Reliability and Validity of Gujarati Version of WHO-5 Well-being Index in Community-dwelling Older Individuals: A Cross-sectional Study

VIPRA DALAL[1], SUBHASH KHATRI[2]

ABSTRACT

Introduction: Major mental health issues like depression are not yet acknowledged as considerable public health challenges. The World Health Organisation (WHO-5) well-being index is a simple concise questionnaire consisting of five basic questions that evaluate respondents' subjective well-being. The scale's internal and external validity are good for assessing depression in older individuals. This scale serves as an essential tool to evaluate various mental health-related issues as part of regular health check-ups. Thus, there was a need to translate and validate the WHO-5 well-being index in the Gujarati language.

Aim: To find out the validity and reliability of the Gujarati version of the WHO-5 well-being index in the community-dwelling older individuals.

Materials and Methods: This cross-sectional study was conducted among various community-dwelling older individuals in Ahmedabad, Gujarat, India, from March to August 2022. Permission was taken from the developer of the original scale and translation and validation of the scale were done according to suggestions given by the developer. A total of 60 participants and eight professionals with a mean experience of 13.5 years in the field of psychology, physiotherapy and healthcare area were involved in the examination of each item of the Gujarati version of WHO-5. The Statistical Package for the Social Sciences (SPSS) version 26.0 was used for the statistical analysis.

Results: The mean age of the participants was 67.02±4.77 years. The content validity ratio of all items of the Gujarati WHO-5 well-being scale was 1. Internal consistency of the Gujarati WHO-5 well-being scale was calculated through Cronbach's alpha (α=0.89) suggesting high internal consistency. Test-retest reliability of the Gujarati WHO-5 well-being scale was calculated through the Interclass Correlation Coefficient (ICC=0.89) suggesting excellent test-retest reliability.

Conclusion: Gujarati WHO-5 well-being scale is a simple, accurate and reliable measure for evaluating psychological well-being and mental health status.

Keywords: Aged, Depression, Health, Language, Translation, World Health Organisation

INTRODUCTION

Major mental health issues like depression are not yet acknowledged as considerable public health challenges. Depression affects over 322 million people globally [1]. In India, elderly persons (60 years and above) constitute 8.6% of the total population (India census 2011), which is projected to reach 19% by 2050 [2]. An estimated one-third of India's elderly population, predominately women, experienced depression [3,4]. Depression worsens the prognosis of other chronic illnesses, which worsens disability and reduces quality of life [4]. Depression frequently goes undiagnosed, particularly in non clinical settings and evaluation of the condition is difficult due to the presence of various co-morbid conditions.

The World Health Organisation-five (WHO-5) well-being index is a self-reported measure of subjective psychological well-being status [5]. WHO-5 well-being index was first developed in 1998 by the WHO regional office in Europe, as an element of a project on the measurement of well-being in patients receiving basic healthcare. The WHO-5 is a quick questionnaire consisting of five easy questions, which represent the subjective well-being of the respondents. It was initially invented to quantify the diabetic population's well-being [6]. The WHO-5 has been translated into more than 30 languages for various age groups as well as different populations like older individuals, diabetic population and paediatrics [7,8]. The scale has adequate internal and external validity in screening for depression among older individuals [6,9,10]. Thus, it serves as an essential tool to address mental health issues in a busy healthcare setting [11].

The current study's objective was to assess the validity and reliability of the Gujrati version WHO-5 well-being index.

MATERIALS AND METHODS

This cross-sectional study was conducted among various community-dwelling older individuals in Ahmedabad, Gujarat, India, from March to August 2022. Older individuals with an age range between 60-80 years were recruited from various communities of Ahmedabad city after taking ethical approval from Institutional Ethical Committee (NCP/57-A/2022).

Inclusion and Exclusion criteria: Participants with an age range between 60-80 years, both male and female and able to read the Gujarati language were recruited in the study. Participants not willing to participate in the study and with severe cognitive impairment were excluded from the study.

