LETTER TO THE EDITOR
CRITIQUE

Comment on Syeda Amna Bukhari, et al. (J Pak Med Assoc. 72: 1909-1912, 2022)

# Comparison of exergaming and vestibular training on gaze stability, balance, and gait performance of older adults: A single blind randomized control trial

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Madam, We have read the article titled "Comparison of exergaming and vestibular training on gaze stability, balance, and gait performance of older adults: A single blind randomized control trial (RCT)" by Bukhari et al with great interest.[1]. They have correctly highlighted the issue of poor balance and gait instability in the elderly in Pakistan which gets neglected due to lack of training and knowledge for most of the health care professionals and physicians. They used easy and free assessment tools like Dynamic gait index , timed up and go test and Dynamic Visual Acuity Test which can easily be applied in low resource settings like Pakistan. They have used exergaming as a management strategy. This is now widely available in the country commercially and can help patients with balance and gait disorders. We performed a critical analysis of this RCT using Critical Appraisal Skills Programme (CASP) Randomised Controlled Trials Checklist (https:// casp-uk.net/wpcontent/uploads/2020/10/CASP_RCT_Checklist_PDF_Fillable_Form.pdf) and The CONSORT (CONsolidated Standards of Reporting Trials) 2010 guidelines.[2] In addition, experts have already highlighted certain issues with methodology in rehabilitation trials which were also detected in this article.[3] These require clarification and deliberation. :

**Concern 1:** Authors did not comment whether they excluded the individuals with other vestibular disorders like Benign paroxysmal positional vertigo, Meniere's disease etcauthor group.

**Concern 2:** Blinding in rehabilitation research is difficult since the participants can identify the intervention when it is physically applied (either in form of therapeutic exercise, physical modality, or intervention) and the intervention cannot be masked. It is not like giving a pill where the participants are not sure if they are getting the active drug or placebo. Authors mention that the participants were blinded. It is not clear how the participants could be blinded to the intervention ( exergaming or therapeutic exercises) when it was being provided. In such cases blinding the assessors is the correct approach. The lack of assessor blinding has been reported as an issue in rehabilitation trials.[3].

**Concern 3:** CONSORT checklist recommends that "Authors should describe each intervention thoroughly, including control interventions. The description should allow a clinician wanting to use the intervention to know exactly how to administer the intervention that was evaluated in the trial".[2] The author's description of the intervention is vague and incomplete. It needs to be clarified.

a. For example, authors mention only the name of 4 games for the group I. However, it is not clear what was the duration of the exergaming sessions. In addition, it is unclear if each participant played each of the 4 games every time and what was the duration of the exergaming spent on each game. Moreover, these games have different levels from easy to hard. It is unclear how did the patients progressed through the levels. A patient performing well on the hard level of a particular game cannot be compared to someone unable to clear the easy level of the same game.

b. We have similar concerns for exercise group II as well. Five different exercises have been mentioned. However, it is not clear how much time was spent on each exercise. Single limb stance exercises are different from double limb stance exercises and both require different levels of balance and strength to perform them adequately.

c. We recommend a detailed description of each step of the methodology.

**Concern 4:** The authors did not perform a subgroup analysis to compare the intervention group and control

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group in terms of age, gender and comorbidities (Diabetes mellitus[DM], hypertension etc). DM causes ischaemia of vestibular structures and alters inner ear metabolism which can result in vestibular impairments.[4] Advanced age, hypertension, DM, female gender, osteoporosis or osteopenia and hyperlipidaemia are risk factors of recurrence of Benign paroxysmal positional vertigo.[5] Hence equal distribution of these variables among the groups is important to assess the efficacy of these two different interventions.

**Concern 5:** Precision estimate (Confidence interval) of intervention were not reported

**Concern 6:** Due to poor health care regulations in Pakistan, patients can procure almost all kinds of medicines over the counter from pharmacies. It is very likely that an elderly patient having balance issue, dizziness or vertigo might be using some medicines to help with the balance and vertigo. This can be a major confounding factor. Did the authors ensure that during the trial patients were not using any such medicine? How did they ensure that the patients would not use any medication to help with vertigo and balance? This was not commented upon in this manuscript.

We feel that this article is a good addition to available literature on the use of exergaming for management of vestibular disorders. More studies with larger and homogenous sample sizes are required to make an evidence-based decision for utility of exergaming in vestibular disorders.

## References

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