

# Methodological and Statistical Concerns Regarding the Impact of Online Interactive Platform Services on Oral Health Behaviours in Older Adults With Mild Cognitive Impairment: Protocol for a Randomized Controlled Trial [Letter]

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## Dear editor

We read with great interest the article by Yin et al<sup>1</sup> on “The Impact of Online Interactive Platform Services on Oral Health Behaviours in Older Adults with Mild Cognitive Impairment: Protocol for a Randomized Controlled Trial”.

While the study addresses an important public health issue, several critical methodological and statistical concerns warrant attention.

**Methodological Concerns:** The study utilizes a random number table for participant allocation but does not specify whether block or stratified randomization was used. Although sealed envelopes were employed, it remains unclear whether they were opaque and sequentially numbered, potentially leading to allocation bias. Additionally, the study lacks a clearly stated hypothesis. A possible null hypothesis could be that no significant differences exist between older adults with mild cognitive impairment (MCI) using the e-COMB (OH) WeChat Mini Program and those receiving general oral health education via a hospital’s official WeChat account. The alternative hypothesis suggests that the e-COMB (OH) program would significantly improve oral health behaviours, cognitive function, perceived stress, and social support.

The study claims adherence to CONSORT (2010) guidelines; however, key details on randomization, allocation, and participant flow are not fully reported. Although a flowchart is mentioned, a complete CONSORT-compliant diagram outlining enrolment, allocation, follow-up, and analysis is missing.<sup>2</sup>

A major concern is the reliance on self-reported data for the primary outcome (oral health behaviour), which is susceptible to recall and social desirability biases. The study does not include objective clinical assessments, such as plaque index or periodontal pocket depth, which would provide more reliable data. To enhance study robustness, it is recommended that a minimum value for the outcome measure be established during participant recruitment.<sup>3</sup>

The sample size calculation is based on an effect size (0.32) from a previous oral hygiene study, but this study focuses on older adults with MCI, a distinct population, making its applicability questionable. The use of *t*-tests for pre- and post-intervention comparisons is inadequate given the presence of multiple time points; repeated-measures ANOVA or mixed-effects models would better account for within-subject correlations. Moreover, multiple secondary outcomes were analysed without correction (eg, Bonferroni adjustment), increasing the risk of Type I error.<sup>4</sup>

The study does not adequately describe how missing data will be handled. While an intention-to-treat (ITT) analysis is planned, the specific method for dealing with missing values (eg, multiple imputation or last observation carried forward) is not detailed.

Despite its valuable contributions, the study would benefit from addressing these concerns to enhance its methodological rigor, statistical accuracy, and clarity. Implementing these recommendations would strengthen the study's reliability and contribute to a more precise understanding of the impact of digital oral health interventions for older adults with MCI.

## Disclosure

The authors report no conflicts of interest in this communication.

## References

1. Yin Q, Chai Z, Tao B, et al. The impact of online interactive platform services on oral health behaviours in older adults with mild cognitive impairment: protocol for a randomized controlled trial. *J Multidiscip Healthc.* **2025**;18:663–674. PMID: 39935432; PMCID: PMC11812557. doi:10.2147/JMDH.S508247
2. Shaikh AM, Mehta MM, Chawan VV. Evaluation of reporting of CONSORT flow diagrams in randomized controlled trials in a national and international pharmacology journal. *Perspect Clin Res.* **2019**;10:168–171. doi:10.4103/picr.PICR\_73\_18
3. White IR, Thompson SG. Adjusting for partially missing baseline measurements in randomized trials. *Stat Med.* **2005**;24:993–1007. doi:10.1002/sim.1981
4. Habibzadeh F. Statistical data editing in scientific articles. *J Korean Med Sci.* **2017**;32(7):1072–1076. PMID: 28581261; PMCID: PMC5461308. doi:10.3346/jkms.2017.32.7.1072

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<https://doi.org/10.2147/JMDH.S523369>