive impact on many physical and psychosocial health outcomes. There is growing interest in the impact of nature experiences delivered through multimedia platforms on the well-being of persons at risk for poor psychosocial outcomes (e.g., older adults with mild cognitive impairment [MCI], dementia). The objective is to assess the feasibility and preliminary efficacy of an immersive nature-based multimedia experience to older adults with MCI or mild dementia.

**Methods:** A convenience sample of 40 older adults (65+ years) with and without mild cognitive complaints will be recruited from senior service centers. Participation will include three visits: (1) consent, cognitive testing, and questionnaire completion; (2 & 3) 15-minute video session (either Condition A: immersive nature-based multimedia or Condition B: emotionally neutral educational video) followed by group discussion. Sessions will be administered in a randomized and counterbalanced manner one week apart. Process evaluation data (e.g., recruitment, assessment administration, retention) will be examined to determine feasibility. Assessments will be administered at each video experience to examine short-term health benefits. Measurement intervals (and outcomes of interest) include: baseline (momentary affect – Multidimensional Mood Questionnaire; working memory – single n-back test), post-video (momentary affect, working memory), post-discussion (momentary affect), and continuously (heart rate variability and electrodermal activity – Empatica E4; social behavior – Holden Communication Scale). Descriptive statistics will be calculated for process and feasibility measures; self-report and psychophysiological data will be analyzed using repeated measures ANOVA.

**Results:** 49 participants screened; 24 enrolled and completed cognitive testing. Of these, data (i.e., completion of all study visits) have been collected from five participants. Study activities were halted in March 2020 due to COVID-19.

Questions for Feedback:

1. What are sensitive assessments to measure short-term changes in social engagement and participation appropriate for our population?
2. How can we minimize participant assessment burden while still collecting meaningful data that both the research team and community collaborators are interested in (a delicate balancing act)?
3. Is there a way to adapt the in-person immersive video and subsequent social experiences to include solitary video viewing followed by an online

# Immersive Nature-Based Multimedia Experiences to Improve Health in Older Adults with Mild Cognitive Impairment or Mild Dementia: A Feasibility and Pilot Study

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Leah I. Stein Duker

**CATEGORY: Geriatric**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

social experience, taking into consideration fidelity of experience and logistical issues?

Conclusion: Research suggests that immersion in nature settings – even those simulated and digitally immersive – lead to positive psychosocial and physical outcomes. This study will address the paucity of research applying these digitally vicarious nature experiences to older adults with MCI or dementia.

Potential Funding: NIH/NIA R03; NIA has dementia-specific research funds.

## ABSTRACT

**Introduction:** This research aims to determine whether non-pharmacological interventions, such as occupational and physical therapy, were associated with a decrease in the duration of prescription opioid use following hip or knee arthroplasty. Our research questions asked: (1) when do patients begin non-pharmacological interventions; (2) when do patients discontinue prescription opioids; and (3) are non-pharmacological interventions associated with a reduced duration of prescription opioid use following surgery.

**Methods:** A retrospective cohort study used 2010-2015 data from a national 5% Medicare sample database. We included adults 66 years and older with an inpatient total hip (N=4,272) or knee (N=7,796) arthroplasty while enrolled in Medicare Fee-For-Service. The primary outcome was duration of prescription opioid use following surgery. This outcome was defined by National Drug Codes and obtained from Medicare Part D for the 12 months before and after hospital discharge. The independent variable dichotomized patients depending on whether they received any non-pharmacological pain intervention within 12 months following hospital discharge (e.g., Current Procedural Terminology codes billable by an occupational or physical therapist). Covariates included demographics, health conditions, and prior prescription opioid use. To answer research questions 1 and 2, Kaplan-Meier survival curves identified the number of days until beginning non-pharmacological interventions and the number of days until discontinuing prescription opioids. Research question 3 was answered with a Cox Proportional Hazards regression. The exposure to non-pharmacological interventions was treated as time-dependent because 37.69% of hip and 14.12% of knee patients discontinued opioids or were censored prior to their first non-pharmacological intervention.

**Results:** Median time to begin non-pharmacological interventions following surgery was 91 (95% Confidence Interval [CI]: 74-118) days for hip and 27 (95% CI: 27-28) days for knee arthroplasty. Median time to discontinue prescription opioids following surgery was 16 (hip: 95% CI: 15-16) days and 30 (knee: 95% CI: 29-31) days. Non-pharmacological interventions delivered with home health increased the likelihood of discontinuing opioids after hip (Hazard Ratio [HR], 1.15; 95% CI, 1.01-1.30) and knee (HR, 1.10; 95% CI, 1.03-1.17) arthroplasty compared to patients who did not receive non-pharmacological interventions and home health.

**Conclusion:** Patients with knee arthroplasty began non-pharmacological interventions soonest but continued prescription opioids longest, which aligns with previous literature. Occupational and physical therapy with home health was associated with a shorter duration of prescription opioid

# Are Occupational and Physical Therapy Associated with Duration of Opioid Use after Joint Replacement?

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**CATEGORY: Measurement**

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12:30 – 1:30 p.m. MT

use after hip and knee arthroplasty. Occupational and physical therapy can address pain and sociobehavioral factors associated with post-surgical opioid use.

Funding: Agency for Healthcare Research and Quality T32HS02613301

## ABSTRACT

Introduction: Patient safety increases with commitment to error detection, analysis, and utilizing improvement strategies as learned lessons. Health professionals may be unwilling both consciously and subconsciously to detect and report errors in practice due to a culture of perfectionism in education and contributing errors to carelessness or incompetence. Goal orientation theory provides an approach to understanding beliefs about errors and may inform initiatives to improve patient safety. Goal orientation refers to an individual's disposition and beliefs toward achievement, engagement, and performance. Students and instructors may embrace three main orientations: learning orientation, performance-prove orientation, and performance-avoid orientation. A learning orientation and environment fosters deep understanding and inquisitive learning behaviors. A performance orientation and environment may associate ability with identify. Goal orientation literature is heavily based in K-12 educational research and organizational psychology, though it has strong implications for simulation education. At least 71% of OT programs in the U.S. use simulation. It is important to explore learning outcomes and pedagogy for use in our profession. The current study will investigate the feasibility of observing goal orientation behaviors in OT students. The primary aim is to determine the feasibility of observing goal orientation behaviors from first year OT students in a skills-based simulation course. The secondary aim is to determine the feasibility of observing contextual characteristics of a simulation-based experience. Methods: We will use a mixed methods approach to 1) observe first year OT students' goal oriented behaviors while completing a skills-based simulation and 2) observe contextual characteristics of a simulation based experience related to goal oriented learning. The researcher will 1) collect data through video observation of simulations using an observation coding framework and 2) observe contextual characteristics through meeting notes, curriculum design, and direct observation. We anticipate analyzing video of approximately 40 OT students completing simulation experiences and approximately 20 hours of contextual observations. Question topics for feedback include: 1) Outcome measurement, specifically related to associating goal orientation scale results with field observations; 2) Ethical considerations with educational research; 3) Standardized measures for instructional practices related to simulation education. Conclusions: Goal orientation may provide insight into future clinical problem-solving behaviors. Further, it is critical to investigate educational concepts in OT simulation education as they may relate to patient safety. Potential funding includes the President's Grant sponsored by the Josiah Macy Jr. Foundation and the Donald A. B. Lindberg Research Fellowship Award.

# Feasibility of Observing Goal Orientation in an Occupational Therapy Simulation

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**CATEGORY: Measurement**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** Executive function (EF) has been identified as a primary contributor to one's level of functional ability, as it is responsible for several processes such as volition and attention, that are crucial to I/ADL performance. Aging-related declines in EF not only affect cognitive processes, but also carry serious physical implications such as disrupting gait performance and increasing fall risk. Traditional gait assessments measure the decline of EF performance via dual task paradigms, which assess how gait is affected when attention is focused on another task; however, these assessments fail to account for the complexity of the environments, cognitive loads and gait patterns experienced in the real world. A study of falls of older adults show falls most often occur during conditions of great EF demand, for example, reaching or changing directions while walking in the living room. An instrumented, standardized gait assessment that simulates common IADLs may provide more accurate information regarding fall risk, and an objective measure of functional ability.

**Methods:** Data used in this cross-sectional analysis were collected from community-dwelling older adults over the age of 60, who completed baseline assessments during a larger intervention study. Linear and non-linear gait parameters were obtained via instrumented walkways as participants completed a traditional gait assessment and a novel functional gait task developed from the grocery shopping core task of the Performance Assessment of Self-care Skills, respectively. The traditional gait assessment included both walking at a preferred pace and dual task walking while performing a naming task. During the functional gait assessment, non-linear gait data were collected as participants gathered specific items that rested around the perimeter of a 4x8 ft Zeno walkway. Spatiotemporal gait parameters associated with fall risk such as velocity, stride length, % of gait cycle in double support and base of support were analyzed and compared between the three gait conditions.

**Results:** Preliminary data indicate participants walk with slower velocity ( $p < .001$ ), shorter stride lengths ( $p < .001$ ) and greater stride width ( $p = .005$ ) during the functional gait assessment than both traditional gait assessment conditions.

**Conclusion:** Collection of gait parameters represents one method of quantitatively measuring performance during a functional task that can complement measures commonly used to assess functional ability. The cognitive load placed on participants as they complete a simulated IADL task may be more realistic than those experienced during traditional dual task paradigms. This, paired with the collection of ecologically valid gait patterns that naturally occur in the real world, may provide improved sensitivity in the detection of physical and cognitive aspects of functional decline.

# Comparison of Gait Parameters Obtained During a Simulated IADL task and Traditional Gait Assessment.

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## CATEGORY: Measurement

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Funding Source: This project is supported by NIH [UL1TR002373 and KL2TR002374], and Bader Phil. INC.

## ABSTRACT

**Introduction:** Spinal Cord Injury (SCI) clinical trials with novel therapeutics and neuro-technologies need outcome measures that are standardized, observation-based, disallow compensations, and are sensitive to improvement with functional relevance. Observation-based measures are a necessary complement to patient-reported measures for a comprehensive assessment of outcomes. Assessing movement within the context of function is important for all domains such as hand function, self-care, mobility, and ambulation. Currently available SCI measures do not have this capability and present a challenge. Our team is addressing this gap with development of the Spinal Cord Injury – Movement Index (SCI-MI) to evaluate recovery of neurotypical movement within the context of function. In this study, we describe the conceptual framework and preliminary results from pretesting for content validation of the fine motor domain of the SCI-MI.

**Methods:** Conceptual framework for the measure was developed using a concept map and nomological network. The study used a mixed-methods design to develop and test the items. Candidate items (n = 27) were identified from the SCI-Functional Index (SCI-FI) (n = 36) and iteratively developed in 10 consensus meetings to write and refine administration and scoring guidelines for observed performance. The items were examined against the SCI-FI item map based on the hierarchy of item difficulty and discrimination between features of the latent trait. Qualitative focus groups (n = 2), pre-testing with adults with SCI (n = 6, tetraplegia), and feedback from experts (n = 6) and consultants (n = 2) in SCI and measurement was recorded, transcribed, and analyzed for item refinement with bi-weekly meetings.

**Results:** The item pool consists of 51 fine motor items and includes 35 unimanual and 16 bimanual items. Among these, 42 were modified from 27 original SCI-FI items, 2 were original items from the Graded Redefined Assessment of Strength, Sensibility and Prehension (GRASSP), and 7 were newly developed. Standard procedures for administration were developed and pretested, including item specifications and scoring.

**Conclusion:** The study used a systematic mixed methods design for creation of an item pool for evaluating fine motor function in individuals with SCI designed for observation of function with the intent to evaluate movement within a functional context. Inclusion of GRASSP items may provide an opportunity for future linking between the SCI-MI and GRASSP. Authors seek feedback from OT Summit Scholars on the next steps that include studying reliability of administration and scoring, as a precursor to a calibration study.

# Spinal Cord Injury- Movement Index (SCI-MI) Development and Preliminary Validation

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## CATEGORY: Measurement

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Funding Source: Craig H. Nielson Foundation (PI: Mulcahey), Jefferson Emerging Medical Scholars Award (PI: Grampurohit).

## ABSTRACT

**Introduction:** The purpose of our study was to examine the psychometric properties of the Health Literacy Survey European Questionnaire-12 (HLS-EU-Q12) using a Rasch measurement model.

**Methods:** The study subjects were 254 Korean adults who completed the HLS-EU-Q12 at hospital settings. Confirmation factor analysis (CFA) with the one-factor solution was used to examine the unidimensionality assumption of the instrument. The item-level psychometrics included item fit, precision, and differential item functioning (DIF) across sex, age and education groups.

**Results:** The CFA model revealed that the 12 items met with the unidimensionality assumption (CFI=0.96, TLI=0.96, RMSEA=0.09). In addition, the 12 items demonstrated local independence (residual correlations ranged from -0.16 to 0.19). The person strata value was 3.80, which is equivalent to a reliability index value of 0.87. There was a small ceiling effect of 2.0% (5/254) and no floor effect.

**Conclusions:** The HLS-EU-Q12 demonstrated good item-level psychometrics with the Korean adults. Our results suggest that the HLS-EU-Q12 can be used as a good health literacy test in clinical settings.

**Funding Source:** This research was supported by the BK21 FOUR (Fostering Outstanding Universities for Research) funded by the Ministry of Education (MOE) of the Republic of Korea and National Research Foundation of Korea (NRF) (Big data specialized education and research team for cognitive health and social integration of community-dwelling older adults)

# Item-Level Psychometrics of the Health Literacy Survey European Questionnaire-12

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12:50 – 1:30 p.m. MT

## ABSTRACT

**Introduction:** Improving the quality of life of older adults is essential for successful aging. The quality of life deteriorates due to aging, and many researchers are studying associated factors. Factors associated to the quality of life of older adults include physical activity, depression, and activities of daily living. There is a positive association between the achievement of physical activity practice level and the quality of life, but the association between the achievement of physical activity practice level when depression is involved is not clear. The objective of this study, by adding depression as a covariate, we examined the association of achievement of physical activity practice level on the quality of life of older adults.

**Methods:** We collected 7992 individuals' health information through the 2018 Korea National Health and Nutrition Examination Survey (KNHANES). Among them, only the older adults 65 years or older were selected. The final sample size was a total of 1336 older adults, divided into groups that achieved physical activity practice level and those who did not. Multivariable regression analysis was used to examine the association between the achievement of physical activity practice level and the quality of life of older adults.

**Results:** The number of older adults who achieved physical activity practice level was 925 (69.2%), and the number of those who did not achieve physical activity practice level was 411 (30.8%). The achievement of physical activity practice level was positively associated to the quality of life of the older adults ( $\beta=0.024$ , 95% CI=0.010-0.038,  $p=0.0007$ ).

**Conclusion:** Our findings suggest that achieving a level of physical activity, even when depression is included as a covariate, has a positive association with quality of life in older adults. Many countries are establishing and revising public health policies for the successful aging of older adults. Our research can be used as basic data for these policies.

