Translating and Validating PRISMA-7 Questionnaire in Urdu: A Screening Tool to Identify Frail Individuals

Umema Zafar[1], Mian Saad Ahmed[2], Nimra Zafar[3] and Faisal Hassan[4]

[1]Department of Physiology, Khyber Medical College, Peshawar, Pakistan
[2]Department of Forensic Medicine, Khyber Medical College, Peshawar, Pakistan
[3]Department of Medicine, Leeds Teaching Hospital, Leeds, UK

ABSTRACT

Frailty is a condition in which the affected individual is more prone to both external and internal stressors and has a higher risk of succumbing to chronic diseases. The aim of this research was to translate and validate the PRISMA-7 questionnaire in the Urdu language. This is a validation study conducted in a hospital in Khyber Pakhtunkhwa, Pakistan. PRISMA-7 Questionnaire was translated into Urdu language using forward and backward translations and was then piloted on a sample of 151 subjects, aged 60 and above, and validated by applying reliability and validity statistics. Amongst the sampling population, frailty was found to be 63.26%. All the items in the questionnaire were significantly different from each other, however, the correlation between each was found to be low. Cronbach's alpha was found to be 0.322. Urdu translated version of PRISMA-7 is not a valid and reliable tool for screening frailty in the elderly population of Khyber Pakhtunkhwa, Pakistan.

Key Words: Frailty, Validation, Translation, Frail elderly, Urdu.

Frailty is a syndrome that results in worse outcomes and needs an appropriate diagnostic approach in elderly people. It is a condition that comprises daily coping mechanisms and functionality due to the loss of body reserves and capabilities.[1] Therefore, an early diagnosis of the pre-frail state is warranted to determine people who are prone to frailty and to intervene properly to overcome the vicious cycle of frailty. The progression of this condition could be stopped or ameliorated.[1] There are two measures widely used for the definition of frailty in literature: the Fried Criteria[2] and the Frailty Index.[2] According to the Fried Criteria, the prevalence of frailty was 10% and of prefrailty 45.6% in community-dwelling Turkish elderly.[3]

A meta-analysis conducted on the Asian population reported the prevalence rate of frailty as 20.5%, Frailty assessed by the Fried frailty phenotype was 28.0%, by the Cumulative frailty Index, 36.4% by the Study of Osteoporotic Fractures (SOF) index, 46.3%.[4] Family practice is in an especially good position to identify frail patients in the community. A proactive preventive approach is a key to finding cases at risk and intervening on these. For reliable and objective identification of frailty in patients, well-validated and reliable scales are needed.[3] These scales or instruments must fit the needs of family physicians.

Correspondence to: Dr. Mian Saad Ahmed, Department of Physiology, Khyber Medical College, Peshawar, Pakistan
E-mail: saadahmedmian@kmc.edu.pk

A comprehensive geriatric assessment is mostly not practicable in family practice, because of time demands, low resources, and heavy demand to patients. We chose, the PRISMA-7 Questionnaire, which is a test comprising of seven questions and was recommended by the British Geriatric Society as a first instance screening test.[4]

Several problems are faced in our setup while implementing this questionnaire in English, where due to language differences it is difficult to make the sample understand the major theme of the questionnaire. Since Urdu had quite a sparse repertoire in this respect, the study was aimed at translating PRISMA-7 into Urdu and then validating it.

This is a validation study conducted at the hospital from January 2021 to June 2021. Questionnaire PRISMA-7 was translated by two different experts in Urdu language and then was reconciled in the presence of a 3rd observer (Medical Educationist) to check its applicability among patients. In the second phase, the same Urdu translated questionnaire was translated into English by two English faculty members, again an observer (Medical Educationist) mixed the same and then matched it with the original version.

The questionnaire was then piloted in a sample size of 151 *via* convenience sampling technique. The subjects included were greater than or equal to 60 years, of either gender, and were able to communicate and answer the questionnaire items. The subjects who suffered from cognitive impairment, due to any mental illness or any other disease, were excluded.

Table I: Baseline characteristics of frail versus non-frail individuals.

Variables	PRISMA-7 ≥ 3 (Frail) n=93	PRISMA-7 < 3 (Non-frail) n=54	p-value
Age, Mean±SD	73.42±7.63	68.64±7.34	<0.001[+]
Male Gender, N (%)	60 (64.5%)	23 (42.6%)	0.015*
Urban Region, N (%)	30 (32.3%)	31 (57.4%)	0.003*
Education Years, Mean±SD	3.82±4.38	8.28±5.2	<0.001
Monthly Income (PKR), Mean±SD	24697.78±12292.3	26424.53±16640.8	0.513[+]
Household Size, Mean±SD	6.48±2.47	6.28±2.1	0.615[+]
Annual Hospital Visits, Mean±SD	1.32±0.85	1.53±0.89	0.176[+]
Unemployed, N (%)	44 (47.3%)	15 (27.8%)	0.048*
PRISMA-7 items (Q1-Q7), YES, N (%)			
Q1	60 (64.5%)	22 (40.7%)	0.006*
Q2	60 (64.5%)	23 (42.6%)	0.015*
Q3	71 (76.3%)	6 (11.1%)	<0.001*
Q4	56 (60.2%)	4 (7.4%)	<0.001*
Q5	62 (66.7%)	1 (1.9%)	<0.001*
Q6	89 (95.7%)	43 (79.6%)	0.003*
Q7	62 (66.7%)	3 (5.6%)	<0.001*

