

Urdu translation and validation of GAD-7: A screening and rating tool for anxiety symptoms in primary health care

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Abstract

Objective: To translate and validate Generalized Anxiety Disorder -7 scale in Urdu, for use in Pakistan in the primary healthcare setups.

Methods: The validation study was conducted at the Combined Military Hospital, Gilgit, Pakistan, from February to May 2016. We followed a systematic six-step process to validate the Generalized Anxiety Disorder-7 scale in the target population. The instrument was translated independently and then fused together. Back-translation was followed by recommendations by an expert committee, and face validity improvement by a language expert. A pilot study was done to get user's feedback on the construct. Volunteers were administered the questionnaire for validation procedure, along with a well-being scale, at three different cities representing volunteers from four different administrative regions of Pakistan.

Results: There were 285 volunteers in the study. Principal component exploratory factor analysis supported unidimensional structure of the scale with an eigenvalue of 5.18 and it explained 64.8% of the total variance. Total score on the scale was negatively correlated with positive affect ($r = -0.44$, $p < 0.001$) and life satisfaction ($r = -0.49$, $p < 0.001$) subscales of a the well-being scale, while it was positively correlated with the negative affect ($r = 0.63$, $p < 0.001$) subscale of the same, indicating a good level of convergent and discriminate validity. Cronbach's alpha for the scale was 0.92 and split-half reliability was 0.82, revealing a good level of reliability.

Conclusions: The Generalized Anxiety Disorder -7 scale was found to be a validated, brief, self-administered Urdu tool to screen, rate, and monitor outcome of anxiety disorders in primary healthcare setups.

Keywords: GAD-7, Anxiety, Primary healthcare, Pakistan. (JPMA 67: 1536; 2017)

Introduction

Anxiety disorders were the sixth leading cause of Years Lived with Disability (YLD) worldwide, prevalent predominantly in the females.¹ The one-year prevalence rate of anxiety disorders in the general population was estimated to be over 10%.²

Encountered very frequently in the primary care setups,³ anxiety remained a major issue confounded by misdiagnosis, missed diagnosis, inappropriate treatment⁴ and over-expenditure on unnecessary investigations and consultations.⁵ If not diagnosed, it may lead to years of impairment in functioning, and consequently poorer quality of life in the affected individuals.⁶ Unexpectedly high-quality research in detection and prevention of such disorders was scarce in contemporary literature,³ thus highlighting the great need.

Keeping the above difficulties in mind, Primary Care

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Evaluation of Mental Disorders (PRIME MD) was developed,⁷ which, however, remained quite a time-consuming task to administer. It was later simplified to a self-administered Generalized Anxiety Disorder-7 (GAD-7) scale,⁸ which became a specific tool for diagnosing generalised anxiety disorder (GAD) in primary care setups.⁹

With use it was found that GAD-7 not only identified generalised anxiety disorder, but in addition also screened patients having other anxiety disorders like panic disorder, social anxiety disorder, and posttraumatic stress disorder, with a high sensitivity and specificity.¹⁰

GAD-7 is based on the Diagnostic and Statistical Manual of Mental Disorders Version IV (DSM IV) diagnostic criteria for generalised anxiety disorder, and had 7 items, each scoring from 0 to 3, leading to a total maximum score of 21. The total scores of 5, 10 and 15 are taken as mild, moderate, and severe in terms of the subject's symptom intensity.¹¹

All the above described problems were faced in our setups too, where we lacked practical and little time-consuming questionnaires in our national language. Since Urdu had quite a sparse repertoire of such

psychiatric instruments, we aimed at translating GAD-7 into Urdu, and validating it in primary healthcare (PHC) setup. Urdu is the national language of Pakistan, and majority of almost 189 million of the country's population could easily read, write and understand it, beside the millions of other individuals scattered worldwide.¹²

Materials and Methods

The validation study was conducted at the Department of Psychiatry, Combined Military Hospital, Gilgit, Pakistan, from February to May 2016. After approval from the institutional ethics review committee, we followed the American Association of Orthopaedic Surgeons (AAOS)¹³ recommendations for translating and validating medical instruments.