**Funding Source:** This research was supported by the BK21 FOUR (Fostering Outstanding Universities for Research) funded by the Ministry of Education (MOE) of the Republic of Korea and National Research Foundation of Korea (NRF) (Big data specialized education and research team for cognitive health and social integration of community-dwelling older adults)

# A Study on the Association the Physical Activity, Depression, and Quality of Life of the Older Adults: Using data from 2018 Korea National Health and Nutrition Examination Survey (KNHANES)

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**CATEGORY: Measurement**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT



## ABSTRACT

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**Introduction:** Phantom limb pain (PLP) is a form of complex neuropathic pain that affects 60-80% of individuals with amputations. PLP can impair quality of life and engagement in desired occupations. Few non-pharmacological treatments are available. The development of novel PLP treatments is primed for innovation, however, historically intervention outcomes are measured using a pain intensity numeric rating scale (NRS) without consideration of the influence on function. Characterizing the population with existing patient-reported outcome (PROs) measures is needed to identify the impact of PLP on function and examine utility of pain PROs.

**Methods:** Recruitment is ongoing. To date, we recruited a random sample of 42 Veterans with lower limb amputations and probable PLP for a phone-based survey study (ages 34 - 87 years, 98% unilateral, 2% bilateral). We describe our population using a clinical battery of pain (Patient-Reported Outcomes Measurement Information System (PROMIS) Pain Interference (PI) Short Form 6b Replacement, Pain, Enjoyment, and General (PEG) Activity scale), mental health (PROMIS Depression 4a, PROMIS-Anxiety 4a, Pain Self-Efficacy Questionnaire-4), and function (PROMIS Fatigue 4a, PROMIS Sleep Disturbance 4a, Lower Extremity Functional Scale) measures. We categorized Veterans to none, mild, moderate, and severe groups based on their NRS of worst PLP intensity (none: NRS=0; mild: NRS=1-3; moderate: NRS 4-6; severe: NRS 7-10).

**Questions for Feedback (WiP):** Recommendations for outcome measure development and study design for future intervention studies.

**Conclusion:** In our sample, 50% reported using prescribed pain medications with no difference in medication use in the low vs. high pain groups. As a preliminary look at construct validity, the simple correlation between worst PLP intensity category and PEG was  $R=.17$  and with PROMIS-PI was  $R=.23$ . While these correlations are positive, they do not reach  $>.6$  to show true construct validity. We didn't find large differences across groups on mental health factors. Further psychometric research is needed to examine how these scales function in the PLP population. Perhaps since 60% of patients in this sample reported severe pain, a new measure that differentiates high degrees of pain on the right dimensions could be one area for future research. Measuring the multiple dimensions of pain is critical to best customize and measure the effect of occupational therapy pain treatment.

# Measuring the Utility of Patient-Reported Outcome Measures to Assess the Functional Impact of Phantom Limb Pain

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## CATEGORY: Measurement

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

Funding Source/Potential Funding Source: Dr. Rich's efforts are supported by a VA Career Development Award-1 (1K1RX003216-01A2).

## ABSTRACT

**Introduction:** Individuals with intellectual and developmental disabilities (IDD) have unique and complex health care needs that require health care access. Individuals with IDD are more likely to experience adverse health conditions such as neurologic disorders and are at a higher risk for chronic health conditions, such as obesity or asthma. Barriers, such as decreased health literacy and a lack of experienced physicians working with this population, make access to inclusive health care increasingly difficult. Therefore, it is important for occupational therapists to intentionally create opportunities to improve healthcare access and utilization for this population. The purpose of this study is to describe the collaborative development of health narratives for people with IDD to improve advocacy for and access to health care.

**Methods:** Health narratives were collected as part of a larger project on health research engagement for individuals with intellectual and developmental disabilities (IDD). The health narrative process included a semi-structured interview, with open-ended questions about an individual's personal and familial health history. The interview guide was provided to the team member in an adapted format considering accessibility needs. All individuals participated in a four-session group education exploring topics such as the importance of writing and sharing their health narrative as well as dissemination approaches. Health narratives were analyzed through a thematic analysis to identify purpose, impact, and health priorities for the individuals on the development team.

**Results:** Fifty-two health narratives were collected through collaboration between a self-advocate with IDD and an occupational therapy student. Individuals with IDD identified their health narratives as being developed to inform health focused research, health policy, or use with health care providers. The primary themes included education (patients and providers), health care accommodations, individualized health effort, multiple identities, facility design, and health care coverage. Multiple health narratives with stakeholders will be included to highlight the impact it had on their own health care journey.

**Conclusion:** Results from this study identify that health narratives can be used as a therapeutic intervention to effectively and meaningfully assist individuals with IDD to become self-advocates in their own health journey. Individuals with IDD are historically underrepresented in the healthcare system and often have unmet health care needs. The health narrative development process is a community-based and client-centered approach that has substantial impact on advocacy and health care engagement for diverse individuals.

**Funding Source/Potential Funding Source:** PCORI; EACC – 18498

# Health Narratives as a Therapeutic Tool for Facilitating Health Care Access for People with Intellectual and Developmental Disabilities

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**CATEGORY: Neurological**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT



## ABSTRACT

### Introduction:

Neglect is a post-stroke condition consisting of a lack of awareness of one side. Stroke survivors with neglect have poorer recovery, longer length of stay, and more severe disability. Several studies have attempted to identify clinical and demographic characteristics that may be associated with neglect. However, these studies have used paper-and-pencil assessments that have been shown to be less sensitive to neglect than functional assessments. In this study, we are evaluating the effect of demographic (age, race, gender), stroke (stroke severity), and clinical (motor and cognitive abilities) characteristics on neglect severity as shown on four functional neglect assessments to identify populations that may be at higher risk for neglect.

### Methods:

This study is a retrospective cohort analysis of secondary questions from a prospective upper extremity interventional study. The 47 participants include a convenience sample from an academic medical center seen after a stroke. We used linear regression modeling with scores on the functional neglect assessments as outcomes (Catherine Bergego Scale, Naturalistic Action Test, Behavioral Inattention Test, and Virtual Reality Lateralized Attention Test) and patient characteristics as potential predictors (age, gender, race, stroke severity, motor function, and cognitive function).

### Results:

Of the characteristics we assessed, only stroke severity had an effect on all four neglect assessments. Race, gender, motor, and cognitive function had effects on some but not all assessments, while age had no effect on any assessment.

### Conclusions:

Patients with more severe stroke are more likely to demonstrate neglect on functional neglect assessments. Race, gender, cognitive, and physical functioning may have an impact on neglect that is only demonstrated on some assessments. There is no age effect on neglect. Our results challenge previous findings that used paper-and-pencil assessments, suggesting that some of these characteristics may affect neglect when more sensitive functional assessments are utilized, or vice versa.

### Funding Source:

This work was supported by a T32 grant number T32 DC0014435 (PI: Dubno, J.) from the NIH/NIDCD; and an Institutional Development Award (IDeA)

# The Effect of Demographic, Stroke, and Clinical Characteristics on Neglect Severity

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**CATEGORY: Neurological**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

from the National Institute of General Medical Sciences of the National Institutes of Health under grant number P20GM109040 (PIs: Kautz, S. & Adams, R.)

## ABSTRACT

**Introduction:** Neglect post stroke is associated with disability, poor quality of life, and high caregiver burden. However, limited research has been conducted to understand the stroke survivors' experience and perspective of what it is like to live with neglect or to understand caregiver perceptions regarding the impact of neglect on the stroke survivor's life and their own life. It is important that we examine these perspectives in order to identify unmet needs and to develop interventions targeted at reducing disability and caregiver burden and improving quality of life. Thus, the purpose of this study was to elucidate what it is like to live with neglect from both the stroke survivor and caregiver perspective.

**Methods:** We conducted an exploratory qualitative descriptive study by conducting key informant interviews with stroke survivors with neglect and caregivers. Participants were recruited from an ongoing quantitative study examining measurement of neglect. We developed separate interview guides (stroke survivor, caregiver). All individual, semi-structured interviews were audio-recorded and transcribed. We developed a codebook a priori and emergent codes were later added. We used a Level 1 approach for initial coding and then investigators reviewed and confirmed codes. We then conducted Level 2 coding. Consensus of data abstraction and theme generation was confirmed amongst investigators.

**Results:** Seven stroke survivors with chronic neglect (mean 37 months post stroke) and 7 caregivers participated in the interviews. On average, stroke survivors with neglect were female and experienced a right hemispheric ischemic stroke. On average, caregivers were male and resided with the stroke survivor with neglect. The overarching themes that emerged were (1) safety concerns for the stroke survivor, family members, and members of the community (2) negative emotions such as frustration and fear (3) loss of meaningful roles and basic/instrumental activities of daily living disability due to neglect (4) lack of education (i.e. knowledge, understanding) or treatment received for neglect.

**Conclusion:** Findings highlight the activity limitations and participation restrictions associated with neglect. The impact of neglect is far reaching, and it is critical that we develop additional assessments (including patient reported outcomes) that comprehensively measure this impact. There are also unmet rehabilitation needs, educational needs, and psychosocial needs. Clinicians must be cognizant of the potential needs of stroke survivors and caregivers in these domains and innovative, evidence-based educational materials and rehabilitation interventions must be developed.

**Funding Source/Potential Funding Source:** Department of Veterans Affairs Career Development Award-2 grant number 1 IK2 RX002420-01A2;

# Stroke Survivor and Caregiver Perspectives of Living with Neglect Post Stroke

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## **CATEGORY: Neurological**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the NIH Grant number P20GM109040; NIH/NCATS Grant Number UL1TR00145

## ABSTRACT

**Introduction:** The COVID-19 pandemic accelerated the use of videoconferencing to deliver rehabilitation remotely. Prior pilot trials demonstrated that telerehabilitation programs could be delivered safely and may lead to similar outcomes as face-to-face interventions among people with stroke-related disability. However, these findings lack robust evidence for strategies that facilitate the uptake of new technology among key stakeholders; in particular, those with stroke-related disability. The purpose of this research was to explore stakeholders' experiences using videoconferencing during a group-based social learning intervention delivered in stroke.

**Methods:** This ad hoc qualitative research was initiated in response to the impact of the COVID-19 pandemic on the ENGAGE Pilot Study (NCT04019275). Community-dwelling low-income adults with chronic stroke ( $\geq 3$  months) and mild-to-moderate disability (NIH Stroke Scale  $\leq 16$ ) participated in 8 group sessions that blend social learning, guided discovery, and skills training to address barriers to community participation. At the time of COVID-19 related shutdowns, the curriculum was translated for remote delivery via Zoom videoconferencing. Semi-structured interviews were conducted with participants (n=8), research staff (n=4), and group facilitators (n=4). Interviews were transcribed, annotated, and coded by 3 researchers. Themes were identified.

**Results:** Stakeholders reported that social support from multiple sources (research staff, caregivers, facilitators) enabled participation in videoconferencing. Prior experience with technology and the physical environment both positively and negatively influenced participation in the sessions. Participants, research staff, and facilitators highlighted both technical and social components of using videoconferencing that should be included in training. Learning the technology occurred over the duration of the group sessions rather than during one individual training session. Facilitators also described strategies for navigating technical challenges and engaging participants during online group sessions.

**Conclusion:** Rehabilitation interventions delivered using videoconferencing should include a rigorously designed training protocol that enables participants to access the virtual environment. This training may be tailored based on participants' prior experience with technology and should include information on both technical and social aspects of videoconferencing. A limitation of this research is that all stakeholders engaged in a single type of intervention. Future research should explore strategies to support technology uptake in individually delivered interventions and identify optimal delivery modes for training.

# Stakeholders' Experiences Learning New Technology To Participate In A Remotely Delivered Group-Based Intervention After Stroke: A Thematic Analysis

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**CATEGORY: Neurological**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

Funding Source: T32 Precision Lifestyle Medicine and Translational Research (PREMIER) Postdoctoral Training Program (NHLBI T32HL134634); NIH CTSA SPIRiT Award (University of Pittsburgh, UL1 TR001857; Washington University in St. Louis, UL1 TR002345)

## ABSTRACT

**Introduction:** Translating research to clinical practice is challenging throughout healthcare and strategies to identify and overcome barriers are needed. Bozec and colleagues (2020) developed an evidence-informed manual for inpatient rehabilitation to facilitate implementation of current evidence in upper extremity task-specific training for neurological conditions into clinical practice. The manual consists of site-specific flowcharts, available rehabilitation equipment, and dosages from published literature in a easy to use format. An implementation research study was designed to understand the use of the manual in practice. The Consolidated Framework for Implementation Research (CFIR) provided the framework to identify implementation barriers and facilitators. The study objective was to examine the implementation barriers after a year of training with the manual, in-services, discussions, and usage among occupational therapists as a pilot study prior to a multi-site implementation.

**Methods:** Survey questions were developed for each CFIR domain and administered through an online survey link sent by email. The survey contained 40 questions with 4 open-ended comment boxes. Participants were all occupational therapists including assistants, clinical educators, and program directors all working in the same institution with clinical practice in inpatient rehabilitation. Descriptive statistics were used for analysis and content analysis was used for the open-ended questions. The analysis included a classification of the results as facilitators and barriers for each CFIR domain.

**Results:** Thirty occupational therapists were invited and ten completed the survey (25% response rate). Barriers identified were lack of access to appropriate materials and their cost, decreased confidence in task-specific training compared to other interventions, difficulty integrating task-specific training into a therapy session, and a lack of expectation from external influencers to incorporate task-specific. Open-ended question analysis revealed additional barriers related to increased time for intervention set up and requiring additional step-by-step guidance. Facilitators identified were confidence in the evidence, intervention flexibility, appropriate workload, leadership engagement, staff communication, and adequate intervention knowledge.

**Conclusion:** The facilitators and barriers to implementation identified in this study can shape ongoing implementation research with future multi-site studies and to other evidence-based interventions in occupational therapy.

**Funding:** Supported by Northwestern Medicine Marionjoy Rehabilitation Hospital, IL

# Implementation Challenges with Evidence-Based Practice within Inpatient Rehabilitation to Incorporate Upper Extremity Task-Specific Training in Neurological Conditions

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**CATEGORY: Neurological**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** Acquired brain injury (ABI) defined as mild traumatic brain injury or anoxic/hypoxic injury is a frequent but unrecognized consequence of physical abuse perpetrated by an intimate partner. One study has found that intimate partner violence (IPV)-related ABI negatively affects three out of four survivors of IPV (Valera et al., 2019). IPV-related ABI may cause cognitive or motor symptoms in IPV survivors (Campbell et al., 2002; Valera et al., 2019). While we know that post-ABI sequelae could unfavorably influence participation in activities of daily living (ADLs) and may also adversely impact social relationships (Eriksson et al., 2009), the impact of specific post-IPV-related ABI symptoms on these occupations is currently unknown. Thus, a need exists to identify the impact of post-IPV-related ABI symptoms on ADLs and social relationships in survivors to facilitate optimal clinical management. This study examines the association between post-IPV-related ABI symptoms and ADLs as well as interpersonal relationships in survivors of IPV.

**Methods:** A retrospective chart review was conducted with the approval of the local Institutional Review Board. Thirty-seven survivors aged 17-73 years were evaluated within 30 days of post-ABI. Three primary outcomes, difficulties in work/school performance, changes in interpersonal relationships, and changes in caregiving abilities, were assessed at the time of the initial visit to the Justice Center using the HELPS screening questionnaire and the DANGER assessment. Statistically significant demographic and symptom predictors in univariate logistic regressions, for each outcome, were entered into hierarchical multiple logistic regression models. Primary outcomes were predicted from post-IPV-related ABI motor or cognitive symptoms using three separate hierarchical multiple logistic regression models.

