RESEARCH ARTICLE

Urdu translation and validation of clinically useful anxiety outcome scale in Pakistan: 'An observational study'

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Abstract

Objective: To translate and evaluate the psychometric properties of the Clinically Useful Anxiety Outcome Scale on Urdu-speaking population.

Method: The observational validation study was conducted in Rawalpindi and Islamabad, Pakistan, from January 2018 to December 2019 in two phases. In the first phase, the Clinically Useful Anxiety Outcome Scale was forward and backward translated, while in the second phase, the translated scale was validated on a sample comprising subjects in clinical and nonclinical settings. Internal consistency and test-retest reliabilities were examined, and inter- group mean comparison was made. To find out the level of language equivalence between the original and the translated versions, a data were collected from a separate sample of bilingual participants. Data was analysed using SPSS 22.

Results: The Clinically Useful Anxiety Outcome Scale-Urdu was found to be internally consistent (α=0.95). Test-retest reliability of the translated scale was satisfactory (r=0.74). Significant correlational values for convergent and discriminant validity (r=0.76, r=-0.54, p<0-01) were observed.. Significant mean difference between clinical and non-clinical groups established the criterion-related validity of the Urdu translation. Language equivalence between the original and the translated versions showed non-significant mean differences (p>0.05) and significant correlation coefficients (p<0.05).

Conclusion: The Clinically Useful Anxiety Outcome Scale-Urdu was found to be a valid and reliable tool for measuring anxiety symptoms in Urdu-speaking populations.

Keywords: Anxiety scale, Urdu translation, Psychometrics, Reliability, Validity, Cross-language validation, CUXOS-Urdu. (JPMA 72: 832; 2022)

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Introduction

Anxiety is a debilitating state, the symptoms of which have been categorised into different disorders by the Diagnostic and Statistical Manual-5 of the American Psychiatric Association and its previous versions.[1] There is a larger consensus that anxiety is a characteristic feature of the current times.[2] It contributes to significant degree of impairment, is a massive economic burden for the general public[2] and is associated with high healthcare costs.[3]

There is a gap in literature about the prevalence of anxiety disorders globally and the related research field is fragmented.[4] Different reviews have found physical and mental health problems and stressful life events linked to anxiety disorders in adult and child populations.[2] According to 2015 estimates by the World Health Organisation (WHO),[5] 3.6% of global population (264 million people) suffered from anxiety disorders. As per an international report,[4] 16.6% population suffers from lifetime prevalence of anxiety disorders.

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Prevalence studies in Pakistan regarding anxiety disorders are insufficient and sporadic. No recent national epidemiological survey or study could be found which would provide estimates of anxiety disorders in the local population. A rather recent report identified high prevalence of anxiety, which was 75% in working women and 45% in non-working women.[6] Another study identified 75% anxiety disorders and 31% depression in women diagnosed with infertility.[7] Also, 41% male medical students and 59% female medical students had anxiety and depression.[8] Researchers also found high level of anxiety and depressive symptoms among doctors, and suggested regular screening and prompt management for healthcare providers.[9]

Not many anxiety-assessment tools are translated into Urdu. A systematic review of translated psychiatric scales in Pakistan[10] reported a dearth of validated questionnaires assessing psychiatric symptoms in Urdu. To fill this gap, there is a strong need to translate an anxiety scale that could measure general symptoms, disorder-specific symptoms and comorbidity.

The Clinically Useful Anxiety Outcome Scale[11] (CUXOS) is a psychometrically sound general measure that assesses

psychic and somatic anxiety.[11] There are 20 items in the scale. Six of them measure psychic and 14 measure somatic anxiety. CUXOS has been found to match well with DSM-5 criteria of anxiety disorders.[12] Average time for the client to complete CUXOS is <2 minutes and the scorer can score the scale within 15 seconds.[11]

CUXOS has strong psychometric properties. The scale is internally consistent (α=0.95) and has a good test re-test reliability (r=0.90). Its convergent validity with Beck Anxiety Inventory (BAI) is 0.79, and it provides reliable and valid information to the clinicians, is easy to administer and can be scored with minimal training.[11]

Anxiety and depression are often comorbid conditions. According to a comorbidity study, 62% individuals having generalised anxiety also experience major depressive episode in their lifetime[13] CUXOS is designed to measure anxiety symptoms that are comorbid with depression. It can be used to identify comorbidity of both the conditions for better treatment planning.[13]

The item statements of CUXOS are simple, easy to understand and score compared to some of the earlier anxiety scales,[14] which are more time-consuming,[15] costly,[16] difficult to score[17] or measure only single anxiety disorder.[18]

The CUXOS is sensitive in nature, and can identify anxiety in patients with or without any specific anxiety disorder(s). It also helps in screening procedures and evaluates symptomatic changeability in patients throughout the course of their treatment.[11]

The current study was planned to translate and evaluate the psychometric properties of CUXOS on Urdu-speaking population.