In the first phase, two bilingual translators completed two different forward translations of the questionnaire 'T1' and 'T2' into Urdu. Being a subject expert, the first translator was aware of the reason of translation, but the second translator, who was an English Literature faculty member, was kept blind to the purpose.

In the next stage, fusion of the two independent translations was done into 'T-12', while addressing the difficulties faced during translation by the first two translators. The process involved both the initial translators, and a third observer, a psychiatrist. The 'instructions' part of the questionnaire generated a debate, especially the 3rd option 'more than half the days'. Translating it into Urdu gave the impression as if the responder needed to tell if the symptom was present for more than half a day. So we adjusted the translation and therefore had to adjust the preceding options too, relating both to either being less than a week or more.

The 3 terms used in point 1 had no discrete meaning in Urdu, and were the ones that were used interchangeably. Especially for the phrase 'on edge' we were unable to find an exact alternative and so settled for an Urdu phrase that might explain the concept closest.

In point number 2 'worry' took up some time to decide upon the exact linguo-cultural alternative. We had two different options that we described to use concomitantly. But this was bearing a duplication of point number 1, so one of the words in Urdu 'pareshaani' was dropped.

The third stage involved two naive faculty members from the local university, to back-translate the 'T-12' into English. They had not seen the original English version and therefore verified the content similarity of the translation.

In the fourth stage of the first phase, translators, back-

translators, subject experts and both English and Urdu language experts had a meeting and a general agreement was reached on the overall impact and meaning of each and every point of the questionnaire, including the instructions. Finally, an Urdu language expert reviewed the finalised questionnaire, thus improving its face validity.

Before the validation phase, a pilot study was conducted on a gender-proportionate 50 adults sample from the PHC setup of the hospital to detect and address any difficulty in reading and understanding the translated questionnaire. For validation, after explaining study objectives, we administered GAD-7 along with Institute of Clinical Psychology Subjective Well-Being Scale (ICP-SWBS)¹⁴ and a demographic sheet on patients reporting to PHC clinics of three tertiary care hospitals. We also added a separate photocopied sheet of paper at the end, with just a question written on it: "please describe in your own words the difficulties that you faced in understanding the instructions and questions on this questionnaire, along with the question number". No such difficulty was reported by any of the participants. The study sample included individuals belonging to four provinces of Pakistan; Punjab, Sindh, Gilgit-Baltistan (GB) and Khyber Pakhtunkhwa (KPK). Purposive sampling technique was used to recruit adult volunteers and the respective ethics committees approved their parts of the study. Research data were analysed using descriptive and inferential statistical techniques with SPSS 23.

Results

Of the 285 subjects in the study, 55.1% were males. Overall, 38 had hypertension, 28 diabetes mellitus, 13 ischaemic heart disease, 10 asthma, 9 tuberculosis, 13 Hepatitis, 31 psychiatric illnesses, and 100 with other assorted medical complaints. Out of them 73 reported a positive family psychiatric history. In terms of residential locations, 68 (23.9%) subjects were from GB, 102 (35.8%) from Punjab, 95 (33.3%) from Sindh, and 18 (6.3%) from KPK. Of the total, 190 (66.7%) were married. Their age ranged from 16 to 80 years and 193 fell in the 20-40 age range. Regarding participants' education; 30 (10.5%) were uneducated, 85 (29.8%), 56 (19.6%), 49 (17.2%), and 32 (11.2%) reported 10, 12, 14, and 16 years of education respectively. Overall, 84 subjects were employed in the military, 63 were housewives, and 46 were students.

Psychometrics were established through validity and reliability analysis. Validity was calculated through factor analysis and was supported by convergent and discriminate validity, while reliability was established

Table: Mean, standard deviation, item total correlations, and factor loading for GAD-7 obtained from Principal Component Factor Analysis (N = 285, Items = 7).

