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Letter to Editor

Letter in Response to Virtual Reality (VR) for Vestibular Rehabilitation: A Pilot Study Comparing VR with Conventional Rehabilitation with Conventional Rehabilitation Alone

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We read the innovative randomised control trial by Srinivas Doriasala., *et al*. on utilising Virtual Reality (VR) for Vestibular Rehabilitation with interest [1]. Whilst the study is important, there is scope for further research.

This study has not set out a clear enough exclusion criteria. Firstly, the paper states to investigate the outcome of VR on peripheral vestibular disorders. However, in groups A and B, patients 2, 3, 4, 7 and 8 suffer from a central vestibular loss such as migrainous vertigo and cerebellar degeneration. Additionally, motion sickness is on the list and that does not fall under peripheral nor central vestibular loss thus affecting the credibility of the results. The study could have cultivated more robust results had the patients been either suffering from solely peripheral or central vestibular problems. Earlier literature indicated that Meniere's Disease should not be included for VT due to its spontaneous presentation [2]. A clear cut description of the exclusion and inclusion criteria would be beneficial.

There is a limited explanation on how the VT would be implemented and the form of support and education given to patients prior and during the use. It would have been useful to know if the exercise replicated the traditional Cawthorne-Cooksey exercises [1]. This will highlight whether the results produced are a result of solely VT or the change in the actual content of vestibular rehabilitation.

The outcomes measured from this study were limited to only the Dizziness Handicap Inventory. Whilst it allows readers to notice the quantified reduction of dizziness in groups A and B, it would be helpful to measure other factors aiding or affecting the improvement of symptoms. For example, in a patient with additional psychological features such as anxiety or depression, it could potentially hinder vestibular compression [2]. Therefore, to factor that in, a depression scale such as the Beck Depression Inventory, before, during and after treatment would highlight conflating factors which could confound any outcomes [3].

As the patients included in the study are of a wide age range, the study could have included feedback on user-friendliness and compliance of VT. Specifically, it would have been useful to analyse how the older population received VT and their feedback. This would allow further developments and progress on developing this technology for different groups.

For the benefit of future VR implementations, it is crucial to trial it out on a bigger sample size to note for statistically significant results and adverse effects or symptoms. Patients with vestibular impairment could experience nausea and vomiting. Using VT can cause cybersickness [4], however, the author's study did not include any cybersickness. Hence, a bigger sample size could capture these adverse effects.

Lastly, it would have been insightful if the authors had explored the costs of funding VR and its impacts on the health economy. Another point that could have been touched on was the cost-effectiveness and evidence to conduct VR on its own or alongside VRT [5].

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