[+]*Independent samples t-test, *Chi-square test.*

Mean ± standard deviation was calculated for numerical variables, frequency, and percentages for categorical variables. The numerical variables were tested vide independent samples t-test to check the difference in means, while categorical variables were tested *via* Chi-Square test. Validation was done by checking internal consistency (reliability), using Cronbach's alpha. Pearson correlation was applied to the items of the PRISMA-7 to check for multicollinearity and hence, suitability for principal component analysis. Data were managed using SPSS v. 26.0, p<0.05 was considered significant.

The sample constituted 83 males (56.4%) and 64 females (43.6%). The rural dwelling population was 86 (58.5%). Out of the 147 subjects, 93(63.26%) were found to be frail according to the scale, the rest 36.7% (54 subjects) were deemed not-frail.

In the present research, the PRISMA-7 scale has poor internal consistency with a Cronbach's alpha coefficient of 0.322. Furthermore, Cronbach's alpha after item deletion did not improve for questions 3 to 7. But for questions 1 and 2 it increased to 0.36 and 0.64, respectively.

The 7 items from the PRISMA-7 scale were subjected to Principal Component Analysis (PCA) using SPSS version 26.0. Before performing PCA the suitability of data for factor analysis was assessed. Kaiser-Meyer-Olkin Measure of Sampling Adequacy came out to be 0.563 and Bartlett's Test of Sphericity came out to be significant (p<0.05). Pearson Correlation between individual items on the PRISMA-7 scale revealed that less than 20% of the correlations were greater than 0.3. According to Tabachnick and Fidell (2001), factor analysis is not appropriate if the majority of correlations are not above 0.3. Hence, further analysis results were discarded.

The present study is the first reported attempt at translation of the PRISMA-7 scale in Urdu and validating it in the population of Pakistan's, Khyber Pakhtunkhwa province. The percentage of frailty in the Sindh region of Pakistan was found to be 58%.[5]

The reliability of the scale translated came out to be low (Cronbach's alpha 0.322), the reason could be a; lack of unidimensionality among individual items on the scale. Each item on the scale

represents a different entity with different factors leading to it as well as emerging from it. The interitem correlation, being low also supports this theory.[6]

The frailty status of older adults needs to be taken into account to reduce future morbidity, disability, and dependence. Frailty can be delayed or altogether prevented by maintaining a healthy lifestyle. Regular walk or exercise, a healthy diet, and a minimal stress environment can have a positive influence on delaying frailty symptoms. It is recommended to use the present Urdu version of the scale on other ethnic groups to further confirm the validity as it is not reliable for screening frailty in the population of Khyber Pakhtunkhwa, Pakistan (South Asia). And because of its low interitem correlation, its validity cannot be determined or relied upon.

COMPETING INTEREST:
The authors declared no competing interest.

AUTHORS' CONTRIBUTION:
UZ: Conceived and designed the study, data collection, final analysis, interpretation, and final proofreading.
MSA: Data collection, drafting the manuscript, paper write-up, interpretation, and final proofreading.
NZ: Designed the study, drafting the manuscript, and review.
FH: Data collection, drafting the manuscript, and review.
All authors approved the final version of the manuscript to be published.

REFERENCES

1. Turner G. Recognising frailty [Internet]. British Geriatric Society; 2014. Available from: http://www.bgs.org.uk/resources/recognising-frailty

2. Atkins JL, Jylhava J, Pedersen NL, Magnusson PK, Lu Y, Wang Y, *et al.* A genome-wide association study of the frailty index highlights brain pathways in ageing. *Aging Cell* 2021; **20(9)**:e13459. doi: 10.1111/acel.13459.

3. Akın S, Mazıcıoglu MM, Mucuk S, Gocer S, Deniz Şafak E, Arguvanlı S, *et al.* The prevalence of frailty and related factors in community-dwelling Turkish elderly according to modified Fried Frailty Index and FRAIL scales. *Aging Clin Exp Res* 2015; **27(5)**:703-9. doi: 10.1007/s40520-015-0337-0.

4. To T-L, Doan T-N, Ho W-C, Liao W-C. Prevalence of frailty among community-dwelling older adults in Asian Countries: A systematic review and meta-analysis. *Healthcare (Basel)* 2022; **10(5)**:895. doi: 10.3390/healthcare10050895.

5. Faizan K, Ali AA. Relationship between obesity and frailty in an old age population of Sindh, Pakistan. *Glob J Obes Diabetes Metab Syndr* 2021; **8(1)**: 006-009. doi: 10.17352/2455-8583.000050

6. Bauhoff S. Self-report bias in estimating cross-sectional and treatment effects. In: Michalos AC, Eds. Encyclopedia of Quality of Life and Well-Being Research. Springer, Dordrecht; 2014: p. 5798-800. doi:/10.1007/978-94- 007-0753-5_4046.

• • • • • • • • •