**Results:** After adjusting for demographic variables and total number of symptoms, the presence of difficulties in problem-solving was significantly associated with decreased work/school performance ( $R^2=.57$ ,  $p = .010$ ) and changes in caregiving abilities ( $R^2=.41$ ,  $p=.012$ ). The presence of difficulty remembering/concentrating ( $R^2 = .61$ ,  $p= .03$ ) was significantly linked with changes in relationships with children or family or friends. Eighty-one percent to 78.4% of cases were correctly classified by the three models.

**Conclusion:** Impaired cognition may present challenges for IPV-related ABI survivors to optimally engage in ADLs and interpersonal relationships. Occupational therapy evaluation of ABI symptoms in IPV survivors and interventions aimed at improving functional cognition in this population may facilitate participation in IPV survivors after brain injury. Longitudinal studies investigating long-term implications of cognitive impairments on occupational performance in IPV-related ABI survivors are needed.

# Impaired Cognition Impact Occupational Performance and Social Relationships in Survivors of Intimate Partner Violence-Related Brain Injury

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**CATEGORY: Neurological**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT



## ABSTRACT

**Objectives:** To assess the feasibility of implementing the home-based arm and hand exercise (HAHE) protocol and explore participant acceptability of the intervention.

**Methods:** A feasibility study using convergent mixed methods. The HAHE program was implemented in adults (19-65 years old) with chronic upper extremity (UE) impairment after traumatic brain injury (TBI) living in the community. Quantitative outcomes (Wolf Motor Function Test, grip strength, Box and Blocks Test and the Barthel Index), and qualitative data (semi-structured interviews) were collected at baseline, after intervention completion, and at a one-month follow-up. Data were analyzed separately using descriptive statistics and thematic analysis, and then integrated to examine feasibility and protocol refinement.

**Results:** Four participants were recruited, and three completed the study. Improved scores for WMFT and grip strength were achieved in three participants. Improved scores on Box and Blocks Test and Barthel Index was achieved in one participant.

Perceived improvement after completing the protocol included reported improvement in motor strength and sensation, improved ability to perform functional tasks, and improved motivation and confidence.

Quantitative change scores were divergent from perceived outcomes in one participant. Decreased ability to self-evaluate performance and determine measurable goals were associated with divergent quantitative and qualitative outcomes.

Full protocol adherence was achieved in two participants. Decreased adherence was associated with minimal improvements in quantitative outcomes.

**Conclusion:** A 2-week UE home program for individuals with TBI was safe and partially feasible. Recommendations for protocol refinement included personalized goal setting, an adaptive training schedule, and automated daily practice logs.

# Therapist-Guided Home-Based Upper Extremity Motor Training Program In Adults After Chronic Traumatic Brain Injury: A Feasibility Study Using Mixed Methods

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**CATEGORY: Neurological**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT



## ABSTRACT

**Introduction:** The ability to predict upper limb (UL) outcomes for individuals after stroke facilitates treatment selection, discharge planning, and goal setting. PREP2 is an algorithm, developed in New Zealand that allows for prediction of UL functional capacity at 3 months post stroke based on measures taken within the first week with 71% accuracy. The algorithm classifies individuals into one of four expected categories: Excellent, Good, Limited, or Poor. Despite its accuracy and ease of use, potential challenges of applying PREP2 to persons with stroke in the US include: different timing and structure of rehabilitation services provided, and lack of routine access to the neurophysiological measure. Thus, the objective of this study was to determine the accuracy of PREP2, using clinical measures only, on a sample of persons with first ever stroke in the US. It was hypothesized that algorithm accuracy would fall in a range of 70-80%.

**Methods:** Adults with first ever stroke (N=49) with motor deficits of the upper limb were recruited from a local hospital and followed longitudinally, as part of an ongoing observational cohort. Dependent variables captured between 24 hours out to two weeks post stroke and entered into the algorithm were: age, degree of UL paresis (SAFE score) and stroke severity (NIHSS total score). The dependent variable predicted was category of UL functional capacity, defined by ranges of the 3-month ARAT score. Predictions were evaluated at 12 weeks ( $84 \pm 7$  days) after stroke. Overall accuracy, specificity, sensitivity, positive predictive value (PPV), and negative predictive value (NPV) of the algorithm, were calculated using a 4x4 contingency table.

**Results (Poster):** Data from 49 individuals were analyzed (57% male, 88% ischemic stroke, age =  $65 \pm 8.56$  years). The overall accuracy (61%) and weighted kappa (62%) were significant. Sensitivity was high for the Excellent (95%) and Poor (81%) PREP2 categories. Specificity was high for the Good (82%), Limited (98%) and Poor (95%) categories. PPV was high for Poor (82%) and NPV was high for all categories. No differences were found between those with accurate or inaccurate predictions.

**Conclusion:** The results of the present study found that use of the PREP2 algorithm, with clinical measures only, is better than chance (chance = 25% for each of the 4 categories) alone at predicting a category of UL capacity at 3 months post stroke. PREP2 is a simple tool that facilitates evaluation of eventual UL outcome from measures routinely captured after a stroke within most healthcare settings in the US. The moderate to high values of sensitivity, specificity, PPV and NPV demonstrates the clinical utility of this predictive algorithm and it is recommended to be implemented into US clinical practice.

# Accuracy Of The PREP2 Algorithm In Predicting Upper Limb Functional Capacity In A United States Population With First Ever Stroke

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**CATEGORY: Neurological**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

Funding Source/Potential Funding Source: NIH R01HD068290, NIHT32HD007434 and TL1TR002344

## ABSTRACT

**Introduction:** Transition from hospital to home is a critical period for caregivers that can trigger depression, stress, anxiety, poor health, and reduced quality of life. The coaching process has the potential to benefit caregivers, but has yet to be explored with caregivers of persons discharged to home following stroke. Coaching-in-Context is a process that uses skillful, constructive conversation that involves client-centeredness, coach presence, active listening, and powerful and reflective questioning to create awareness, action plans and solutions to challenges that interfere with participating in required and desired everyday activities. The purpose of this feasibility study was to examine the effects of 'Coaching-in-context' for caregivers of people with stroke on occupational performance, self-efficacy, quality of life, stroke impact, and readmissions.

**Methods:** The case study of a dyad presented here is part of a pilot randomized controlled trial. The person with stroke was a 56-year old male with mild stroke (Stroke Impact Scale, SIS=81), discharged to home, and received care from his 51-year old wife who worked part-time. Both individuals were African American. The wife experienced mild/moderate burden of caregiving (Zarit Burden Scale=31), and occasional migraines. The wife, referred to now, as the caregiver, participated in 8 coaching sessions over the phone, 45-60 minutes duration, one session/week with an occupational therapist certified in coaching. The outcomes were measured at pretest, posttest, and 4-week follow-up. The caregiver set goals with the coach using the Canadian Occupational Performance Measure (COPM). A blind rater measured: quality of life (WHO-BREF-QOL), caregiver self-efficacy (Revised Caregiver Self-efficacy Scale, RCSS), and SIS. At baseline, the blind rater also obtained target COPM scores for benchmarks of success from the client. Re-admission information and caregiver feedback about the acceptability of coaching were also obtained. Data was analyzed descriptively for the case study.

**Results:** The caregiver attended all sessions and worked towards goals of time for self and balancing work and home. For each COPM activity (N=3), performance improved by 4 points (range 0-9) and satisfaction by 4 points (range 3-6) at post-test and follow-up (4 points, range 0-9). COPM improvements exceeded the caregiver's projected benchmark. The caregiver's quality of life improved by 4 points at follow-up; and self-efficacy in obtaining respite at home by 54 points at posttest and 62 points at follow-up. The caregiver indicated a high acceptance of coaching (10/10). The person with stroke experienced no readmissions and showed improved quality of life (4 points), mood (28 points), and participation (19 points).

# Caregiver Coaching-in-Context Benefits the Stroke Caregiver and the Person with Stroke Post Hospital Discharge

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**CATEGORY: Neurological**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

Conclusion: The findings from this case study indicate that coaching was feasible and acceptable to the caregiver and had a positive effect on the caregiver and person with stroke.

## ABSTRACT

**Introduction:** Community discharge is viewed as a favorable outcome following acute care hospitalization. Occupational Therapy (OT) utilization is associated with a higher likelihood of community discharge. However, patient-level factors that mediate the relationship between OT utilization and discharge disposition are not well-understood. We sought to investigate whether change in activities of daily living (ADL) performance mediates the relationship between OT utilization and discharge destination among adults with traumatic brain injury (TBI).

**Methods:** In a secondary analysis of de-identified electronic health record (EHR), we included 435 adults with TBI who received OT services between June 2014 and June 2018 from five regional acute care hospitals. Outcome measures were 1) OT utilization based on billed minutes of OT evaluation and treatment. We used a dichotomous OT utilization variable (low [i.e., < 3 units] vs. high [i.e., ≥ 3 units]) using the median number of total OT units as a threshold (median = 3 units [i.e., 38 – 52 minutes]); 2) Activity Measure for Post-Acute Care (AM-PAC) "6-Clicks" to assess activities of daily living according to level of assistance needed on a scale of 1 ("total") to 4 ("none") including upper body dressing, lower body dressing, bathing, toileting, grooming, and eating. Values are summed and raw scores are standardized with higher scores indicating greater ADL performance; and 3) Discharge disposition (community vs. institution). Community discharge included home and supported living facilities. Institutional discharge involved long term care, rehabilitation facility, short term hospital, and skilled nursing facility. We used path analysis to determine the relationship between 1) OT utilization and ADL performance change; 2) ADL performance change and discharge disposition; and 3) OT utilization and discharge disposition, while adjusting for ADL performance change. We calculated the indirect effect to examine whether ADL performance change mediated the relationship between OT utilization and discharge destination.

**Results:** The indirect effect estimate indicated that ADL performance improvement mediated the relationship between OT utilization and community discharge (OR= 0.80, p = .003). High OT utilization was associated with greater ADL performance improvement ( $\beta = 0.39$ , p < .001). Unexpectedly, greater ADL performance improvement was associated with lower odds of community discharge (OR= 0.96, p < .001).

**Conclusion:** While improved ADL performance mediated the relationship between OT utilization and discharge disposition, the directionality of the relationship was unanticipated. Particularly, greater OT utilization was associated with greater ADL performance improvement, but such improvement was associated with lesser odds of community discharge.

# The Mediating Effect of Changes in Activity Performance on Acute Care Occupational Therapy Utilization and Discharge Disposition among Adults with Traumatic Brain Injury

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**CATEGORY: Neurological**

Thursday June 24, 2021

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Results may inform efforts aimed at ensuring individuals with TBI receive high quality OT services, thereby maximizing safe community discharge.

Funding Source: NA

## ABSTRACT

**Introduction:** Positive emotional experiences and participation in meaningful activities are vital to quality of life for people with dementia. While activities involving gardens and horses may be meaningful to people with dementia, little is known about how they may respond similarly or differently in regard to their emotional experiences and participation during two nature-based complementary interventions, adaptive gardening and adaptive riding. This study aimed to generate fine-grained descriptions and comparisons of participants' emotional well-being and meaningful participation during adaptive gardening and adaptive riding.

**Methods:** A descriptive case study design was used. Participants self-selected into either adaptive gardening (n = 4) or adaptive riding (n = 4). Both interventions offered weekly, hour-long, sessions for eight-weeks. Videotaped observations were completed and uploaded into a behavioral software program for analysis. To identify durations of specific occupational opportunities and their associated positive, neutral and negative indicators of emotional well-being and participation, 31 hours of video-taped data were continuously coded using the modified Activity in Context and Time. Participation measured gaze, communication, and active participation, which was delineated into singular (one activity), and complex (two activities simultaneously). All durations were averaged per participant and aggregated by group for comparison using a Wilcoxon Mann-Whitney U test.

**Results (Poster):** The occupational opportunities in both interventions were associated with variances of interest and pleasure, two positive indicators of emotional well-being, save for one brief moment of apprehension during adaptive riding. Specifically, occupational opportunities involving plants appeared to support longer durations of interest, while longer durations of pleasure were observed during opportunities with horses. Both interventions supported positive and neutral indicators of participation, where participants were visually engaged nearly the entire time and communicated with others nearly half the time. Yet, longer durations of active participation and significantly higher durations of complex active participation were observed during adaptive riding (U = 16, p = 0.029).

**Conclusion:** The occupational opportunities present within both interventions supported emotional well-being and meaningful participation. Yet, adaptive riding seemed to offer greater opportunities for active and more complex forms of participation and may utilize a person's retained capacities at a higher level. This was the first published nature-based comparison study for people living with dementia. Findings can inform healthcare providers' recommendations for adaptive gardening and

# Emotional Well-Being And Meaningful Participation Of Participants With Dementia In Two Complementary Interventions: Adaptive Riding And Adaptive Gardening

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adaptive riding for people with dementia with a basic understanding of the occupational opportunities present and their respective outcomes of emotional well-being and participation.

## ABSTRACT

**Introduction:** Research on family caregivers of individuals with intellectual/developmental disabilities (I/DD) indicates they experience numerous adverse outcomes, including poorer health and decreased quality of life. Disability service organizations believe a crisis is in the making as family caregivers' age and communities lack resources and professionals to support adults with developmental disabilities. Therefore, the purpose of the MI-OCEAN Family Support Project is to improve the health and well-being of aging family caregivers of adults with developmental disabilities in the state of Michigan using a peer-mediated model of family support to navigate complicated health and disability systems.

**Methods:** A quasi-experimental study design is being used to assess the benefits of participating in the MI-OCEAN for 100 family caregivers to assess if peer mediated family support can empower them. We conducted preliminary analysis of the initial study sample of 103 pre-test surveys with 47 post-test surveys to assess if the quality of life (QOL) of the participant had improved using the World Health Organization's Quality of Life Scale (brief 25 item version). Independent sample t-tests were used to assess changes in overall QOL and four QOL domains (Physical, social, psychological, and environment).

**Participants:** The ages of the caregivers ranged from 54-85 years ( $M = 65.1$ ,  $SD = 6.6$ ). The majority (86.4%) were females and 45% were compound caregivers. The most commonly reported diagnosis of their care-recipients was that of an autism spectrum disorder (63.7%), followed by an unspecified developmental disability (27.5%) or intellectual disability (26.5%). About 50% of the respondents indicated that they lived with a chronic medical condition, such as arthritis, diabetes, heart disease.

**Preliminary Results:** Although the overall QOL of the caregivers did not significantly improve after participating in the project, one of the four domains showed significant improvement. Participants reported significant improvement in the social domain ( $t=2.22$ ,  $p=0.03$ ,  $df=146$ ) because they reported better personal relationships ( $t=2.03$ ,  $p=0.04$ ,  $df=144$ ), support from friends ( $t=-2.24$ ,  $p=0.02$ ,  $df=146$ ). Significant improvements were also observed in an item each in psychological (self-satisfaction:  $t=-3.14$ ,  $p=0.002$ ,  $df=145$ ) and environmental (available information:  $t=-2.17$ ,  $p=0.03$ ,  $df=147$ ) domains.