Through, convenience sampling, 60 participants from various communities in Ahmedabad were included in the study based on inclusion criteria. The sample size was calculated based on 10 times the number of items on the tool [12]. After explaining all purposes of the study, a total of 10 minutes was given to fill Gujarati WHO-5 well-being scale [Appendix-1].

Study Procedure

Translation process: Permission for translation of the WHO-5 well-being scale into the Gujarati language was taken from the original developer of the tool [13]. The translation process of the scale was carried out with guidelines given by the author or developer of the original scale. Translation of the scale was done with the following

methodology. Two Forward translation was done by two independent translators, who can speak both English and Gujarati language. After the reconciliation of two forward translations, backward translation was done by a bilingual translator, who does not know the original English version of the scale. Prefinal version was made after the harmonisation with the original scale. Pilot testing of the prefinal version of the scale was done based on understanding, word and clarity of the scale with five participants. For approval, the prefinal version was sent to the developer and permission was granted for the same.

Face and content validity: Gujarati WHO-5 well-being scale was given to eight professionals with a mean expertise of 13.5 years in the field of psychology, physiotherapy and healthcare area. For face and content validity, the consensus method was used. Every item of the Gujarati WHO-5 well-being scale was assessed for wording, content, format, scoring and ease of administration. With consideration of various suggestions from professionals, an 80% of consensus was gained. All eight professionals accepted all items of the Gujarati WHO-5 well-being scale.

RESULTS

The study enrolled 60 participants with a mean age of 67.02±4.77 years. Out of 60 participants, 28 were females and 32 were males. The average Body Mass Index (BMI) of all participants was 23.3±3.48 kg/m^2.

Face and content validity: For evaluating face validation, five participants provide their feedback on wording, content, format, scoring and ease of administration. The Gujarati WHO-5 well-being scale was easily understandable to assess the psychological well-being of the elderly.

For content validation, all the eight professional scores "3" represented "accepted" for each item of the Gujarati WHO-5 well-being scale. The CVR value of all items of the Gujarati WHO-5 well-being scale was 1. CVR value was more than 0.78, which indicated approval of the scale [Table/Fig-1].

Reliability: The Gujarati WHO-5 well-being scale showed excellent test-retest reliability (ICC=0.89) and high internal consistency (α=0.89).

Professionals' opinion regarding acceptance of each question of the Gujarati WHO-5 well-being scale									No. professionals reviewed as "Accepted"	CVR
No. of questions of scale	P1	P2	P3	P4	P5	P6	P7	P8		
1. I have felt cheerful and in good spirits.	3	3	3	3	3	3	3	3	8	1
2. I have felt calm and relaxed.	3	3	3	3	3	3	3	3	8	1
3. I have felt active and vigorous.	3	3	3	3	3	3	3	3	8	1
4. I woke up feeling fresh and rested.	3	3	3	3	3	3	3	3	8	1
5. My daily life has been filled with things that interest me	3	3	3	3	3	3	3	3	8	1

[Table/Fig-1]: Content Validation Ratio (CVR) value of five questions of the Gujarati WHO-5 well-being scale.
P1, P2, P3,....P8 indicate number of professionals

For calculating content validity, each item of the scale was graded by the eight professionals on a scale of 1 to 3, in which:

- 1 represents "rejected",
- 2 represents "accepted with modification" and
- 3 represents "accepted".

Content Validation Ratio (CVR) was calculated [14]:

$$CVR=(Ne-N/2)/(N/2)$$

Where, Ne=Number of professionals scoring each question of the scale as "accepted"

N=Total number of professionals

Content validation ratio value 0.78 was authorised by table of lawshe [14].

Reliability: A total of 60 participants were enrolled to find out the reliability of the Gujarati WHO-5 well-being scale. Cronbach's alpha was used to calculate the internal consistency of the Gujarati WHO-5 well-being scale. Cronbach alpha values of 0.70 were regarded as acceptable consistency and 0.90 as excellent consistency [11]. The ICC was used to calculate the test-retest reliability of the Gujarati WHO-5 well-being scale. For test-retest reliability, the Gujarati WHO-5 well-being scale was administered twice with an interval of two weeks [15].