S. No.	Item No.	Factor Loading	M	SD	Item-Total Correlations
1	2	0.796	1.8	0.99	0.79**
2	4	0.793	1.71	0.97	0.81**
3	6	0.791	1.77	1.08	0.79**
4	5	0.788	1.79	1.01	0.81**
5	7	0.785	1.72	1.01	0.81**
6	1	0.76	1.88	1.12	0.82**
7	3	0.75	1.71	1.02	0.81**
GAD-D*	D.	0.71	1.68	0.8	0.74**

Eigenvalue 5.18.

% Variance 64.8.

Note: *Level of difficulty in functioning. **Correlation is significant at 0.01 level. GAD-7: Generalized Anxiety Disorder -7 scale.

GAD-7				
(تکرار زیادہ)	(ایک بار سے زیادہ)	(کئی بار)	(بہت کم)	(بہت زیادہ)
				گزشتہ دو ہفتوں کے دوران مندرجہ ذیل مسائل نے آپ کو کتنا پریشان کیا؟
				۱۔ گھبراہٹ، پریشانی یا شدید نوعیت کا تناؤ۔
				۲۔ پریشانی یا فکر پر قابو پانے میں دشواری۔
				۳۔ مختلف چیزوں کے بارے میں حد سے زیادہ بڑھی ہوئی تشویش۔
				۴۔ پرسکون رہنے میں دشواری۔
				۵۔ اس قدر بے چینی یا اضطراب کہ ایک جگہ بیٹھنا مشکل ہو جائے۔
				۶۔ معمولی باتوں کا برا لگنا یا چڑچڑاہٹ۔
				۷۔ ایک انجانے خوف کا احساس جیسے کچھ بہت برا ہونے والا ہے۔
نوٹ:-				
آپ نے کسی مسئلے پر (س) کا نشان لگا دیا ہے جو تین مسائل کی حد سے آپ کا کرنے				
بچہ کرنا نہیں دیکھ سکتا اور دوسروں کے ساتھ ملنے میں مشکل پیش آتی۔				
(بہت زیادہ)	(بہت کم)	(بہت کم)	(بہت زیادہ)	

Annexure: Urdu version of Generalized Anxiety Disorder -7 scale.

through Cronbach's alpha and split-half reliability.

Before conducting factor analysis, item-total correlations were documented and the minimum correlation to retain item for factor analysis was ≥ 0.5 . All items were positively and significantly correlated with the total score ($p < 0.05$).

The item-responder ratio was 1:40. The Bartlett test of Sphericity was highly significant ($p < 0.00$) and Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was 0.91, indicating sufficient items for factor analysis. The correlation matrix was significantly different from an identity matrix. Therefore, it was legitimate to proceed

with factor analysis.

Principal component analysis (exploratory factor analysis) with Varimax rotation revealed a single factor solution completed on a criterion of minimum factor loading of 0.71. Factor analysis supported unidimensionality structure of GAD-7 measuring various dimensions of generalised anxiety disorder. The Eigenvalue for the factor was 5.18 and it explained 64.8% of the total variance (Table).

Establishing its discriminant and convergent validities further supported the construct validity for GAD-7. Total score on GAD-7 was negatively correlated with positive effect ($r = -0.44$, $p < 0.001$) and life satisfaction ($r = -0.49$, $p < 0.001$) subscales of ICP-SWBS, while it was positively correlated with the negative effect ($r = 0.63$, $p < 0.001$) subscale of ICP-SWBS. In this study, the correlations matrix indicated a good level of discriminate and convergent validity of GAD-7.

Reliability analysis for GAD-7 was established through Cronbach's alpha and split-half reliabilities. Results indicated that the Cronbach's alpha for GAD-7 was 0.92, which revealed an excellent level of internal consistency among all items of the scale. Split-half reliability for GAD-7 part 1 ($r = 0.86$) and part 2 ($r = 0.85$) was noted, and correlation between two halves was satisfactory ($r = 0.82$). Spearman Brown coefficient was 0.90, and Guttman split-half coefficient was also 0.90.