**Conclusion:** Despite lifestyle changes forced on families due to the pandemic, caregivers who received peer-mediated family support to navigate complex systems of care reported better QOL outcomes in social, psychological, and environmental domains.

# Preliminary results from Michigan Older Caregivers of Emerging Adults with Neurodevelopmental Disabilities (MI- OCEAN) Family Support Project

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**CATEGORY: Neurological**

Wednesday June 23, 2021

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Questions for Feedback: How can occupational therapist improve the QOL of adults with developmental disabilities?  
What is the role of occupational therapy in such multi-disciplinary family support projects?

Funding Source: Michigan Health Endowment Fund

## ABSTRACT

**Introduction:** While severe traumatic brain injury (TBI) is relatively rare, mild TBIs (mTBI) are increasingly common. Although once considered benign, individuals with a history of 2+ mTBIs are at risk for permanent physical, cognitive, emotional, and sleep deficits. A population particularly vulnerable to repeat mTBI is competitive athletes, yet the factors that increase risk of repeat injuries are unknown. Limited self-awareness following mTBI may contribute to increased risk. Self-awareness includes offline awareness (knowledge of deficits before a task), and online awareness (the recognition of and adaptation to deficits during a task). While individuals with more severe TBI often have online and offline awareness deficits, less is known about mTBI. We hypothesize that athletes with mTBI may have knowledge of their deficits (i.e. intact offline awareness) but are unable to recognize and adapt to mistakes in the moment (i.e. online awareness deficits). This “Work-In-Progress” is a prospective NIH grant proposal designed to evaluate offline awareness (Aim 1) and online awareness (Aim 2) in athletes with recent mTBI and matched, non-injured controls.

**Methods:** We will use a speeded flanker task to evaluate self-awareness in athletes with recent mTBI and matched, non-injured controls. We will acquire both behavioral—error rates and response times—and electroencephalography (EEG) metrics of performance—specifically, event-related potential (ERP) components that represent “real-time” error recognition (ERN) and performance adjustment (Pe). For Aim 1, we will provide participants instructions and opportunities to practice the task and then ask them to predict their accuracy. To evaluate offline awareness, we will compare predicted accuracy to actual error rates. For Aim 2, we will evaluate online awareness by measuring error rates, response times, and the amplitude and latency of ERP components, ERN and Pe. We predict both groups will demonstrate offline awareness (i.e. have similar correlations between predicted and actual performance). However, we expect athletes with recent mTBI to demonstrate online awareness deficits (e.g. higher error rates and/or attenuated ERP amplitudes reflecting less error detection and adaptation) compared to controls.

Questions for Feedback:

- 1) Will our proposed methods allow us to address our study aims?
- 2) Are there other measures of offline or online awareness we should consider?

**Conclusion:** Our findings could describe the unique sequelae of self-awareness deficits in mTBI and potentially identify a factor that contributes to higher rates of repeat injury in athletes. Such findings could inform return-to-play evaluation and intervention protocols. For example,

# Self-Awareness in Athletes with and without Mild Traumatic Brain Injury

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protocols designed to practice in-the-moment adaptations may help individuals with mTBI develop the “real-time” (online) awareness to reduce the risk of repeat mTBI and decrease the possibility of long-term deficits.

Potential Funding Source: NIH NINDS R21

## ABSTRACT

### Introduction:

Individuals recovering from stroke face many barriers to health care and commonly need more extended rehabilitation training and more practice than they can receive in traditional face-to-face settings. While therapists have attempted to overcome the barrier through home exercise and telerehabilitation programs, patient compliance is often an issue that hinders intervention effectiveness.

### Purpose:

The first aim of this systematic review is to determine the compliance of telerehabilitation programs for upper extremity (UE) functioning in individuals with stroke. The second aim is to identify the possible supports and barriers of telerehabilitation compliance for stroke survivors.

### Methods:

We used three expanded keywords (stroke, UE, telerehabilitation) to search for articles published before July 2020 in PubMed, Medline, CINAHL, Embase, and Cochrane databases. Title/abstracts and full text of articles were reviewed separately by two pairs of reviewers for inclusion criteria. Articles discussed and/or measured patient compliance were further identified. Themes for supports and barriers to patient compliance in the articles were analyzed and consolidated.

### Results:

Out of the 157 articles using telerehabilitation interventions for UE functions in stroke, 50 articles discussed the compliance of the telerehabilitation services. Specifically, 23 studies included particular measurements in determining patient compliance. Compliance was classified as excellent, good, adequate, poor, or very poor, depending on reported compliance. The majority of articles (n = 18) were categorized as "adequate" (defined as greater than 80% of compliance). Eight support themes of compliance were identified: (1) frequency of interaction, (2) immediate feedback, (3) user-friendly tele-devices, (4) program usage tracking, (5) gaming features, (6) requirement of a behavioral contract, (7) participant autonomy, (8) auto-adjusted programs. Six barriers were: (1) poor device design, (2) technical issues, (3) no patient-therapist interaction, (4) inadequate just-right-challenge, (5) long training session, and (6) limited technology experience.

### Conclusion:

As the increasing trend of using technology to extend rehabilitation services for patients, it is important to understand the factors that assure

# Compliance of Telerehabilitation Programs for Upper Extremity Functioning in Individuals with Stroke: Supports and Barriers

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compliance of telerehabilitation programs. This review provided summarized information on compliance supports and barriers to help improve the effectiveness and the sustainability of telerehabilitation programs. Future designs of telerehabilitation programs implementing the supports and minimizing the barriers will be expected to better serve stroke survivors remotely. More high-quality studies are needed to compare compliance factors between groups.

Funding Source: N/A

## ABSTRACT

Introduction: An interview guide based on the theory of Occupational Adaptation is being used to investigate the relationship between occupational choice and occupational adaptation. Occupational adaptation is an internal, normative human process that occurs within all occupation-based behavior. During times of transition or stress, the ability to generate adaptive responses to one's occupations is challenged. Theoretically, self-selection of pleasurable occupations (such as a leisure pursuit, cherished relationship or dream job) over which a person enjoys relative mastery, helps generate adaptive responses in challenging required occupations (such as self-care, social obligation or employment).

The primary research question is, What is the relationship between occupational choice and occupational adaptation? More specifically, What is the relationship between occupational choice and occupational adaptation in times of transition for those who identify with an occupational role in the arts?

The hypothesis is that in times of stress and transition (such as experienced during a pandemic) turning to an occupation in the arts that is accompanied by feelings of relative mastery will generate adaptive responses which generalize to required occupations that demand an adaptive response. A primary assumption is that people who identify with a role in the arts, actually have a sense of relative mastery in that role.

Methods: This mixed-methods correlational study uses both quantitative and qualitative data from interviews being conducted on Zoom. Participant recruitment is occurring via networking and snowball sampling among community-based groups and guilds (eg. orchestra, theater, visual arts, dance, sewing and crafting). The data gathering protocol involves using 'share screen' mode and Google slides to facilitate a collaborative interview process. Data include Likert scale responses accompanied by qualitative comments repeated for each occupational role.

Questions for Feedback: What are the limitations of an interactive video interview that need to be addressed in the research analysis and report? How does the researcher address inconsistencies between quantitative data (self-reported) and qualitative data (self-reported and observed)? What are next steps in this line of research?

Conclusion: Within Occupational Adaptation practice, one goal of occupational therapy is to use strengths that generate feelings of relative mastery, as experienced in pleasureable occupations, to facilitate the generation of adaptive responses that will generalize to troublesome occupational challenges. Although this concept has been promoted, it

# Exploring Occupational Choice and Adaptation via Virtual Interviews

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remains theoretical-- this inquiry aims to reveal direct evidence of the relationship between relative mastery in one occupation to adaptive responses within a challenging occupation.

Funding Source: NA

## ABSTRACT

**Introduction:** Obesity is linked with fall risk due to psychosocial and physical characteristics. After experiencing weight loss following bariatric surgery, individuals improve physical characteristics related to fall risk. However, little is known about the possible changes in psychosocial factors, such as self-efficacy and fear, after surgery or if those factors are associated with physical factors related to falls. The purpose of this study was to conduct a longitudinal examination of psychosocial and physical factors associated with falls in adults before surgery, then 4 months and 8 months after surgery. We hypothesized that weight loss induced by bariatric surgery would increase self-efficacy, decrease fear of falls, and improve walking characteristics associated with falls.

**Methods:** Fourteen adults (10 women, 4 men, Mean age= 48.36 years old, SD= 12.28, BMI= 42.45, SD= 4.66) scheduled to undergo Roux-en-Y bariatric surgery were recruited from weight management and bariatric surgery clinics at Boston Medical Center and Massachusetts General Hospital. Participants completed three visits to the Motor Development Laboratory: before surgery, 4 months after surgery, and 8 months after surgery. Walking self-efficacy was measured using the Modified Gait Efficacy Scale (MGES) and fear of falls was measured using the Tinetti Falls Efficacy Scale (TFES). Walking characteristics (length and width of steps, time spent balancing on two feet, and walking speed) were collected as participants walked on a pressure sensitive walkway (Protokinetics, LLC; Peekskill, NY, USA). The Functional Gait Assessment (FGA) was used to assess dynamic balance.

**Results:** Lower fear of falls was correlated with longer step length 4 months after surgery ( $r(10) = -.584, p < .05$ ) and with narrower step width 8 months after surgery ( $r(11) = .625, p < .05$ ). Self-efficacy was not correlated with any of the walking characteristics. No significant changes in self-efficacy and fear of falling over visits emerged. As expected, Physical factors (i.e., walking and balance) improved after surgery. Participants took narrower steps and spent less time on both feet from before to 4 months after surgery (all  $p < .05$ ). From before to 8 months after surgery, participants walked faster, spent less time on both feet, and took longer and narrower steps (all  $p < .05$ ). Balance also increased from before to 8 months after surgery (FGA Mean Difference score= 2.87, SD= 3.93).

**Conclusion:** As expected, less fear of falling was correlated with improved walking at 4 and 8 months after surgery. Occupational therapy services may help to align improvements in physical factors with psychosocial factors associated with falls after bariatric surgery.

**Funding Source:** NIH R03AR066344 (PI: Simone V. Gill)

# Beyond weight loss: Changes in psychosocial and physical factors four and eight months after bariatric surgery

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**CATEGORY: Other**

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## ABSTRACT

**Introduction:** Anxiety and depressive symptoms across physical disability inpatient rehabilitation (IPR) patient groups are common, affecting approximately one in four patients. Patients who experience anxiety and depressive symptoms during IPR have increased mortality and decreased quality of life, disability recovery, and independence with self-care. Patients also report frustration over a lack of patient-centered mental health care and that physical recovery is often prioritized at the expense of mental recovery. The occupational therapy (OT) profession is uniquely qualified to address both physical and mental sequelae of disability by receiving advanced training in both physical and mental recovery. However, it is unclear how OTs are addressing anxiety and depressive symptoms in the IPR setting. This systematic review sought to identify OT interventions to address anxiety and/or depressive symptoms within the physical disability IPR setting and determine the efficacy of the evidence.

**Methods:** A University librarian assisted in the development of the search strategy for nine databases. Articles were considered for inclusion if they were full-text, peer-reviewed, U.S.-based, in English, controlled clinical trials or randomized controlled trials, conducted in an IPR setting, and interventions were within the OT scope of practice. Two reviewers independently completed title and abstract screening, with disagreements resolved by consensus. The same process was repeated for full-text review and data extraction. The evidence was appraised utilizing Let Evidence Guide Every New Decision (LEGEND) and Cochrane Risk of Bias assessments.

**Results:** The search yielded 8,082 articles. Five articles (0.06% of articles) met inclusion criteria. Diagnoses included stroke (n=1), traumatic brain injury (n=1), spinal cord dysfunction (n=1), and musculoskeletal conditions (n=2). Study participants from all five studies were primarily middle-aged, non-Hispanic White males (mean ages ranged from 32-78 years). Results provided information on three categories: 1) type of interventions (behavioral and cognitive frameworks), 2) intensity of interventions (brief duration interventions supported mental health), and 3) study design (categorized as level 2b, indicating lower quality randomized and clinical controlled trials according to the LEGEND framework).

**Conclusion:** There is limited, lower-quality evidence documenting OTs addressing anxiety and depressive symptoms within the physical disability IPR setting. Further research using rigorous methodologies

# Occupational Therapy Interventions for Anxiety and Depressive Symptoms in Physical Disability Inpatient Rehabilitation – A Systematic Review

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among demographically and clinically diverse patient groups is warranted. This systematic review provides foundational knowledge regarding how OTs are addressing anxiety and depressive symptoms in the IPR setting and can guide future research to facilitate physical and mental recovery.

Funding: Unfunded work.

## ABSTRACT

**Introduction:** The everyday life of informal caregivers of individuals with dementia is significantly shaped by their caregiving experience. While attention has been given to the everyday experience of dementia caregivers during the active phase of caregiving, less is known about the experience of caregivers following the death of their loved one. This study explores the experience of spousal dementia caregivers (SDCs) to better understand the different ways they conceptualize their experiences during the bereavement phase of the caregiver journey. These conceptualizations illuminate key features of the bereavement experience and provide contextual understanding of the everyday lives of SDCs.

**Methods:** In-depth interviews using a phenomenographical approach were conducted with 10 women who had been primary caregivers to their spouse with dementia prior to their death. Data analysis followed Dahlgren and Fallsberg's seven steps for phenomenographic analysis.

**Results:** Four qualitatively different ways the SDCs conceptualized the experience of the bereavement phase of the caregiver journey were identified through the data analysis process: 1) the bereavement phase as an extension of caregiving, 2) the bereavement phase as moving on from caregiving, 3) the bereavement phase as an evolving process, and 4) the bereavement phase as a time for personal growth. These four conceptual categories constitute the outcome space and serve to describe the SDCs' understandings of everyday life during the bereavement phase of the caregiver journey. SDCs did not understand their experience during the bereavement phase from only one of these categories, or perspectives, at a time. Rather, due to the dynamic and reciprocal nature of our outcome space, SDCs often occupied more than one category at any given time during the bereavement phase. Furthermore, each category had the potential to influence other categories within the context of everyday life during the bereavement phase of the caregiver journey.

**Conclusion:** The caregiver journey, including bereavement, constitutes a complex, lengthy and significant life experience for SDCs that impacts many, if not all, facets of their lives. This study provides a crucial step in building our knowledge of how to best address the supports and services for SDCs within the context of the bereavement phase of the caregiver journey. By examining how SDCs, themselves, understand or conceptualize their experience during the bereavement phase of the caregiver journey, we capture a clearer contextual understanding of their everyday life. With the number of caregivers rising to meet the growing needs of an aging population, it is essential for therapy-focused professionals to understand the caregiving experience in a more in-depth way. With this understanding,

# Life After Caregiving: A Phenomenography of Spousal Dementia Caregivers' Conceptualizations of Life During the Bereavement Phase of the Caregiver Journey

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therapists are more prepared to provide informed and meaningful supports and services to SDCs during the bereavement phase of the caregiver journey.

