

Letter to the Editor

Concerns on Generalizability

Yongjian Lin, MD

Department of Gastrointestinal and Gland Surgery, First Affiliated Hospital of Guangxi Medical University, Nanning, China

Corresponding Author:

Yongjian Lin, MD

Department of Gastrointestinal and Gland Surgery

First Affiliated Hospital of Guangxi Medical University

No 6 Shuangyong Road

Qingxiu District

Nanning, 530021

China

Phone: 86 1 387 887 0525

Fax: 86 1 387 887 0525

Email: linyongjian163@163.com

Related Articles:

Comment on: <http://mhealth.jmir.org/2023/1/e41099/>

Comment in: <http://mhealth.jmir.org/2023/1/e51852/>

(*JMIR Mhealth Uhealth* 2023;11:e50280) doi: [10.2196/50280](https://doi.org/10.2196/50280)

KEYWORDS

mHealth app; mobile health; mHealth; app; prediabetes; traditional Chinese medicine; TCM; health-related quality of life; body constitution; meridian energy

We read the study by Chung et al [1], which evaluated the effectiveness of a mobile health (mHealth) app based on traditional Chinese medicine (TCM) in patients with prediabetes. This randomized controlled trial showed that the TCM mHealth app improved physical energy, fitness, and quality of life in patients with prediabetes. However, the small sample sizes, short follow-up time, and multiple comparisons might limit the generalizability of the findings. After carefully reading this article, we present the suggestions below.

First, as the authors described in the *Methods* section, participants were randomized by a computer-generated randomization list into 3 groups—the TCM mHealth app, the ordinary mHealth app, or the control group—rather than propensity score matching [2]. In addition, most patients have individual polymorphisms in the real world, and although baseline patient characteristics are almost impossible to match in clinical studies (ie, clinical characteristics among patients in this study who received the TCM mobile), there were no significant differences between the general app and control groups. For baseline data, variable transformation, a nonparametric test using rank, or an approximate *t* test could be considered when performing a comparison between 2 small sample means if their overall variances are not equal. Therefore, the results of this study may not truly reflect patients in the real world.

Second, the statistical analysis presents descriptive characteristics as percentages or as mean (SD), as appropriate. A paired *t* test was used to examine the changes in outcome variables within groups and a 1-way ANOVA was used for comparisons among groups. However, there was no description of these data. According to Bridge and Sawilowsky [3], the Wilcoxon rank-sum test is recommended if the population characteristics are unknown, such as yang-deficiency, yin-deficiency, phlegm-stasis, body energy, and physical and mental component scores, and if the hypothesis being tested is a shift in means (or another location parameter).

Third, an interaction is an action that occurs when 2 or more objects interact with each other [4]. Since many variables are described in the first table of Chung et al's [1] paper, prespecified subgroup analyses based on these variables are necessary. Subgroup analyses based on age, gender, BMI, body composition, and blood pressure were not performed in this study. We suggest that prespecified subgroup analyses be conducted in the TCM mHealth app group, which might allow for more accurate conclusions.

In conclusion, we thank the authors for this excellent work, which provides important evidence for the integration of TCM concepts into an mHealth app for patients with prediabetes. However, we believe that the conclusions of the study would have been stronger if the abovementioned issues had been addressed.

Conflicts of Interest

None declared.

References

1. Chung H, Tai C, Chang P, Su W, Chien L. The effectiveness of a traditional Chinese medicine-based mobile health app for individuals with prediabetes: randomized controlled trial. *JMIR Mhealth Uhealth* 2023 Jun 20;11:e41099 [FREE Full text] [doi: [10.2196/41099](https://doi.org/10.2196/41099)] [Medline: [37338977](https://pubmed.ncbi.nlm.nih.gov/37338977/)]
2. Gillespie IA, Floege J, Gioni I, Drüeke TB, de Francisco AL, Anker SD, on behalf the ARO Steering Committee collaborators. Propensity score matching and persistence correction to reduce bias in comparative effectiveness: the effect of cinacalcet use on all-cause mortality. *Pharmacoepidemiol Drug Saf* 2015 Jul;24(7):738-747 [FREE Full text] [doi: [10.1002/pds.3789](https://doi.org/10.1002/pds.3789)] [Medline: [26011775](https://pubmed.ncbi.nlm.nih.gov/26011775/)]
3. Bridge PD, Sawilowsky SS. Increasing physicians' awareness of the impact of statistics on research outcomes: comparative power of the t-test and Wilcoxon rank-sum test in small samples applied research. *J Clin Epidemiol* 1999 Mar;52(3):229-235 [doi: [10.1016/s0895-4356\(98\)00168-1](https://doi.org/10.1016/s0895-4356(98)00168-1)] [Medline: [10210240](https://pubmed.ncbi.nlm.nih.gov/10210240/)]
4. Drees BL, Thorsson V, Carter GW, Rives AW, Raymond MZ, Avila-Campillo I, et al. Derivation of genetic interaction networks from quantitative phenotype data. *Genome Biol* 2005;6(4):R38 [FREE Full text] [doi: [10.1186/gb-2005-6-4-r38](https://doi.org/10.1186/gb-2005-6-4-r38)] [Medline: [15833125](https://pubmed.ncbi.nlm.nih.gov/15833125/)]

Abbreviations

mHealth: mobile health

TCM: traditional Chinese medicine

Edited by T Leung; this is a non-peer-reviewed article. Submitted 25.06.23; accepted 28.08.23; published 21.09.23.

Please cite as:

Lin Y

Concerns on Generalizability

JMIR Mhealth Uhealth 2023;11:e50280

URL: <https://mhealth.jmir.org/2023/1/e50280>

doi: [10.2196/50280](https://doi.org/10.2196/50280)

PMID: [37733387](https://pubmed.ncbi.nlm.nih.gov/37733387/)

©Yongjian Lin. Originally published in *JMIR mHealth and uHealth* (<https://mhealth.jmir.org>), 21.09.2023. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work, first published in *JMIR mHealth and uHealth*, is properly cited. The complete bibliographic information, a link to the original publication on <https://mhealth.jmir.org/>, as well as this copyright and license information must be included.