Gender differences in GAD-7 revealed that females were more likely to have anxiety symptoms than the male participants ($p < 0.001$).

Participants' symptoms of generalised anxiety disorder were compared based on their living area in Pakistan. One-way analysis of variance (ANOVA) revealed that participants' living area significantly influenced their level of anxiety symptoms ($F = 9.76$, $p < 0.001$). Post-hoc analysis revealed that participants living in GB reported significantly higher level of generalised anxiety disorder symptoms compared to participants living in Punjab ($p < 0.01$) and Karachi ($p < 0.001$). And participants from KPK also reported higher level of generalised anxiety disorder symptoms compared to participants from Karachi ($p < 0.05$). Consequently, participants from GB were more likely to have anxiety symptoms and participants from Karachi were less likely to have the same. Participants' education level was negatively associated ($r = -.33$, $p < 0.001$) with their reported level of symptoms of anxiety. It indicated that when volunteers' level of education increased their level of anxiety decreased.

Participants' marital status ($F = 2.07$, $p > 0.05$) and age ($r = -0.02$, $p > 0.05$) did not influence their reported symptoms of generalised anxiety disorder.

Discussion

In the current study, adapted version of GAD-7 in Urdu yielded one-dimensional structure that matched with the original structure made on DSM-IV diagnostic criteria. All items measured the same construct in the same direction as revealed by a single-factor solution with an excellent level of loading. In addition, the scores for GAD-7 were negatively correlated with positive effect and life satisfaction subscales of ICP-SWBS and positively correlated with negative effect subscale of ICP-SWBS, demonstrating a good level of discriminant and convergent validities. Similar findings were reported in a Spanish study¹⁵ where GAD-7 was adapted in Spanish and a uni-dimensional structure was established through exploratory and confirmatory factor analysis. They found a good level of inter-rater validity, discriminant validity, convergent validity, and criterion validity. There the total scores on GAD-7 were highly and positively correlated with other assessment scales and it had clearly discriminated patients with generalised anxiety disorder from control group. Same were reported in a Portuguese study where uni-dimensionality of GAD-7 was confirmed and convergent validity was established with Hospital Anxiety and Depression Scale (HADS) scores.¹⁶ Similar results were found¹⁷ in the general population of Germany, where confirmatory factor analysis revealed single factor loading identical with the original scale. Same were found in Malaysia and Korea.^{18,19}

The reliability analysis for the adapted version into Urdu revealed a good level of Cronbach's alpha and split-half reliability. Similar level of Cronbach's alpha was found for the Spanish, Portuguese, German and Korean versions.^{15-17,19}

People living in different locations of Pakistan reported different levels of symptoms of anxiety. There is no such empirical research available in Pakistan that has compared the level of anxiety among people living in different provinces of Pakistan. In the present study gender came out as a significant predictor of symptoms of anxiety i.e. females reported higher level of symptoms compared to the male participants. Similar findings were reported by an earlier study in GB where females showed lower level of mental health, including higher levels of anxiety, than males.²⁰

Participants' educational level was associated negatively with symptoms of generalised anxiety disorder i.e. participants with higher level of education were less likely to have symptoms of anxiety. According to Bjelland,²¹ low

level of education was significantly associated with anxiety, and higher education levels worked as protective factor against anxiety throughout life. Low level of education had been one of the most important factors associated with anxiety disorders in Pakistan too.²²

In terms of limitations, the study assumed that the selected sample can be linguistically representative of the National population. However, the sample size from KPK was small in size and volunteers could not be selected from Balochistan province.

Therefore, in future studies it is recommended to include sample proportionally from all provinces of Pakistan with different segments of population, including psychiatric patients and healthy control groups to ensure the generalisability of research findings on Pakistani population.

Conclusion

The adapted version of GAD-7 into Urdu showed an excellent level of psychometric properties such as construct validity, convergent validity, discriminant validity, Cronbach's alpha reliability, and split-half reliability. This may open new areas of research, and help PHC physicians in correctly identifying cases of GAD and its related disorders.

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