Funding Source: N/A

## ABSTRACT

**Introduction:** Regular exercise is a well-established treatment for people with Parkinson's disease (PD) and can improve motor and non-motor symptoms. However, people with PD are less active than their peers without PD, in part due to barriers of fatigue, depression, and lack of knowledge on appropriate exercise modifications. During the COVID-19 pandemic, additional exercise barriers have emerged resulting in the cancellation of many community-based classes and encouraging virtual exercise possibilities. The purpose of this study was to describe exercise patterns, barriers, and needs for in-person and virtual exercise during the COVID-19 pandemic in people with PD who regularly attended exercise classes prior to the pandemic.

**Methods:** Electronic surveys were distributed through PD association listservs, exercise instructor databases, and professional networks. All participants consented electronically, had a self-reported diagnosis of PD, were 45-85 years old, and prior to the COVID-19 pandemic attended  $\geq 1$  exercise class/week for  $\geq 3$  months. The survey included standardized assessments (Godin Leisure Time Questionnaire [GLTQ], Schwab and England Activities of Daily Living Scale [S&E]), and custom-designed questions. Descriptive statistics were used to characterize the data.

**Results:** There were 84 survey completers ( $70 \pm 7$  years old, 51% female, 93% Caucasian) from September 2020-January 2021 from 13 US states. The mean S&E score was  $84 \pm 16$  indicating independent function but with noted slowness. At the time of the survey, 65 (77%) participants were categorized as "active" on the GLTQ, yet 49 (58%) reported a decrease in overall exercise amount and 47 (56%) reported a decreased in exercise intensity. The two most common general barriers to exercise were less motivation (32, 38%) and higher fatigue (21, 25%). Specific to in-person classes, participants indicated fear of COVID-19 exposure for self (53, 63%) or family (40, 48%) as top participation barriers. While half of the respondents reported no barriers for virtual classes (44, 52%), the other half cited lack of socialization (17, 20%) and accountability (13, 15%) as top barriers. When considering future needs, participants indicated they need to feel safe from COVID-19 exposure if resuming in-person exercise classes (47, 56%), help staying generally motivated (23, 27%) and accountable in virtual classes (16, 19%).

**Conclusion:** While respondents mostly remained active, there was an overall decrease in frequency, duration, or intensity of exercise participation. For people with PD, reduced activity could lead to functional decline and symptom exacerbation and it is imperative to find ways for people with PD to exercise safely. Additionally, motivational and behavioral interventions

## Exercise Patterns in a Virtual World: Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic

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might help people to return to higher levels of exercise during, and following, COVID-19 restrictions for both in-person and virtual environments.

Funding Source: REDCap funded by CCTSI Grant NIH/NCATS UL1-TR001082

## ABSTRACT

Introduction: Chronic insomnia is a prevalent condition negatively impacting the health and daily functioning of many Veterans. Occupational therapy is focused on helping individuals maximize

performance and participation in their daily activities. Sleep is our largest occupation consuming around 1/3rd of our lives and sleep challenges create barriers to daily goals. We hypothesized that

sleep quality is positively associated with daily goals, functioning, and participation. Methods: We recruited a convenience sample of 45 student Veterans to participate in occupational therapist-led Cognitive Behavioral Therapy for Insomnia (CBT-I). We collected pre- and post-intervention data on sleep quality and daily functioning using the PROMIS Sleep scales and the Canadian Occupational Performance Measure (COPM), respectively. The COPM assesses one's perceived performance and satisfaction across five pre-selected domains of daily functioning. We examined un-adjusted pre/post changes for both constructs using paired t-tests and we examined the association between sleep quality and daily functioning over time using multivariable linear mixed models to account for the correlation of repeated measures within participants. The results represent a preliminary analysis of the first 16 participants. Results: The preliminary sample included 14 males and 2 females who were fully matriculated

students at Colorado State University. Mean (standard deviation) age was 32.1 (6.6) years. Un-adjusted analyses demonstrated significant ( $p < .05$ ) improvements in sleep quality, perceived performance in daily functioning, and satisfaction with daily functioning. Similarly, the

multivariable regression analyses yielded significant associations between changes in sleep quality and both performance and satisfaction with daily functioning over time. Questions for Feedback: 1.

Are there other measures that could have been used that could have led to different results? 2. Is there a better way to present the results for clinical interpretation and/or application? 3. What would be a logical next step (or study) in establishing the evidence base for OT-led sleep interventions?

Conclusion: Perceived performance and satisfaction with daily functioning can be enhanced through effective occupational therapy interventions targeting improvements in sleep

quality in student Veterans. This is important to occupational therapy as sleep is often not addressed but could be vitally important to positive outcomes in any area of OT. Additional research is needed to evaluate the variability in the improvements in daily functioning and to

# Are the Goal Components of the Canadian Occupational Performance Measure (COPM) Effected by Changes in Sleep Quality?

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determine whether these effects are maintained longer-term. Funding Support: The Restoring Effective Sleep Tranquility "REST" project was supported by funding from Wounded Warrior Project and an anonymous gift to the New Start for Student Veterans Program at Colorado State University.

## ABSTRACT

### INTRODUCTION

Industrial work accidents impact the employees as well as the company. Especially for middle aged employees, it is important to recover their work ability within a short period of time because they have the burden of both raising their children and caring for their elderly parents. Decline of their work ability affects not only their own physical or emotional health but also the economic stability of their family.

Finding predictors to improve work ability and utilizing them for intervention or rehabilitation programs will effectively help the beneficiaries of industrial accident compensation insurance recover their work ability and this could lead to the reduction of the employer's costs.

The aim of this study is to identify and confirm the time-varying predictors of work ability enhancement among middle aged beneficiaries of industrial accident compensation insurance.

### METHODS

The longitudinal panel data from the Korean Industrial Accident Compensation Insurance which was released to the public for research will be used for this study. Research hypothesis is that social activity engagement and self-efficacy have positive effects on work ability. Variables were set based on the relationships between social participation, self-efficacy, and subjective health in geriatric studies.

Among the respondents who rated their work ability as under 70%, compared to work ability before accident, and their age as forties or fifties will be included for this study sample.

Fixed effect analysis with structural equation modeling will be conducted to confirm the causal effect of social activity engagement and self-efficacy on work ability. Applying this analysis to panel data makes it possible to control the time-invariant unobserved variables effectively. Stata 16 will be used for the analysis at 0.5 of p-value.

### QUESTIONS FOR FEEDBACK

1. Are two selected predictors appropriate variables for using in rehabilitation programs for beneficiaries of industrial accident compensation Insurance?
2. Except for work ability, which variables should occupational therapists be concerned about for older adults suffering from a workplace accident?

# A Study on Predictors of Work Ability Enhancement for Beneficiaries of Industrial Accident Compensation Insurance

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3. Is a fixed effect analysis with structural equation modeling approach the best statistical method for this study?

#### CONCLUSION

Based on results, I expect that it will be possible to suggest effective rehabilitation programs for improvement of work ability of middle aged employees who have had an industrial accident.

Also, further research will be suggested to protect their health for later life. Considering that the sample is middle aged employees, if they have a permanent disability, it may be required to provide customized health care services earlier than to other older adults.

#### POTENTIAL FUNDING SOURCE

This research will be supported by the BK21 FOUR funded by the Ministry of Education of the Republic of Korea and National Research Foundation of Korea.

## ABSTRACT

**Introduction:** Highly automated vehicles (AVs) may reduce the prevalence and severity of motor vehicle crashes and enhance older adults' (> 65 years old) mobility and safety. However, motion sickness experienced in AVs and simulator sickness experienced in automated driving simulators may negatively impact older drivers' willingness to accept this technology – thus preventing them from experiencing the potential benefits of AVs. Previous motion/simulator sickness research explores manual driving (i.e., without automation), whereas older adults' experience of motion/simulator sickness while riding in an automated shuttle or automated driving simulator is unexplored. The onset of these symptoms may be affected by sex (i.e., women are more prone to simulator sickness), mode of exposure (i.e., in vehicle on road vs. in cab simulator scenario), or age (old-old group, >75 years of age are more susceptible to simulator sickness compared to their younger counterparts). Researchers must therefore assess motion/simulator sickness prior to widespread deployment of AVs.

**Methods:** This randomized, crossover design study exposed 100 older drivers (Males, n = 46) to an automated shuttle and a driving simulator, both running in automated mode (Level 4, Society of Automotive Engineers International). The Motion Sickness Assessment Questionnaire (MSAQ; domains = sweatiness, queasiness, dizziness, nausea; self-report on a visual analogue scale) assessed motion or simulator sickness before and after exposures to the shuttle and driving simulator. The Wilcoxon signed-rank tests were used to compare participants' motion sickness or simulator sickness between AV exposures and the Mann-Whitney U tests to assess within group age (Old-old; n = 46) and sex effects. The Bonferroni correction controlled for multiple comparisons.

**Results:** The results revealed that older drivers experienced a statistically significant increase in symptoms in all four MSAQ domains (i.e., sweatiness,  $z = -3.072$ , queasiness,  $z = -4.973$ , dizziness,  $z = -4.537$ , nausea,  $z = -3.801$ ,  $p < .001$ ) after the simulator exposure, compared to the shuttle exposure. The sex and age effects were not significant ( $p$ 's > .05) and no older drivers dropped out of this study due to motion or simulator sickness.

**Conclusion:** Older drivers exposed to the automated driving simulator experienced an increase in simulator sickness symptoms—across the four domains compared to their experience in the automated shuttle. No age and sex differences were detected within the groups and no attrition occurred due to motion or simulator sickness. As such, the automated shuttle and driving simulator hold great promise for exposing older drivers to AVs, when carefully designed simulator sickness protocols are utilized.

# Older Drivers' Motion Sickness and Simulator Sickness After Automated Vehicle Exposure

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Funding Source: US Department of Transportation Office of the Assistant Secretary for Research and Technology (OST-R). Southeastern Transportation Research, Innovation, Development, and Education (STRIDE) Center: Project D2

## ABSTRACT

**Introduction:** Self-advocacy for students with learning disabilities (LD) and Attention-deficit Hyperactivity disorder (ADHD) has been identified as a key skill in contributing to college success. Self-advocacy for undergraduates with disabilities entails students 1) exhibiting self-awareness of self and rights, 2) communicating needs, and 3) engaging in leadership activities, for the purpose of accessing supports within educational contexts. While LD/ADHD-related understandings of self-advocacy exist within educational contexts, there is limited information about the specific self-advocacy behaviors undergraduates with LD/ADHD engage in within everyday life. This preliminary analysis explicates self-advocacy behaviors of undergraduates with LD/ADHD and the situations and contexts the behaviors occur in.

**Methods:** Thematic analysis was used to identify and describe latent patterns in the data regarding self-advocacy behaviors and contexts in which behaviors occurred. Participants were undergraduates (n = 15) enrolled with the campus disability center. Data were interviews (N = 15) collected to inform as to daily routines of undergraduates with LD/ADHD enrolled in a larger study. Open coding was used to identify passages describing advocacy-related actions and reasons for engaging in those actions. Further, the contexts in which advocacy-related actions occurred in were examined. Data were reduced to conceptual categories through an iterative process of discussion, code refinement, and constant comparison to the data. Rigor was enhanced by having multiple independent coders and achieving consensus.

**Results:** Two preliminary themes were identified: 1) actions for meeting personal goals and 2) actions for preventing potential symptom-related challenges. Engaging in self-advocacy behaviors required participants to understand which actions work under which situations and contexts. Self-advocacy behaviors included protecting daily routines, communicating with professors, managing LD/ADHD symptom-related impacts, and navigating social life. Primary reasons for engaging in self-advocacy behaviors included 1) protecting and adhering to personal schedules, 2) ensuring that important activities are prioritized, and 3) helping others they engage with understand their symptoms and in-context behaviors.

**Conclusions:** Findings suggests that self-advocacy behaviors entail intentional actions that were viewed by participants as beneficial for meeting expectations, progressing towards desired goals, and managing symptoms. While participant self-advocacy behaviors were frequent and purposeful, they were subtle and embedded within daily habits and routines as well as within social interactions.

# Subtle And Intentional Self-Advocacy Behaviors Of Undergraduates With Learning Disabilities And ADHD

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Funding source: This research is based upon work supported by the U.S NSF (HRD-1246587); supported in part the NIH, NICHD (K12 HD055929).

## ABSTRACT

**Introduction:** Recent research suggests that clusters of chronic conditions exist and more complex clusters are associated with poorer health outcomes. Less clear is the extent to which these clusters are associated with different types of disability over time. To further clarify this relationship, we first identified clusters of co-occurring chronic conditions, then tested whether any cluster experienced greater increases in disability over time in three types of disability: basic and instrumental activities of daily living (ADL, IADL) and functional mobility (FM). Knowing this information will help stakeholders in the health of older adults to identify groups who may be at increased risk of developing disability.

**Methods:** This was a longitudinal study using data from the National Health and Aging Trends Study (NHATS). Participants were 6,179 community-dwelling older adults (aged 65+ years). The chronic condition variables were yes/no presence of 11 common chronic conditions. Covariates were gender, minority status, age, and education. We derived the disability outcome variables (ADL, IADL FM) from rounds 5-8 of NHATS. Using latent class analysis, we determined the optimal clusters using fit statistics and clinical interpretability. Each person was assigned to their “best-fit class” based on highest probability of group membership. Next, we used mixed-effects models with repeated measures to examine the effects of group (best-fit class), time (years from baseline), and the group by time interaction on each of the outcomes in separate models.

**Results:** We identified 5 clusters: “multisystem morbidity” (13.9% of the sample), “diabetes” (39.5%), “osteoporosis” (24.9%), “cardio/stroke/cancer” (4.5%), and “minimal disease” (17.3%). Group by time interaction was not significant for any outcome, meaning no group experienced greater increases in disability over four years. For ADL outcome, only time was significant ( $F_{3,16249} = 224.72$ ,  $p < .001$ ); i.e., there was no group difference, but all groups changed over time. For IADL, both group ( $F_{4,5403} = 6.62$ ,  $p < .001$ ) and time ( $F_{3,22622} = 3.87$ ,  $p = .009$ ) were significant. For FM, both group ( $F_{4,5920} = 2.96$ ,  $p = .02$ ) and time were significant ( $F_{3,16381} = 213.41$ ,  $p < .001$ ).

**Conclusion:** We found evidence for clusters of chronic conditions and evidence for differences in IADL and FM disability among clusters compared to “minimal disease”. However, we did not find evidence that any cluster experienced greater increases in disability over time. This evidence suggests all clusters containing multiple chronic conditions carry risk of disability. Increased screening for IADL and FM disability in primary care could help identify early disability and prevent future decline.

# Clusters of Chronic Conditions and Associated Trajectories of Disability

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## ABSTRACT

**Introduction:** Carpal tunnel syndrome (CTS) is the most prevalent and expensive upper-extremity musculoskeletal disorder in the United States. Previous studies that evaluated patient education materials for CTS showed that the majority of online health materials contained limited and unreliable information, which might contribute to poor healthcare outcomes. This study focused on evaluating the strengths, weakness, and inconsistencies in recently-published CTS patient education handouts, and identifying the best resources for occupational therapy practitioners and clients to use.