STATISTICAL ANALYSIS

The Statistical Package for the Social Sciences (SPSS) version 26.0 was used for the statistical analysis. Descriptive data of participants was presented as mean and Standard Deviation (SD). Cronbach's alpha was used to calculate the internal consistency of the Gujarati WHO-5 well-being scale. The ICC was used to calculate the test-retest reliability of the Gujarati WHO-5 well-being scale. The level of significance was kept as p-value <0.05.

DISCUSSION

The Gujarati WHO-5 well-being scale is a simple, valid and reliable tool for evaluating psychological well-being and mental health status. To date more than 30 translated versions of the WHO-5 well-being scale are available. Topp CW et al., did a systematic review of the literature on the WHO-5 and concluded that the scale has excellent validity for screening of depression in a clinical setting as well as for research purpose [7].

Eser E et al., conclude that the Turkish version of WHO-5 well-being scale has excellent measurement capacity and internal consistency with an alpha value of adults (0.81), and older adults (0.86) and it can be used as a screening tool in the primary healthcare setting [16].

Sibai AM et al., concluded the Arabic 5-item WHO well-being index is a useful and valid screening tool for evaluating depression in the elderly population of Lebanese at a cut-off value less than 13 (sensitivity=0.783, specificity=0.828, and kappa value=0.610) [10]. Gujarati WHO-5 well-being scale has high internal consistency (α=0.89) and excellent test-retest reliability (ICC=0.89). In the present study, we calculated face validity, content validity and reliability, which was found to be similar to various translated version of the WHO-5 Well-being scale [Table/Fig-2] [5,11,15,17,18].

The Gujarati WHO-5 well-being scale is quick, simple, valid and reliable tool for screening of depression as this can be used to screen depression and other mental health conditions in clinical and non clinical setting. Future studies can extend the other validation process of the Gujarati WHO-5 well-being scale in older individuals and validate it in other clinical as well as non clinical populations.

Various translation of WHO-5 well-being scale	Authors of the study	Place of study	Publication year	Reliability	Validity
Malay version [11]	Suhaimi AF et al.,	Malaysia	2022	Cronbach's alpha value=0.91 Reliability (Test-retest) (r-value=0.69, p-value <0.01)	Malay version of the WHO-5 and PHQ-9 (r-value=-0.57, p-value <0.01) Malay version of the WHO-5 and DMSES (r-value=0.51, p-value <0.01)

Thai [17]	Saipanish R et al.,	Bangkok	2009	Cronbach's alpha=0.89	For convergent validity, WHO-5 and Hamilton Rating Scale for Depression (r-value=-0.54; p-value <0.001)
Japanese [5]	Awata S et al.,	Japan	2006	Cronbach's alpha=0.89	ROC analysis (Area under curve: 0.92; 95% confidence interval: 0.85-0.98).
Danish [18]	Schougaard LM et al.,	Denmark	2018	Cronbach's alpha=0.89	ICC 0.81 (95% CI 0.78; 0.84). MDC was 23.60 points (95% CI 22.27; 25.10)
Bangla [15]	Faruk MO et al.,	Dhaka	2021	Internal consistency (α=0.754) and test-retest reliability (r-value=0.713)	For divergent validity, WHO-5 and Bangla version of Perceived Stress Scale-10) (r-value=-0.443, p-value <0.01) For convergent validity, Bangla version WHO-5 and Warwick-Edinburgh Mental Well-Being Scale. (r-value=0.542, p-value <0.01)
Gujarati	Present study	Ahmedabad, Gujarat	2022	Test-retest reliability (ICC=0.89) and high internal consistency (α=0.89).	Excellent face and content validity found. Other validity was not tested.

[Table/Fig-2]: Reliability and validity of various translation of WHO-5 well-being scale.
ICC: Interclass correlation coefficient; r: Correlation coefficients; PHQ-9: Patient health questionnaire; DMSES: Diabetes management self-efficacy scale; ROC: Receiver operating characteristic; MDC: Minimal detectable change

Limitation(s)

The present study was done in a community-dwelling older population, this may arise the issue of generalisability. The other validity of the Gujarati WHO-5 well-being scale, other than face and content validity, was not examined in this study.