Subjects and Methods

The observational validation study was conducted in Rawalpindi and Islamabad, Pakistan, from January 2018 to December 2019 in two phases after approval from ethics review committee of the National Institute of Psychology, Centre of Excellence, Quaid-i-Azam University, Islamabad. The process of translation and validation was completed in two phases. In the first phase, CUXOS was translated into Urdu by following the Brislin criteria.[19] In the second phase, the psychometric properties of the translated scale were evaluated.

The total 20-item CUXOS score from ranges 0-80 and is scored on a 5-point Likert scale, where 0 = not at all true, to 4 = almost always true. An obtained score of <10 is non-anxious; 11-20 shows minimal anxiety; 21-30 depicts mild anxiety; 31-40 is moderate anxiety, and 41 and more indicate severe anxiety.[11]

Before starting the translation process, the original CUXOS was tried out on a sample of 4 females and 4 males having anxiety symptoms. Their age ranged from 26-39 years and their education level was graduate and post-graduate. The participants provided positive feedback about the usefulness of the scale in measuring their anxiety symptoms. Thereafter, the translation process of the instrument commenced.

In phase I, the first step comprised forward translation from English to Urdu by three bilingual experts a medical doctor and two Ph.D scholars who had prior experience of translating scales. Translations were then presented to an expert committee which was the second step in phase I.

The translations were analysed by the expert committee comprising two assistant professors with Ph.D qualifications in Psychology, and one Ph.D scholar, having previous experience in reviewing translations. The scale was then recommended for backward translation, which was the third step. Three independent bilinguals -- an MS, an M.Phil, and an MBBS degree holder -- who did not have any access to the original English version of CUXOS did the back translation.

Step 4 involved the same committee that had scrutinised the forward translation step 2. It analysed the backward translation and compared them with the original version of CUXOS. Items 5, 9, 10 and 16 were slightly modified. The final version retained all the 20 translated items. After the translation was completed, the scale was subjected to validation research in Phase II.

For the first validation study, which was carried out to establish reliability and criterion, convergent and discriminant validity of the translated CUXOS, the sample size was calculated in the light of literature.[20] The sample was divided into clinical and non-clinical groups. The clinical group comprised adults with anxiety symptoms, anxiety comorbid psychiatric disorder/s, such as depression, literacy in Urdu, and who could self-report. Those excluded were individuals with any serious medical or psychological / psychiatric condition or injury, substance use, recent surgery, pain disorder, psychotic and schizophrenia spectrum disorders, intellectual disability and neurological disorder.

The nonclinical group had adult functional individuals of from the community who were literate in Urdu, and who did not have any clinically significant anxiety symptoms that interfered with social and occupational functioning, and who were neither on any psychiatric medication nor seeing any mental health professional. Those excluded

were individuals who could not self- report, substance users, excluding tobacco, having any neurological condition, intellectual disability, any severe medical condition, or serious injury. The clinical group participants were taken from the Capital Development Authority (CDA) Hospital, Islamabad, psychiatric ward where the doctor on duty assigned the participants after ascertaining if they met the inclusion criteria and gave informed consent. The nonclinical participants who met the inclusion criteria and gave informed consent were taken from the community.

All the enrolled subjects were handed booklets containing the demographic sheet, the translated version of CUXOS, the Urdu version of Depression Anxiety Stress Scale[21] (DASS) for establishing convergent validity, and the Urdu version of Satisfaction with Life Scale[22] (SWLS) for establishing discriminant validity. Scoring instructions were given subsequently.

Against a required item-to-respondent ratio range of 1:5-1:10, this part of the study had a ratio of 1:8.5. The test-retest reliability of the translated CUXOS was carried out on an available sample of 35 students who volunteered participation. They were post-graduate students at the National Institute of Psychology, Centre of Excellence, Quaid-i-Azam University, Islamabad. The inclusion and exclusion criteria of the nonclinical group applied to this sample. The participants were provided with the same booklets, containing the demographic sheet, the translated CUXOS, DASS and SWLS. There was a gap of two weeks between test-retest administrations.