**Methods:** We conducted a systematic, quantitative document review on CTS patient education handouts available on the internet. The handouts were identified using an internet search with 8 different combinations of search terms on Google and Bing and a manual search of the websites of professional associations and large healthcare organizations. Two researchers independently screened the top 50 internet search results and the manual search results. Any downloadable site or document identified as general patient education for CTS was included; descriptive websites, videos, blogs, research studies were excluded. We conducted content analysis using a revised version of the Information Score (IS) tool to evaluate completeness of information (i.e., symptoms, diagnosis, treatment options) [0%-100%]. We identified misleading recommendations based on the results of a meta-synthesis of CTS clinical practice guidelines. Quality analysis was conducted using the Patient Material Assessment Tool (PEMAT) [0-100] and two widely-used readability indices, Flesch Reading Ease (FRE) and Flesch Kincaid Grade Level (FKGL). We ranked the handouts using a 12-point scale based on results of content and quality evaluations.

**Results:** Of 805 unique search results, we included 56 handouts. The average IS was 74.6% + 17.6%. 76.8% of the handouts recommended interventions that are not supported by professional practice guidelines (e.g., NSAIDS, Vitamin B6, yoga). The average PEMAT score was 70.3% + 11.1% and the average readability grade level was 7.8 + 1.8. The median overall score was 5 out of 12, and only 3 handouts scoring above 7 points, the highest scoring 10 out of 12 points.

**Conclusion:** This study revealed a lack of reliable and understandable CTS patient education handouts on the internet. Findings of this study can help practitioners and clients to identify the best materials and avoid adverse health outcomes. The patient handout evaluation protocol established in this study can also support improvements in the quality of health information available to patients with CTS.

**Funding Source/Potential Funding Source:** None

# Evaluating the Quality and Content of Printable Patient Education Handouts for Carpal Tunnel Syndrome on the Internet

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**CATEGORY:** Other

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## ABSTRACT

**Introduction:** Ergonomics consultations and education have limited, short-term impacts, often due to habitual/routine engagement within a workplace. Without on-going, individualized interventions, behavioral patterns such as poor posture are often difficult to change. Artificial intelligence (AI) could provide such on-going monitoring and real-time feedback. We have identified user preferences, observed worker behavioral patterns, and developed initial AI algorithms, and we are currently determining how to best integrate these components to implement AI most effectively in real-life office settings.

**Methods:** We conducted 6 focus groups with 45 office workers to understand preferences for sensing/feedback by an AI system intended to improve well-being. Focus group interviews indicated the importance of a workstation that supports productivity while maintaining privacy, as well as the complexity and range of preferences in communication methods. In a separate pilot study, we recorded 20 workers engaging at an office workstation (HD and Kinect cameras) for 2 hours. We used Observer XT software to characterize behaviors at 4 levels: individual joint angles, duration of static/dynamic movements, body positioning in space, and activities and tasks. Using Kinect data, we developed computer vision algorithms to estimate joint angles which we validated against observational coding (>90% accuracy). 3 types of postural behavioral emerged: static with sustained postures, moderate with occasional shifting, and dynamic with frequent shifts. We are currently coding body positioning idiosyncrasies and work activities, and we will examine if patterns or associations exist across the 4 levels of behavioral data.

**Questions for Feedback:** Our interdisciplinary team is determining how to integrate these findings into the AI system to train and inform decision making based on sensed high-risk behaviors and to develop communication processes that are least intrusive.

- 1) Should risk determination be time-based, risk-based, or some combination? If time-based should it be accrual (i.e., sum of short durations of high-risk postures) or sustained duration? What thresholds should be used to determine when posture or behaviors are increasing risk? What else should be considered in the data sampling for AI risk assessment?
- 2) What activity, mood, or other worker/work indicators might the AI use to avoid being disruptive? What type of biofeedback or communication should we consider for postural improvement? How can AI address space/equipment issues potentially causing poor postures (e.g., chair height, monitor location)?

# Developing an Artificial Intelligence Office Workstation to Support Health and Well-being

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Conclusion: Observational data can provide support to develop robust AI systems that are useful and acceptable to users. Identification of appropriate sensing and feedback methods will result in an AI workstation that can provide the necessary on-going support to promote and reinforce positive worker behaviors.

Funding Source: NSF/CMMI Grant #1763134

## ABSTRACT

### Introduction:

One in 59 children in the United States are diagnosed with Autism Spectrum Disorder (ASD). Children with ASD present with social-communication deficits, restrictive/repetitive behaviors, and challenges in managing sensory environments. Emergency departments (ED) present fast-paced, high stress, and sensory intensive environments, which may be particularly challenging for children with ASD and their families to negotiate. Rural communities often have less access to medical, technological, and financial resources compared to their urban counterparts. According to the U.S. Census Bureau, approximately 50% of all Wisconsin counties are classified as rural. We collaborated with community stakeholders, Aiming for Acceptance, and rural community EDs to educate, provide resources and recommendations, and implement strategies to help support children with ASD and their families receive appropriate care in rural Wisconsin EDs. We hypothesize that through a meaningful stakeholder collaboration to create sensory-friendly EDs, we can facilitate care for children with ASD and their families as well as medical providers.

### Methods:

Community stakeholders, faculty, and occupational therapy students reviewed the literature and conducted observations, interviews with a range of hospital stakeholders, and environmental assessments at three rural EDs in Wisconsin. Thematic analyses and data triangulation were completed. Member checking was conducted through a group meeting to assess the fit of the themes and strategies developed.

### Results:

Three themes (education, environmental modification, and support tools) were identified to create a more accessible ED environment. Based on identified themes, strategies were developed to support accessibility. Member checking confirmed the three themes. However, strategies and materials were modified based on the individual needs of the unique rural ED environments. The materials developed supported the ED experience from anticipating admission to discharge. Materials included a family check-in survey, social stories, waiting room options, sensory toolboxes, rooming checklist, HIPPA compliant method for identification of an individual with ASD in the ED environment, education materials on a variety of topics, modification of medical health records, and resource sharing for rural EDs in Wisconsin.

### Conclusion:

# Creating Sensory Friendly Emergency Departments in Rural Wisconsin

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## CATEGORY: Pediatrics

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Rural emergency departments were able to successfully integrate the recommendations developed by the research team and community stakeholders to increase the accessibility for ED care in Wisconsin for improved health outcomes for children with ASD and their families. Family and hospital staff report increased accessibility and knowledge to support children with ASD. Future directions will include collecting data related to decrease in hospital admissions from the ED, stress, restraint, and sedation of children with ASD pre-and-post ED modifications.

Funding Source: Baldwin Wisconsin Idea Seed Project Grant

## ABSTRACT

**Introduction:** Independent oral feeding is an important criterion for infants' hospital discharge. For preterm infants, hospitalization is often prolonged by the inability to eat safely and efficiently by mouth. Increasing survival rates of preterm infants present an urgent need to improve understanding of infant feeding problems. Measurement of heart rate variability (HRV) during feeding may provide insight into infant feeding readiness. HRV is a noninvasive physiological measurement that is widely acknowledged to represent autonomic nervous system activity resulting from the influence of the vagus nerve on heart rhythms. The sinoatrial node of the heart is innervated by a branch of the vagus nerve that also innervates structures involved in sucking and swallowing, including the soft palate and the pharynx. Stephen Porges' gustatory-vagal hypothesis proposes that in infants, gustatory stimulation elicits a vagus nerve response that decreases parasympathetic nervous system activity and mobilizes metabolic resources to facilitate ingestive behaviors (e.g. sucking and swallowing). Therefore, a literature review of studies that have examined this gustatory-vagal hypothesis may provide important insights into the link between autonomic nervous system function and infant feeding.

**Methods:** Articles describing peer reviewed studies that examined HRV during infant oral feeding were included in this literature review. Analysis of extracted data focused on methods of measuring HRV, infant state of arousal, feeding performance, and relationships between these variables.

**Results:** To date, thirteen published studies have measured infants' HRV during oral feeding. Most of these studies examined the changes in HRV across a feeding cycle (i.e. pre-feeding to feeding; feeding to post-feeding) and some examined HRV changes as infants develop. Most studies also examined how infant characteristics (e.g. birthweight, gestational age, and postmenstrual age) impact HRV responses to feeding. Overall, findings support the theoretical changes described by the gustatory-vagal hypothesis: parasympathetic activity decreases during feeding, then increases toward baseline levels after feeding. Across studies, methods for measuring HRV during infant feeding varied widely, infants' state of arousal was rarely noted, and feeding performance was not reported.

**Conclusion:** Heart rate variability measurement may provide important insights into infant feeding readiness, but more research is needed to develop guidelines for rigorous measurement of HRV during infant oral feeding. As a reflection of autonomic nervous system activity during feeding, HRV measurement could bolster the reliability and validity of observation-based methods (e.g. cue-based feeding) currently used to guide safe oral feeding. Ultimately, this would enhance evidence-based person-centered care in occupational therapy practice.

# Heart Rate Variability Measurement during Infant Feeding: A Literature Review and Discussion of Implications for Occupational Therapy Research and Practice

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Funding Source: T32 predoctoral training program (T32 DC0014435)

## ABSTRACT

**Introduction:** Looking capacities undergo rapid shifts across the first years of life and are a primary way infants explore their environment and interact during co-occupation with caregivers. In occupational therapy, limited research exists that considers longitudinal development of infant capacities during co-occupation, and how these may develop in relation to caregiver behaviors. Here we aim to a) model developmental trajectories of observed person and object looking of infants from 2 to 18 months of age, during the mother-infant co-occupation of play, and b) determine the extent to which maternal responsiveness during this play at 2 months predicts development of looking.

**Methods:** Looking capacities of 56 infants were behaviorally coded during two minutes of mother-infant play at 2, 6, 9, 12 and 18 months of infant age. Infant-mother dyads were recruited from a diverse community pediatric practice, with infants' gestational age at least 36 weeks and no delivery complications. Person looking was defined as the infant looking at the mother's face. Object (mother) looking was defined as looking at an object the mother was holding. Total duration (seconds) of each looking capacity was calculated. The Maternal Behavior Rating Scale was used to rate responsivity, sensitivity, and effectiveness on a 5-point Likert-type scale [low (1) to high (5)]. These scores were summed to calculate a Responsive/Child-oriented score. Latent growth curve models were used to obtain trajectories from 2 to 18 months of object and person looking and to determine if these were predicted by maternal responsiveness at 2 months.

**Results:** The person looking model indicated an intercept of 9.83 seconds ( $p < 0.01$ ) and a slope of  $-0.02$  seconds ( $p = 0.52$ ), but did not suggest a good fit. The object (mother) looking model had an intercept of 86.25 seconds ( $p < 0.01$ ) and a slope of  $-1.46$  seconds ( $p < 0.001$ ), and also did not have a good fit. Adding maternal responsiveness at 2 months to the models did not improve fit for person or object (mother) looking. Responsiveness trended toward prediction of person looking intercept ( $b = 1.18$ ,  $p = 0.08$ ), but was not associated with either slope (person or object) or object (mother) intercept.

**Conclusion:** Person looking remains stable, while object (mother) looking decreases across 2 to 18 months during play co-occupation; however, based on model fit, there appears to be substantial individual variability or additional influences beyond those studied here. During co-occupation at 2 months, mothers with higher responsiveness had infants who looked at them more. Occupational therapists should consider caregiver responsiveness when aiming to promote infants' looking at caregivers during play in early infancy.

# Developmental Trajectories of Infant Looking Capacities During Maternal-Infant Co-occupation

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## ABSTRACT

Introduction: Objective measures of therapy outcomes are essential in therapy documentation for reimbursement. Patient reported outcome measures (PROMs) are measurements of patients' health status for which the outcome value is derived directly from the patient's rating of their health status. PROMs add objective measurement to outcomes which therapists cannot measure directly in the clinic, such as patient's perceived functional abilities in activities of daily living, leisure interests, and work. Practice patterns of PROM utilization in pediatric hand therapy settings are unexplored. This knowledge is necessary to inform development of a PROM for the pediatric hand therapy population.

Because using PROMs during an episode of therapy is dependent upon therapists administering them, this descriptive study aims to understand hand therapists' experiences in outcomes assessment with pediatric patients. Specifically, this study aims to investigate the main research question: How do pediatric hand therapists describe their experience measuring treatment outcomes? Secondly, this study aims to elucidate therapists' perspectives of the outcomes that pediatric patients desire from hand therapy.

Methods: Twenty-five hand therapists practicing in pediatrics known to the primary investigator through a professional network were invited to participate in this study through an email announcement. Therapists meeting inclusion criteria were invited to participate in a one-on-one interview with the primary investigator over a teleconference link. An interview guide was used for all interviews which were recorded and transcribed in their entirety. The Principal Investigator (PI) maintained a reflexivity journal and met weekly with the collaborating author for peer debriefing. An audit trial, member checking and triangulation with existing literature were additional trustworthiness measures.

An iterative approach was used for data analysis so that data were collected until saturation of themes. The PI performed all coding using NVivo 11 Software. Transcripts were first read in their entirety and then line by line to abstract codes. Codes were compared and categorized using constant comparison. Then themes were developed by linking categories.

Results: Ten therapists responded to the initial recruitment announcement for a response rate of 40%. All ten participants who expressed interest in study participation completed interviews. Every participant was a hand therapist practicing in pediatric outpatient clinic settings in the U.S.

Four themes specific to the PROM utilization in pediatric hand therapy emerged. These themes include: The landscape of pediatric hand therapy

# Interpretive Descriptive Study Of Pediatric Hand Therapists' Experiences With Outcomes Measurement

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practice and PROM utilization, Barriers to using PROMS, PROMs add value, and Characteristics of an optimal PROM.

Conclusion: Study findings inform the design of a PROM with clinical utility for the pediatric hand therapy population.

## ABSTRACT

**Introduction:** Parent-infant interaction is a well-researched area in pediatrics, has important influences on child development, and is important for understanding the parental role and behaviors. Good parent-infant interaction is often defined by how the dyad engages in reciprocal and responsive play. Parent-infant interaction tools are tailored to infants from term birth onward and designed for implementation in a home or clinic environment. Parents of infants admitted in the NICU have early interactions in a highly medicalized and emotionally charged environment, making the assessment of parent-infant interaction in this setting a challenge.

**Methods:** 26 parent-infant dyads (born at less than 32 weeks gestation) had an assessment of parent-infant interaction between 34-38 weeks postmenstrual age while still hospitalized in the Level IV NICU. Parent-infant interaction was scored on the Nursing Child Assessment Feeding and Teaching Scales (NCAST). Medical and sociodemographic characteristics, many of which have previously been reported to be associated with parent-infant interaction, were explored for relationships to NCAST scores using independent t-tests and linear regression analyses.

**Results:** The sample scored poorly on the NCAST with 65% of the dyads obtaining a score under the 10th percentile cutoff. Two of the six subscales on the test returned consistently low scores across the sample. The cognitive growth fostering subscale had the majority of low scoring items, with six out of nine items demonstrating low total positive response rates (8% to 31%), followed by the responsiveness to caregiver subscale with six out of eleven items with total positive response rates between 0% and 27%. There were no relationships observed between medical and sociodemographic factors and NCAST scores.