CONCLUSION(S)

The Gujarati WHO-5 well-being scale is a quick, simple, valid and reliable tool for screening for depression as well as a measure of mental health in older individuals. Research scholars can extend the use of the Gujarati WHO-5 well-being scale as a quick screening tool for determining depression and mental health status.

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PARTICULARS OF CONTRIBUTORS:
1. PhD Scholar, Faculty of Physiotherapy, Sankalchand Patel University, Visnagar, Gujarat, India.
2. Principal, Faculty of Physiotherapy, Nootan College of Physiotherapy, Sankalchand Patel University, Visnagar, Gujarat, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Vipra Dalal,
D-301, Pushkar-4, PT College Road, Paldi, Ahmedabad, Gujarat, India.
E-mail: vipradalal292@gmail.com

WHO (FIVE) Well-being Index (1998)

કૃપા કરીને નિમ્નલિખિત પાંચ વાક્યો માટે,છેલ્લા બે અઠવાડિયાથી તમે કેવું અનુભવી રહ્યા છો તે દર્શાવો.

નોંધ લો કે વધારે અંક નો અર્થ થાય છે સારી સુખાકારી.

ઉદાહરણ : જો તમે છેલ્લા બે અઠવાડિયા દરમિયાન અડધા થી વધુ સમય માટે ખુશખુશાલ અને સારું અનુભવી રહ્યા છો તો જમણી બાજુ આપેલા ખાના નંબર 3 માં ખરા ની નિશાની કરો.

છેલ્લા બે અઠવાડિયા થી	સંપૂર્ણ સમય માટે	મોટા ભાગ ના સમયે	અડધા થી વધુ સમય માટે	અડધા થી ઓછા સમય માટે	ક્યારેક જ	કોઈપણ સમયે નહી
૧. હું ખુશખુશાલ અને જુસ્સાદાર અનુભવું છું						
૨. હું શાંતિ અને હળવાસ અનુભવું છું						
૩. હું પોતાને સક્રિય અને સશક્ત અનુભવું છું						
૪. મે સવારે જાગી ને પોતાને તાજગીભર અને આરમીક અનુભવું છું						
૫. મારુ દૈનિક જીવન મારી રુચિ અનુરૂપ પ્રવૃતિ ઓથી ભરેલું છે						

ગણતરી:

કુલ આંક એ મેળવેલા પાંચ જવાબ ના સરવાળો કરી ને કરવામાં આવે છે. કુલ આંક ૦ થી ૨૫ ની વચ્ચે હશે . ૦ એ નિમ્ન અને ૨૫ એ શ્રેષ્ઠ શક્ય જીવન ગુણવતા દર્શાવે છે

ટકાવારી ગુણાંક ૦ થી ૧૦૦ ની વચ્ચે મેળવવા માટે કુલ આંક ને ચાર વડે ગુણવામાં આવશે. ટકાવારી ગુણાંક માં ૦ એ નિમ્ન અને ૧૦૦ એ શ્રેષ્ઠ શક્ય જીવન ગુણવતા દર્શાવે છે

અર્થઘટન :

જ્યારે કુલ આંક ૧૩ કે તેથી ઓછો આવે અથવા દર્દી કોઈ પણ પાંચ વાક્યો માંથી એકનો પણ જવાબ ૦ અથવા ૧ આંક આપે તો major depression (ICD-10) Inventory નું સંચાલન કરવાની ભલામણ કરવામાં આવે છે. ૧૩ ની નીચે નો આંક નબળી સુખાકારી સૂચવે છે. અને ICD-10 હેઠળ હતાશા માટેના પરીક્ષણ સૂચવે છે.

ફેરફારો નું નિરીક્ષણ :

સુખાકારી માં થતાં ફેરફારો નું નિરીક્ષણ કરવા માટે ટકાવારી ગુણાંક નો ઉપયોગ કરવામાં આવે છે.

૧૦ % નો તફાવત નોંધપાત્ર ફેરફાર દર્શાવે છે.