Virtual Reality Cognitive Rehabilitation for Depression at Home: An Exploration of bWell-D

For: MSc or PhD Students; 12 months

Program supported: Aging in Place

Academic Collaborator	NRC Principal Investigator	Associated NRC Research Centre
University of British Columbia	Mark Hewko (Researchgate)	Medical Devices

Project Description:

Virtual reality (VR) cognitive remediation and assessment programs have shown efficacy and validity in mental health disorders. UBC and the NRC have developed a VR program customized to deficits seen in depression (bWell-D). Pilot data for bWell-D indicates good acceptability, tolerability and face validity. bWell-D has focused on the use case where clinicians administer the intervention. In this project, we aim to consider its use at home, a need highlighted by current constraints in conducting in-person trials due to the COVID-19 pandemic.

The host (expertise in cognitive deficits in depression and clinical trial methodology) will lead the project, with support from the NRC (expertise in VR development). The student will have the opportunity to work with VR and its administration, specifically to define bWell-D end-user interactions to permit self-guided VR experiences and telehealth workflows (conduct assessments, set training programs and monitor performance), to be implemented by the NRC.

In the AiP program, we will be investigating the feasibility and user experience of administering bWell exercises in older adults for age-related cognitive decline. Given that comorbid cognitive impairment and depression is associated with a higher risk of developing dementia than compared to cognitive impairment or depression alone, the proposed project would enable more comprehensive study in complement to that in the AiP. Cognitive dysfunction is a core feature of depression, but it is currently undertreated and poorly understood.

Additionally, through this internship, the student will develop the protocols to conduct a decentralized pilot study. The COVID-19 pandemic has accelerated this trend, and it has been found to offer advantages, such as improved patient compliance and broadened reach. Improving access to VR treatments is key in older adults, who are often unable to get to and from research study sites (typically taking place in large urban centers).

Student Profile:

The candidate should have a strong background in psychology, psychiatry or biomedical engineering fields with experience in conducting participant studies, with preference to psychological or mental health applications. Experience with study data collection and handling, data science. Candidate should have strong interpersonal skills, and be comfortable working with clinical populations. Knowledge of standard clinical cognitive and psychological evaluation methods will be considered an asset.