

Implementing Affordable Virtual Reality Interventions for Older Adults in Latin America: A Feasibility Study

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Introduction: Virtual Reality (VR)-based meditation has shown to help reduce, stress, anxiety, sadness, and anger in younger adults. However, this has not been extensively studied in older adults. Furthermore, there are no standard guidelines on how VR mindfulness interventions should be implemented to ensure successful outcomes in different cultures and languages. The availability of affordable hardware raises the possibility of VR being used in low-income countries. The goal of this study is to describe and highlight some key considerations and challenges when implementing low-cost VR mindfulness interventions with older adults in Quito, Ecuador.

Methods: We created a guided mindfulness intervention using low-cost VR (smartphones and Destek V5 headsets) for older adults with anxiety in Quito, Ecuador. This project is a collaboration between the Technology and Aging Lab at McLean Hospital and the Universidad San Francisco de Quito in Ecuador. Our goal was to recruit 20 older adults with anxiety from various outpatient settings in Quito. We used the free “Sites in VR” app and selected different nature scenes for each intervention. The intervention consists of a total of 10 sessions each lasting 30 minutes. We assessed depression using the Geriatric Depression Scale (GDS), and anxiety with the Generalized Anxiety Disorder 7-item scale (GAD-7). In addition, we also administered the Mindfulness Attention Awareness Scale (MAAS) and the Behavior Activation for Depression scale (BADs).

Results: At the time of writing, we have reached 100% of our recruitment goal and anticipate completing data analysis by January 2023. Qualitatively, our intervention revealed barriers to designing scalable VR Spanish language interventions in Latin America. Some of the main difficulties we encountered are described below: (i) There are very few virtual reality videos (360° videos) that are available for use with the DesTeK VS VR Headset in Spanish. We therefore, used a standardized Spanish narration to guide the mindfulness practice based on a script used in the United States. (ii) We found that majority of the available content is not suitable for mindfulness. Using the application Sites in VR remedied this concern, as it provides static 360° images, suitable for mindfulness. (iii) Not all technology necessary for VR interventions is readily available in Latin America: smartphones sold in Latin America do not always have a gyroscope sensor.

Conclusion: Mindfulness interventions using virtual reality may be an effective way to address stress and mood symptoms in older adults across cultures. However, there are many culture-specific aspects that must be addressed before applying these interventions in different cultures. This study, conducted in Latin America, is an initial step toward the establishment of best practices and standardized low-cost VR mindfulness intervention in older adults, and many aspects addressed here may be generalizable to other cultures, settings, and countries.

Visualization of Pain and Agitation by System Analysis Algorithms

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Pain is a critical trigger for underlying behavioral and psychological symptoms in dementia, such as agitation, depression, and eating and sleeping disturbances. People with moderate to severe dementia are no longer able to report their suffering, the effect of medication after treatment has been initiated or potential side effects of the treatment. In “Understanding Pain and Agitation Through System Analysis Algorithms in People With Dementia. A Novel Explorative Approach by the DIGI.PAIN Study” we investigate whether system analysis algorithms can shed light on the relationship between pain and agitation. The method generated individualized estimations for the evolution of pain and agitation over time, as well as a dynamical model for their relationship. The participant group included 219 persons with dementia