Data was analysed using SPSS 22. Descriptive and inferential analyses were carried out. To determine the internal consistency and reliability of the instrument, Cronbach alpha reliability coefficient and test-retest reliability were computed. Pearson product moment correlation was conducted to study the convergent and discriminant validity of the translated scale. Contrast groups' comparison was carried out on the clinical and nonclinical sample through independent sample t-test for criterion validity.

A second study was carried out to conduct cross-language validation of CUXOS-Urdu. It was assumed that if the translated version of CUXOS was equal to the original English version, there would be significant positive correlations between both the versions of the scale and mean difference in pre-post scores would not be significant.

A convenient sample of bilingual students were approached after seeking permission from the relevant authorities at two public-sector universities in Islamabad. Those who gave informed consent were invited to participate.

The sample size was calculated in line with the item-respondent theory.[20] Against a required item-to-respondent ratio range of 1:5-1:10, this part of the study had a ratio of 1:4.1.

To compare the scores of each participant on both versions of CUXOS, the scales were administered at two points in time. On the first administration, half the participants were given original English version and the remaining were given the translated CUXOS to score. The second administration took place after a week. The participants who were given the English version earlier, scored the Urdu version this time, and those who were given the Urdu version earlier scored the English version. Mean comparison through pair t-test was done using SPSS 22.

Results

Of the 250 individuals approached for the first study, 170(68%) participated; 92(54.1%) men and 78(45.9%) women. The overall mean age was 29.74±10.19 years (range: 18-65 years). Of them 85(50%) with a mean age 33.68±12.73 years were in the clinical group and 85(50%) with a mean age of 25.70±6.75 years were in the nonclinical group. Overall, 6(3.59%) subjects did not complete matriculation, 14(8.3%) completed high school, 12(7.14%) were undergraduates, 93(55.35%) were graduates, 43(32.2%) were postgraduates, and 4(2.3%) went to seminaries. Those who lived in a joint family were 81(47.6%) and 89(52.3%) were from nuclear families. There were 101(69.1) unmarried participants, 61(36.30) were married 3(1.78%) were divorced, 1(0.59%) was separated, and 2(1.19%) were widowed. Besides, 137(81.06%) participants were not on any medical treatment, 10(5.91%) were on general medical treatment and 15(8.87%) were receiving psychiatric treatment (Table-1).

The Cronbach alpha values for the translated CUXOS and its clinical and nonclinical subgroups displayed satisfactory levels of reliability (Table-2). The item-to-total correlation coefficients for the entire sample and for the subgroups were significant (Table-3). The convergent and discriminant validity of the CUXOS-Urdu with DASS and SWLS in the total sample as well as in the subgroups were also significant and in the assumed direction (Table-4).

For the test-retest reliability of the translated CUXOS, the sample comprised 35 subjects; 2(%) men and 33(%) women. The overall mean age was 21.31±2.03). The correlation coefficient was significant ($r=0.74$, $p<0.01$).

Table-1: Demographic data (n=170).

Categories	Sub-categories	f (%)	Missing f (%)
Groups	Clinical	85(50)	0(0)
	Non-clinical	85(50)	0(0)
Gender	Male	92(54.1)	0(0)
	Female	78(45.9	
Religion	Muslims	167(98.2)	0(0)
	Christians	2(1)	
	Other	1(.58)	
Family System	Joint Family System	81(47.6)	0(0)
	Nuclear	89(52.3)	
Family members	1-10	121(74.69)	8(4.7)
	11-20	32(19.75)	
	21-30	7(4.32)	
	31 +	2(21.8)	
Children	No children	112(65.9	2(1.1)
	1-3	35(20.7)	
	4-6	15(8.87)	
	7-9	5(2.95	
	10 +	1(0.6)	
	Nuclear	89(52.3)	
Ethnicity	Punjabi	61(36)	1(0.6)
	Pathan	44(26)	
	Balochi	7(4.1)	
	Sindhi	5(2.95)	
	Kashmiri	4(2.36)	
	other	48(28.4)	
Educational level	Primary Education	5(2.9)	2(1.2)
	Middle	1(0.6)	
	Matriculation	14(8.2)	
	Intermediate	12(7.1)	
	Graduate	93(54.7)	
	Postgraduate	39(22.9)	
	other	4(2.3)	
Marital Status	Single	101(59.4)	2(1.2)
	Married	61(35.9)	
	Separated	1(0.6)	
	Divorced	3(1.8)	
	Widowed	2(1.12)	
Occupation	Govt., employees	16(9.4)	0(0)
	Private employees	11(6.5)	
	Unemployed	6(3.5)	
	Business	13(7.6)	
	Students	75(44.1)	
	Housewives	15(8.8)	
	Educationist	18(10.6)	
	Other professionals	16(9.4)	
Diagnosis	No Diagnosis	113(67.26)	2(1.2)
	General	23(13.69)	
	Psychiatric	23(13.69)	
	General, Psychiatric	9(5.35)	
Treatment	No Treatment	118(69.4)	0(0)
	General	21(12.4)	
	Psychiatric	17(10.)	
	Psychological	6(3.5)	
	General, Psychiatric	4(2.4)	
	Psychiatric and Psychological	2(1.2)	
	General. Psychiatric and Psychological	2(1.2)	
Medication	No Medication	137(81.06)	8(4.16)
	General	10(5.91)	
	Psychiatric	15(8.87)	

