

Feb 14, 2024

Investigating Reliability and Criterion Validity of the Chinese Version of the Assessment of Physical Activity in Frail Older People: A Cross-Sectional Study

DOI

<https://dx.doi.org/10.17504/protocols.io.14egn3d7yl5d/v1>

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Protocol Citation: yuelin li, LinYu Lyu, Xing Fan, LiJuan Xu, Yan Li, Rhayun Song 2024. Investigating Reliability and Criterion Validity of the Chinese Version of the Assessment of Physical Activity in Frail Older People: A Cross-Sectional Study.

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Protocol status: Working

We use this protocol and it's working

Created: February 12, 2024

Last Modified: February 14, 2024

Protocol Integer ID: 95151

Keywords: physical activity in frail, older adults with frailty, frail older people, frail scale, assessing physical activity, assessment of physical activity, subjective physical activity assessment the objective pa assessment, frail, frailty, criterion validity of the chinese version, subjective physical activity assessment, reliability measure, residing older adult, physical activity, older adult, investigating reliability, older people, strength, assessment, reliability, chinese version, objective pa assessment, anthropometric measurements for bmi classification, pedometer reading

Abstract

- This study aims to determine the reliability and criterion validity of the Chinese version of the APAFOP (APAFOP-C).

- Sampling and Participants

Future recruitment will involve convenience sampling of community-residing older adults with frailty in northeastern China, aged 65 years or older and scoring ≥ 2 on the FRAIL scale. Recruitment methods will include flyers on public boards and word-of-mouth. Exclusions will apply to institutionalized or hospitalized individuals, or those unable to communicate during interviews. The target sample size will be determined through an a-priori calculation using G*Power software, aiming for 120 participants to account for potential dropouts and enhance generalizability.

- Ethical Considerations

The study will adhere to the Declaration of Helsinki principles, with protocol approval by the Institutional Review Board of Lishui University's School of Medicine (Approval No. 2022-0001). Informed consent will be obtained from all participants, ensuring their right to confidentiality and withdrawal without penalty.

- Data Collection

Data collection will involve face-to-face interviews and objective measurements using tools like pedometers. Participants will complete a sociodemographic questionnaire and undergo anthropometric measurements for BMI classification. An investigator triangulation method will assess inter-rater reliability with three raters. Additionally, participants will wear a pedometer for direct PA comparison, with follow-up assessments for intra-rater reliability after 7–14 days.

- Objective and Subjective physical activity Assessment

The objective PA assessment will utilize a Yamax SW-200 pedometer. Subjective PA will be assessed using the APAFOP-C, covering six domains of PA, with intensity rated according to a MET-based scoring system. The questionnaire will be adapted for cultural relevance to the Chinese context.

- Data Analysis

Data will be analyzed using SPSS software, with results reported as mean $\pm$ SD or medians and IQRs. The Mann-Whitney U test and Kolmogorov-Smirnov test will assess the representativeness of selected days and normality, respectively. Intra- and inter-rater reliability will be evaluated using ICC and Kendall's W test, with criterion validity assessed via ICC. Bland-Altman plots will determine the Limit of Agreement for both reliability measures and criterion validity. Pearson and Spearman correlation coefficients will interpret the strength of relationships, with a significance level set at .05. Missing data will be handled through mean or multiple imputations, depending on the nature of the missingness.

- Expected Results

It is expected that the APAFOP-C will demonstrate substantial intra-rater reliability, with acceptable inter-rater reliability and criterion validity compared to pedometer readings, suggesting its suitability for assessing physical activity in frail older adults.



Guidelines

1. MokkinkLB, Terwee CB, Knol DL, Stratford PW, Alonso J, Patrick DL, et al. The COSMIN checklist for evaluating the methodological quality of studies on measurement properties: a clarification of its content. *BMC medical research methodology*. 2010;10(1):1-8.
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3. Beaton D, Bombardier C, Guillemin F, Ferraz MB. Recommendations for the cross-cultural adaptation of health status measures. New York: American Academy of Orthopaedic Surgeons. 2002;12(2):1-9.
4. Hauer K, Lord SR, Lindemann U, Lamb SE, Aminian K, Schwenk M. Assessment of physical activity in older people with and without cognitive impairment. *Journal of aging and physical activity*. 2011;19(4):347-72.

Before start

This study focuses on psychometric assessment and is a follow-up study to our previous study that dealt mainly with the linguistic validation (Li et al., 2023).

Li Y, Lyu L, Fan X, Xu L, Zhao R, Jiang Y, et al. Translation and Linguistic Validation of the Assessment of Physical Activity in Frail Older People into Simplified Chinese Using Cognitive Interviewing Methodology. *Journal of Aging and Physical Activity*. 2022;31(3):383-90.