### Questions for Feedback:

The nuances of interaction within the NICU are poorly understood. This leads to the question of whether parent-infant interaction is different in a NICU setting with premature infants as compared to interaction between parents and full-term infants at home. How does parent education on appropriate sensory input, awareness of cues, and restriction of multisensory input during complex activities in the NICU influence parent-infant interaction? Which aspects of infant interaction can be reasonably expected from hospitalized premature infants? Which items would be crucial to add to a measure specifically tailored to the premature population in the NICU?

# Measuring Parent-Infant Interaction in the NICU – a Dilemma

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Conclusion: The nuances of parent-infant interaction in the NICU are poorly understood and require additional research. There is an opportunity for future tool development to address this need in this unique population.

Funding Source:

This work was largely funded by the Gordon and Betty Moore Foundation.

## ABSTRACT

**Introduction:** Risky play is challenging, exciting play with the possibility of physical, social, or emotional harm. Through risky play, children learn, develop, and experience wellbeing. Children with disabilities have fewer opportunities than their typically developing peers to engage in this beneficial type of play. Our team designed a novel, school-based intervention to address this disparity; however, our intervention yielded unexpected quantitative results. In the present study, we qualitatively examined divergent results at two of the five schools that participated in the intervention. Specifically, we aimed to explore how staff culture (i.e., shared beliefs, values and practices) influenced the intervention.

**Methods:** We employed a retrospective, qualitative, multiple case study. We used thematic analysis of evaluative interviews with staff members to elucidate the cultures at each school. Then, we used cross-case analysis to understand the relationships between aspects of staff culture and the intervention implementation and results.

**Results:** Staff cultures around play, risk, disability influenced the way, and the extent to which, staff were willing to let go and allowed children to engage in risky play. Adults' beliefs about the purpose of play and recess, as well as their expectations for children with disabilities, particularly influenced the intervention. Furthermore, when the assumptions of the intervention and the staff culture did not align, the intervention could not succeed.

**Conclusion:** The results of this study highlight the importance of (1) evaluating each schools' unique staff culture before implementing play-focused interventions and (2) tailoring interventions to meet the needs of individual schools.

## ABSTRACT

# Early Gait Development In Rhesus Macaques Exposed To Zika Virus During Pregnancy May Provide Insight Into Late-Onset Balance And Coordination Deficits Observed In Children With In Utero Zika Exposure

Sabrina Kabakov, PhD student,  
University of Wisconsin – Madison

Emma Mohr, MD, PhD, University of  
Wisconsin – Madison

Karla Ausderau, PhD, OTR/L,  
Waisman Center and University of  
Wisconsin – Madison

**CATEGORY: Pediatrics**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

Introduction: Pregnant women infected with Zika virus (ZIKV) may transmit ZIKV to the fetus during pregnancy. About 10% of infants exposed prenatally to ZIKV are born with congenital Zika syndrome which involves severe birth defects, including motor deficits similar to cerebral palsy. An additional 30-40% of infants normal-appearing at birth, develop late-onset developmental delays, with about 17% of deficits related to motor function. A spectrum of developmental deficits affecting infants exposed in utero to ZIKV has not yet been clearly defined in human literature. Rhesus macaques allow for a controlled longitudinal study to conduct a range of comprehensive assessments to understand the full spectrum of deficits. We hypothesize that prenatal exposure to ZIKV in infant rhesus macaques will impact motor skill development as evidenced by decreased balance and coordination in early gait development.

Methods: Pregnant dams (adult female rhesus macaques) were injected with Puerto Rican ZIKV PRVABC59 (n=16) or a mock injection (n=7) at day 35-45 gestation. After birth, infants were placed in the Noldus CatWalkTMXT at 14, 21, and 28 (+/- 1) days of life to assess gross and subtle aspects of gait. At each time point, we collected at least 3 runs with at least two consecutive footfalls per limb. The data will be analyzed for duty cycle (percent of time the limb is on the ground), dual stance (percent of time an infant requires both front and hind limbs on the ground), and walking pattern (consists of three main limb placements of cruciate, alternate, and rotating). A linear mixed-effects model will be used to test for significance (p-value  $\leq$  .05).

Questions for feedback:

1. What are methods to consider implementing to address the heterogeneity of deficits of the ZIKV group, similar to autism spectrum disorder?
2. What early predictors in gait development in a non-human model may be helpful to identify late-onset gross motor delays?
3. In addition to detailed gait analysis using the CatWalk, what other behavioral variables may be important to assess in the home cage environment?

Conclusion: Findings of this study will provide important insight into how prenatal ZIKV is impacting balance and coordination. The three variables selected can provide detailed information on the infant's balance and coordination based on the time spent on the limbs and the ability to use a mature walking pattern. The results of this study can be used to develop a framework to help determine early indicators, such as early gait differences, of children at risk for late-onset developmental deficits. It is imperative to identify children early who are at risk for late-onset developmental deficits to improve child outcomes with early intervention.

Funding Source: National Institute of Allergy and Infectious Diseases; R0 1AI153130-01



## ABSTRACT

Communication and language are a vital part of everyday interactions that allow an individual's needs to be met, inform their identity and engage with others. However, when a child has communication deficits, such as childhood apraxia of speech, communication can be challenging (Beukelman & Light, 2020). This challenge tends to encourage the child to rely on communication partners to interpret their communication attempts including such behaviors as gestures, eye gaze, and verbalizations (von Tetzchner, 2015). As described by von Tetzchner, this gives the power to the communication partner (e.g., the parent). This in turn has the potential to affect the identity of the speaker. For example, a child may be trying to communicate hunger by pointing to fish to indicate they want goldfish for a snack; however, a communication partner might interpret their gesture as wanting to move closer to the classroom fish tank and thus the child's needs are not met.

Voice is part of one's identity; it allows an individual to express themselves, communicate with others in diverse ways and helps to identify oneself with a cultural group (e.g. African American Vernacular English vs. Standard American English). A child with communication deficits (or their parents) have to find alternative ways to 'perform' that part of their identity (Alper, 2017). In the case of children with communication deficits, parents often have the power to choose their child's voice, withhold a voice when they choose not to pursue alternative means of communication, and interpret their child's communication attempts as they see fit. These challenges are all compounded by the limitations of communication devices (e.g. finite number of words available, processing speed, etc.), which may have an impact on the identity formation individuals who use them as an alternative to spoken communication. In addition to this, "society tends to privilege oral speech over other forms of communication as a manifestation of truth" (Alper, 2017 p. 40). Being seen by society as not communicating the 'truth' has many unexplored implications around identity, relationships and participation in the community.

The purpose of the proposed single family case study is to explore the child's identity formation and the intersections of the child's communication deficits with the mother's relationship with her daughter and her own identity formation as a mother of a child with communication deficits. Through observation and interview I hope to answer two research questions (1) How does the relationship between a mother and daughter with communication difficulties evolve over time? And (2) How do the impacts of communication difficulties effect how this child's identity is formed?

Discussion Questions:

# Relationship Building, Identity Development and Communication Deficits: A Single Family Case Study

Susan Agostine, MS, OTR/L,  
University of North Carolina at  
Chapel Hill

**CATEGORY: Pediatrics**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

1. What other implications do you see in the intersection of communication (or lack of communication), relationship building and identity development?

## ABSTRACT

**Background:** Vagal nerve stimulation (VNS) has been shown to promote neuroplasticity and improve motor function in adults post-stroke when paired with a motor task. A non-invasive neuromodulator technique, transcutaneous auricular VNS (taVNS), was used to promote oromotor learning in infants who failed to achieve full oral feeds, with 55% successfully attained full oral feeds (responders, R) vs. 45% who received g-tube (non-responders, NR). We postulated that increased circuit activity during taVNS-paired feeding would also drive cortical plasticity and maturation of WM tracts related to feeding that would be reflected in infant motor movements related to the head and neck.

**Objective:** We hypothesized that taVNS treatment would affect Specific Test of Early infant motor Performance (STEP) and diffusion MRI (dMRI) in tracts related to early motor abilities: Infants who responded to taVNS treatment would show greater change in total STEP scores than non-responders and on specific STEP items relating to head control, and the change in WM fractional anisotropy (FA) would be greater in taVNS infants who performed high versus low on STEP items related to head control.

**Method:** In open-label, prospective cohort study, infants referred for a g-tube placement received taVNS paired with bottle-feeds daily for 2-3 weeks. We analyzed STEP scores and dMRI at the start and end of taVNS treatment period with paired and unpaired t-tests and Tract Based Spatial Statistics for whole brain dMRI.

**Results:** 19 infants had STEP scores and 18 had dMRI pre- and post-taVNS (n= 7 R, 12 NR). Total STEP scores were significantly higher after taVNS treatment in the R ( $p=0.04$ ), but not in the NR. Scores for the 4 STEP items involving head movements (head in supine with and without visual stimulation, rolling elicited by arm, and head movements in supported sitting) improved significantly in R ( $p<0.05$ ), but not in NR infants. Infants who performed well in the rolling by arm showed significantly greater change in FA in multiple WM tracts ( $p < 0.05$ ).

**Conclusion:** taVNS appears to impact early motor movements in the head and neck in infants who were able to achieve full oral feeds with taVNS paired oral feeding intervention. Early results provide support that tissue anisotropy is increasing more rapidly in high performing infants than their low performing counterparts, potentially showing increased WM structural integrity following this novel treatment.

National Center of Neuromodulation for Rehabilitation (NC NM4R). Center of Biomedical Research Excellence (COBRE) in Stroke Recovery supported by the National Institutes of Health under P2CHD086844 and P20GM109040

# Transcutaneous Auricular Vagus Nerve Stimulation (Tavns): Relationship To Motor Abilities And Neuroimaging In At-Risk Infant

Hannah Haskin

Shelby Davis

Amy Reiner

Turki Aljuhani

Hunter Moss

Bashar W. Badran

Dorothea Jenkins

Patricia Coker-Bolt

**CATEGORY: Pediatrics**

Wednesday June 23, 2021

12:50 – 1:30 p.m. MT

## ABSTRACT

**Introduction:** Early infant feeding is a complex motor task that requires coordination of a rapid sequence of sucking, swallowing, and breathing. Infants who do not succeed at early feeding are likely discharged with g-tube putting them at risk for worse neurodevelopmental outcomes than infants who achieve full oral feeds. In a first-in-neonates application, infants who failed to achieve full oral feeds received 2-3 weeks of daily transcutaneous auricular VNS (taVNS) paired with bottle feeding. With taVNS, 55% of infants in this study successfully attained full oral feeds (responders), but the long-term impact on development of this novel taVNS treatment remains unknown.

**Objective:** We hypothesized that at 18 months follow-up evaluation, infants who responded to taVNS treatment would show additional taVNS treatment effects: 1) Better Bayley-III scaled scores than non-responders and 2) More typical responses on the Toddler Sensory Profile-2 (SP2) caregiver questionnaire.

**Method:** This was a prospective study of infants enrolled at the Medical University of South Carolina, 33 infants have completed the taVNS feeding study. To date, 10 children have completed the 18-month follow up assessments with Bayley-III and 12 children have completed SP2 questionnaires to evaluate child's neurodevelopment and sensory processing abilities, respectively. Data were analyzed by ANCOVA.

**Results:** Confirming our hypothesis, all infants who responded (n= 7 responders, 5 non-responders) to early taVNS feeding treatment showed typical sensory processing scores in general, auditory, touch, behavior, sensory avoiding, sensitivity, and registration sections while non-responder children had atypical sensory processing scores. There was a statistically significant difference in SP2 results in the General Sensory processing behavior (p=0.04), with better scores in responders. Finally, responders had mathematically greater avg. Bayley III scaled scores than did non-responders (n= 6 responders, 4 non-responders) in the cognition (+1.6), receptive language (+0.3), fine Motor (+0.7), and gross motor (+1.6) scaled scores, but these were not statistically significant.

**Conclusion:** Responders to early taVNS treatment were significantly more likely to have normal sensory processing patterns than non-responders at an 18-month follow-up. We continue to follow this initial cohort of this study to further explore developmental and sensory processing differences between these two groups.

# First In-Neonate Use Of Non-Invasive Transcutaneous Auricular Vagus Nerve Stimulation: 18 Month Neurodevelopmental And Sensory Follow- Up

Turki Aljuhani

Patricia Coker-Bolt

Mark S. George

Bashar W. Badran

Dorothea Jenkins

**CATEGORY: Pediatrics**

Thursday June 24, 2021

12:30 – 1:30 p.m. MT

Funding: National Center of Neuromodulation for Rehabilitation (NC NM4R), Center of Biomedical Research Excellence (COBRE) in Stroke Recovery supported by the National Institutes of Health under P2CHD086844 and P20GM109040

# 2021 OT Summit Panels

AOTA and AOTF  
Research & Publication  
Priorities

Wed 23 June 9:30 - 10:10

Moderator

Stacey	Reynolds
Timothy	Wolf
MaryJane	Mulcahey
Wendy	Hildenbrand
Moses	Ikiugu

Equity and Justice Panel  
in Occupational Therapy  
Scholarship

Wed 23 June 12:00 - 12:50

Moderator

Arameh	Anvarizadeh
Kerri	Morgan
Khalilah	Johnson
Mansha	Mirza
Ginny	Stoffel

Community-Engaged  
Service and Scholarship

Thur 24 June 9:10 to 9:50

Moderator

James	Graham
Marla	Roll
Julie	Silver-Seidle
Matt	Malcolm
	Suarez-
Yolanda	Balcazar

Mentoring: Crafting a Culture of Scholarship

Thur 24 June 11:40 to 12:30

Moderator

Craig	Veloze
Cynthia	Li
Joy	Hammel
Emily	Kringle
Anita	Bundy
Patricia	Grady
Charles	Christiansen

Growing Scholarship: Early- and Mid-Career Perspectives

Fri 25 June 10:00 - 11:00

Moderator

Carol	Haywood
Jaclyn	Stephens
Ariel	Schwartz
Michelle	Woodbury
Mansha	Mirza

Sustaining Scholarship: Senior-Career Perspectives

Fri 25 June 11:10 - 12:00

Moderator

Mary	Lawlor
Kristie	Patten
Roger	Smith
Dorothy	Edwards
Timothy	Reistetter



# COMMITMENT TO PROGRESS

2021 OCCUPATIONAL THERAPY SUMMIT OF SCHOLARS

"OT RESEARCH SUMMIT"



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# RESEARCH POSTERS

**Transcutaneous auricular vagus nerve stimulation (taVNS): relationship to motor abilities and neuroimaging in at-risk infant**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Scoping Review of Art Interventions in Autism: Applications for Occupational Therapists**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Occupational Therapy Interventions for Anxiety and Depressive Symptoms in Physical Disability Inpatient Rehabilitation – A Systematic Review**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Anti-racism and Occupational Therapy Education: Beyond Diversity and Inclusion**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Comparison of cognitive and physical health items using big data between China, Japan, and Korea: A systematic review**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Developing an Artificial Intelligence Office Workstation to Support Health and Well-being**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Measuring Competency of Allied Health Professionals using Measure of Evidence-Informed Professional Thinking**  
 Wednesday June 23, 2021 10:50 – 1:30 p.m. MT  
 Virtual meeting

**Measure of EIPT**

- Critical Clinical Reasoning Scale:
  - ✓ item separation of 8.49 (0.99 reliability)
  - ✓ person separation of 2.93 (0.93 reliability)
- Evidence-Informed Practice Habits Scale:
  - ✓ item separation of 8.19 (0.97 reliability)
  - ✓ person separation of 2.57 (0.90 reliability)

Clinical Interpretation: distinguish 4.24 of each CCR strata and 4.24 strata with 95% confidence

Two scores are significantly correlated ( $r = -.778, p < .001$ )

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# Research Poster Award: Did you vote?

