

Implementing Virtual Reality in Advanced Falls Prevention: Building Resilience and Balancing Risks

Summary

- Older adults are at an increased risk for falls. Falls can lead to injury-related hospitalizations and add extra burden to the healthcare system.
- Falls are a major public health concern for older adults in New Brunswick, as recent data suggests that nine older adults are hospitalized every day because of a fall in New Brunswick.
- Research shows that engaging in challenging balance exercises is the most important aspect of strategies to prevent falls. This was the focus of the intervention in this project.
- Virtual reality technology is also a promising tool for preventing falls in older adults and improving fall prevention programs.
- The 'Implementing Virtual Reality in Advanced Falls Prevention' pilot project aimed to evaluate the feasibility and acceptability of a community-based fall risk prevention program for older adults that incorporated virtual reality technologies.
- The program involved a multicomponent exercise intervention, with virtual reality training as an addition. Participants performed exercises and practiced actions that reduced their fall risk to help prevent future falls. 108 older adults, including 73 women and 28 men participated in the project.

HSPF Focus Area	Increasing independence, quality of life, and promoting healthy lifestyles
Project Start & End Date	March 13, 2022 – March 31, 2024
Organization/Agency	Université de Moncton
Location	Moncton, New Brunswick
Principal Investigator(s)	Grant Handrigan

Indicator	Impact / Outcome / Result
Improved balance control	<ul style="list-style-type: none"> • Participants in the two intervention groups showed some improvement in balance control. • Participants in the wait list control group did not show improvement in balance control. <p>*The results were not statistically significant.</p>
Reduced fear of falling	<ul style="list-style-type: none"> • Participants in both intervention groups demonstrated trends towards reduced fear of falling. • Participants in the wait list control group showed trends towards increased fear of falling. <p>*The results were not statistically significant.</p>

Methods and Comparison

- The program was evaluated using a randomized controlled trial, which included three groups:
 - Intervention groups: The first group received virtual reality training and exercise, and the second group received standard psychoeducation training and exercise.
 - Wait list control group: The third group received the intervention after the experimental groups completed participation.
- Balance performance was measured via a standardized balance test (the MiniBEST test) and fear of falling was measured using the Fear of Falling questionnaire. Outcomes were measured before and after the intervention.
 - The project team is in the process of analysing data for this project, and the results presented here are preliminary and do not include all expected outcomes.

Conclusions and Lessons Learned

- There is a great need for fall prevention programs that target older adults in community settings.
- Overall, the preliminary findings indicate that the multicomponent fall prevention program has the potential to improve balance control and reduce fear of falling among older adults. However, it is not clear whether the virtual reality training is more beneficial than the psychoeducation training, or vice versa.
- Older adults responded positively and showed increased interest to participate in the program.
- The project has potential for expansion, but further research and funding are necessary to fully carry out and maintain the intervention.

Recommendations

- Ensure transportation and diverse needs of participants are taken into consideration during program planning.

Next Steps

The project has not yet secured funding for scale-up and sustainability. The project is exploring funding opportunities for future research.

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