Below are 42 Research Posters presented on Wednesday June 23 at the OT Summit, please choose one poster you visited that you felt was exceptionally well done.

Factors that Contribute to Mini-BESTest Balance scores in Older Rural Dwelling Adults	How has the shift to telehealth affected person-centered care, quality of life and caregiver participation for persons with advanced CKD during the COVID-19 pandemic?
Spatiotemporal Gait Changes Following a 12-Week Yoga Intervention for Rural Older Adults	Exploring Tele-Exercise for Rural Care Dyads Living with Parkinson Disease: Results of a Qualitative Study
Participation Mediates the Relationship Between Post-Concussive Symptoms and Social Isolation among Veterans	Feasibility of Observing Goal Orientation in an Occupational Therapy Simulation
Scoping Review of Art Interventions in Autism: Applications for Occupational Therapists	Exercise Patterns in a Virtual World: Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic
Measuring Competency using the Measure of Evidence-Informed Professional Thinking	Behavioral and stress outcomes associated with a responsive feeding intervention
Well-being in Occupational Therapy Practitioners: Exploring Professional Quality of Life, Resilience, Stress and Self-Care Practices	Exploring Oral Health Beliefs and Experiences in Latino Families with Children with and without Autism: A Qualitative Study
The effect of participation in eight types of extracurricular activities on college students' mood	Measuring Parent-Infant Interaction in the NICU – a Dilemma

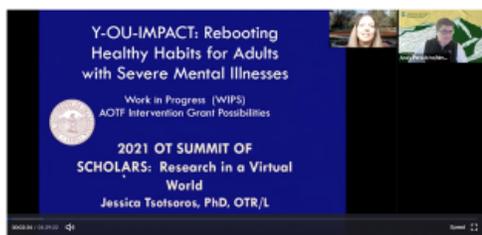
Below are 41 Research Posters presented on Thursday June 24 at the OT Summit, please choose one poster you visited that you felt was exceptionally well done.

Creating Seniors-Friendly Emergency Departments in Rural Wisconsin	Feasibility Study to Assess Procedure and Outcomes for Drivers using Autonomous In-Vehicle Technologies
Unique and Interactive Effects of Activity Performance, Sociodemographic Factors, and Insurance Type Upon Acute Care Occupational Therapy Utilization	Life After Caregiving: A Phenomenology of Spousal Dementia Caregivers' Conceptualizations of Life During the Bereavement Phase of the Caregiver Journey
The Association Between Inpatient Occupational Therapy and Outpatient Therapy Referral Rates After Breast Reconstruction: A Matched Case-Control Study	Are Occupational and Physical Therapy Associated with Duration of Cycled Use after Joint Replacement?
The Effectiveness of Cultural Competence Training for Healthcare Professionals in Rehabilitation	AccessPlace Stakeholder Product Validation: Southeastern Wisconsin I-Corps and Project IMPACT
Health Narratives as a Therapeutic Tool for Facilitating Health Care Access for People with Intellectual and Developmental Disabilities	Photovoice: Using Virtual Methods to Understand Occupational Therapy Students' Lived Experiences During the COVID-19 Pandemic
Predicting Community-based Employment for Young Adults with Intellectual Disability and Co-occurring Mental Health Conditions	Comparison of Gait Parameters Obtained During a Simulated IADL Task and Traditional Gait Assessment
Innovative Movement Strategies for Adolescents with Autism Spectrum Disorder: A Review of Practice and Professional Literature	Spiral Cord Injury-Movement Index (SCI-MI): Development and Preliminary Validation

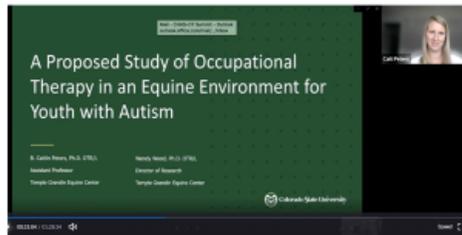
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## WEDNESDAY WORK IN PROGRESS SESSIONS (WIPS)



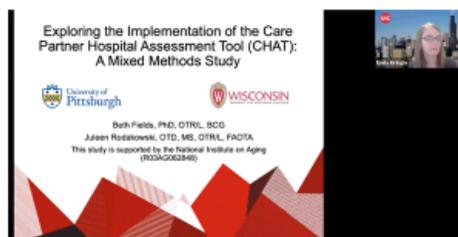
AOTF Intervention Grant Possibilities



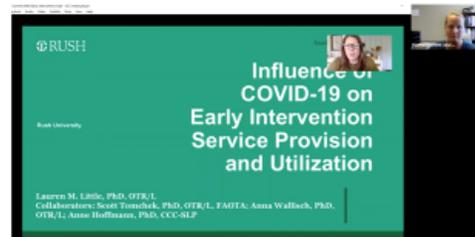
Autism Across the Lifespan



Performance in Degenerative Conditions



Perspectives on Multisite Collaboration



SARS-CoV-2 Service Delivery Impacts

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# THURSDAY WORK IN PROGRESS SESSIONS (WIPS)

Aging Well Despite Disability

Novel Technologies

Research in Pediatrics

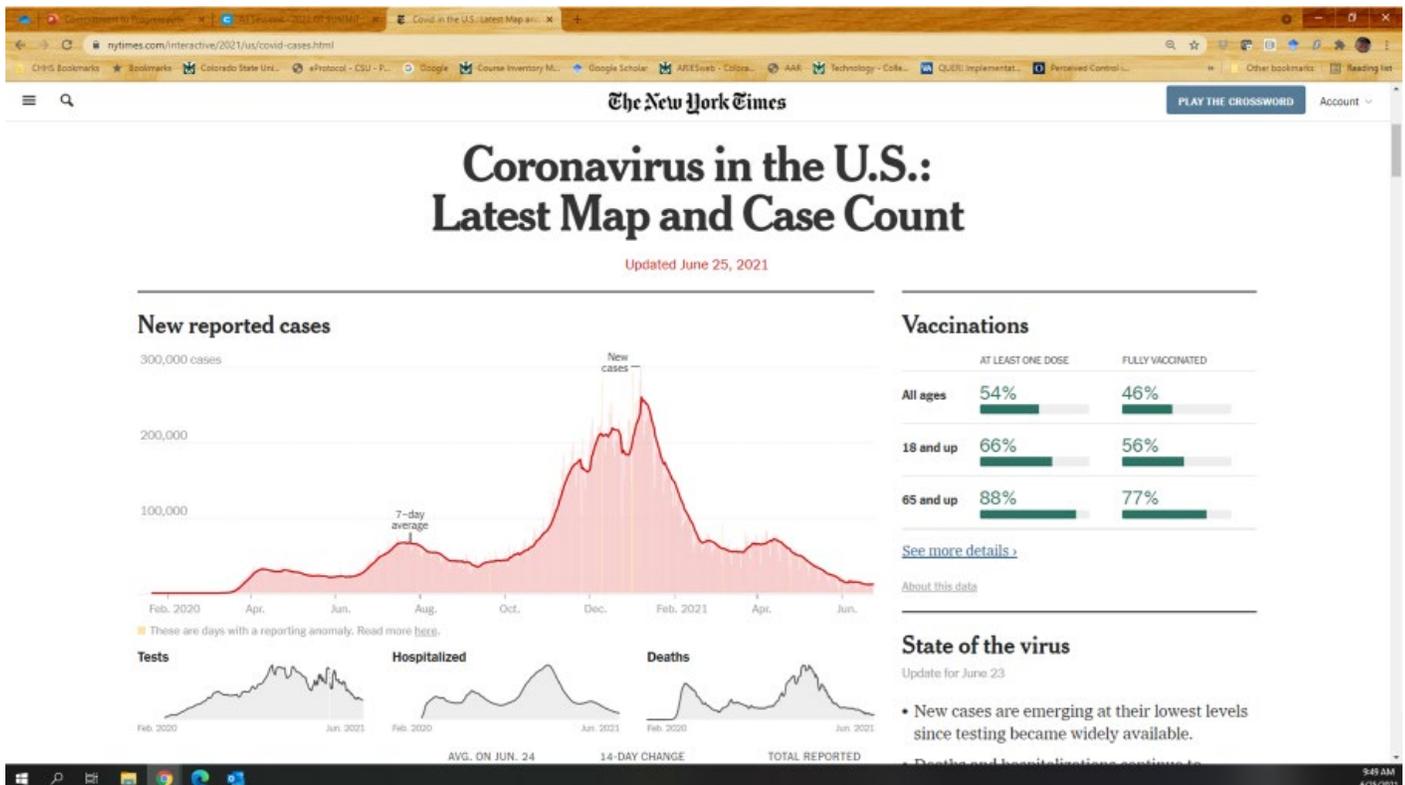
Implications for Community Practice

Post-Secondary Education Implications

Stroke Rehabilitation

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## WEDNESDAY PANELS

AOTA & AOTF Research and Publication Priorities

Equity and Justice in Occupational Therapy Scholarship

AOTA and AOTF Research & Publication Priorities



Equity and Justice in Occupational Therapy Scholarship



## THURSDAY PANELS

Community-Engaged Service and Scholarship

Mentoring: Crafting a Culture of Scholarship

Community-Engaged Service and Scholarship



Mentoring: Crafting a Culture of Scholarship



## FRIDAY PANELS

Growing Scholarship:  
Early and Mid Career  
Perspectives

Sustaining Scholarship:  
Senior Career  
Perspectives



# FUTURE SCIENTISTS INSTITUTE



# DISSERTATION COMPETITION WINNERS

**Sleep Health in Special Populations**

Amy Hartman, MS, OTR/L  
University of Pittsburgh

**Rasch Analysis of the Evaluation In Ayres Sensory Integration (EASI)**

Patricia Coyle-Christinger, MS, OTR/L  
Third Year PhD Student  
Colorado State University

# RESEARCH POSTER AWARD



**Exercise Patterns in a Virtual World: Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic**

Laura A. Swink, PhD, OTR/L<sup>1,2</sup>, Cory L. Christensen, PT, PhD<sup>1,2</sup>, Emily R. Hager, MS<sup>1,2</sup>, Gannon M. Earhart, PT, FAPTA, PhD<sup>1</sup>, Robyn Gisbert, DPT<sup>1,2</sup>, Mark M. Maniga, DPT, PhD<sup>1,2</sup>

<sup>1</sup>VA Eastern Colorado Geriatric Research, Education, and Clinical Center, Aurora, CO; <sup>2</sup>University of Colorado Anschutz Medical Campus, Aurora, CO; <sup>3</sup>Washington University, St. Louis, MO

### BACKGROUND

- Regular exercise is well-established treatment for people with Parkinson's disease (PD) and can slow progression of motor and non-motor symptoms.<sup>1,2</sup>
- Community-based exercise classes are a popular option for engaging in physical activity and essential for people with PD.<sup>3</sup>
- Exercise barriers for people with PD include fear of falling, fatigue, depression, and lack of knowledge regarding exercise for PD-related symptoms.<sup>4</sup>
- The COVID-19 pandemic has introduced additional barriers for exercise with an emphasis on home-based, group classes, social distancing recommendations, and the cancellation of community-based exercise classes.
- People with PD often fall into the "high-risk group" for developing severe COVID-19 symptoms because of age and potential comorbidities, and for much of the pandemic have been advised to limit activities outside of their homes.

### PURPOSE

To explore changes in exercise participation frequency, intensity, and type during the COVID-19 pandemic. To describe barriers, facilitators, and needs for in-person and virtual exercise during the COVID-19 pandemic, as people with PD who reported attended exercise classes pre to the pandemic.

### DESIGN & METHODS

Cross-sectional study using a validated electronic survey administered via Zoom website. Categories included:

- Exercise participation pre COVID-19 pandemic
- Quantitative EASI-Q<sup>5</sup>
- Current modification to exercise class participation and format
- Barriers, facilitators, and needs for exercise participation (in-person, in-home, and virtual)

Inclusion criteria: age 65 years old, attendance at a community-based exercise class pre COVID-19 pandemic, and a desire to track for the pandemic pre to COVID-19 pandemic. Exclusion criteria: unable to be reached from 10 attempts, and ability to answer survey questions either independently or with the help of caregiver.

Descriptive statistics were used to characterize demographic data, activity levels, and class format changes. Narrative summary was used to describe barriers, facilitators, and needs.

### RESULTS

Barriers to exercise participation	Frequency
More time restrictions	High
More time constraints	High
More class restrictions	High
Safe from COVID-19 exposure	Low
A place to exercise safely	Low
Help to increase motivation	Low
Feel safer at home (COVID-19 risk)	Low
Do not have to travel	Low
Delivered exercise classes	Low
Smaller exercise groups	Low
Clear lines to exercise	Low
Have an independent program	Low
Cost of accessibility to virtual	Low
Lack of accountability to attend	Low
EASI-Q increased (measuring COVID-19 impact)	Low
More helpful	Low
Less motivation	Low

### DISCUSSION

- A decrease in exercise participation was seen across pandemic and exercise during the COVID-19 pandemic in people with PD who were already community-based exercise attendees pre-pandemic, but frequency and intensity of exercise declined.
- Virtual/in-home class participation increased for exercise frequency and intensity compared to in-person during the COVID-19 pandemic. Therefore, virtual/in-home classes may not fully meeting the needs of people with PD.
- In-person class barriers and needs were related to decreasing COVID-19 exposure risk. During the COVID-19 pandemic, people with PD were considered non-essential activities, with an emphasis on home-based, group classes, and virtual-based.<sup>6</sup>
- Virtual/in-home barriers and needs were related to accessibility and socialization. To compensate this, people with PD have had increased feelings of depression and negative mood alterations during the COVID-19 pandemic, which may further worsen with low exercise.<sup>7</sup>

### CONCLUSIONS

- During COVID-19, less in-person and more virtual/in-home exercise participation.
- Less exercise quantity & intensity for people with PD.
- Virtual barriers are related to socialization and accessibility and need to be considered in future study.

### REFERENCES

1. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.
2. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.
3. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.
4. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.
5. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.
6. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.
7. Swink LA, Christensen CL, Hager ER, Earhart GM, Gisbert R, Maniga M. Barriers and Needs for People with Parkinson's Disease during the COVID-19 Pandemic. *Journal of Parkinson's Disease*. 2021;11(12):2153-2161.

## HOSTING THE OT SUMMIT BEYOND 2022

- At least 2 Senior Faculty have a record of sustained peer reviewed external funding.
- Faculty actively participate in a successful research doctoral program that has a legacy of graduates engaged in a sustained and funded research.
- Capacity to commit a minimum of \$10,000 over the 3 years as well as other support (e.g., conference space, staff).
- Near hotels, restaurants for participants
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