Table-2: Descriptive statistics and alpha coefficients of CUXOS-Urdu.

	N	No of items	Mean	SD	A
Total sample	170	20	22.03	18.49	.95
Clinical group	85	20	28.62	18.22	.94
Nonclinical group	85	20	15.23	16.10	.95

CUXOS: Clinically Useful Anxiety Outcome Scale, SD: Standard deviation.

Table-3: Item-total correlation of translated CUXOS-Urdu.

CUDOS Urdu	Total sample N=170	Clinical group N=85	Nonclinical group N=85
1. I felt nervous or anxious	.77	.76	.75
2. I worried a lot that something bad would happen	.76	.78	.65
3. I worried too much about things	.71	.70	.65
4.I was jumpy and easily startled by noises	.73	.73	.67
5. I felt keyed up and on edge	.77	.77	.72
6. I felt scared	.82	.78	.83
7. I had muscle tension or muscle aches	.70	.65	.67
8. I felt jittery	.78	.72	.78
9. I was short of breath	.81	.78	.80
10. My heart was pounding or racing	.84	.81	.87
11. I had cold, clammy hands	.77	.75	.81
12. I had a dry mouth	.71	.65	.70
13. I was dizzy or lightheaded	.75	.78	.70
14. I felt sick to my stomach (nauseated)	.63	.59	.68
15. I had diarrhoea	.56	.43	.69
16. I had hot flashes or chills	.77	.75	.76
17. I urinated frequently	.53	.47	.54
18. I felt a lump in my throat	.62	.50	.75
19. I was sweating	.67	.45	.67
20. I had tingling feelings in my fingers or feet	.77	.65	.77

All correlations are significant at p <.01. CUXOS: Clinically Useful Anxiety Outcome Scale.

Table-4: Convergent and discriminant validity of CUXOS-Urdu.

	N	r
Combined sample: convergent validity with DASS	170	.76
convergent validity with DASS subscale depression	170	.87
convergent validity with DASS subscale anxiety	170	.77
convergent validity with DASS subscale Stress	170	.84
Clinical group: convergent with DASS	85	.81
convergent validity with subscale depression	85	.72
convergent validity with subscale anxiety	85	.84
convergent validity with subscale stress	85	.77
Nonclinical group: convergent validity with DASS	85	.81
convergent validity with subscale depression	85	.72
convergent validity with subscale anxiety	85	.86
convergent validity with subscale stress	85	.68
Combined sample discriminant validity with SWLS	170	-.54
Clinical group discriminant validity with SWLS	85	-.60
Nonclinical group convergent validity with SWLS	85	-.37

All correlations are significant at p < .01, CUXOS: Clinically Useful Anxiety Outcome Scale.

Table-5: Descriptive statistics and independent t-test results for Clinical and Non-clinical groups.

	Clinical (N=85)	Non-Clinical (N=85)			95% CL		
Items	M(SD)	M(SD)	t-(168)	P	LL	UL	Cohen's d
20	28.62(18.22)	15.23(16.09)	5.07	000	8.18	18.59	0.78

p < .001, SD: Standard deviation, CI: Confidence interval, LL: Lower limit, UL: Upper limit.

Table-6: Sample demographic information of lingusic equivalence study (n=82).

Category	Sub-category	F(%)	Missing f (%)
Occupation	student	81(98.8)	1(1.2)
Gender	male	9(11)	3(3.5)
	female	73(89)	
Religion	Islam	79(96.3)	3(3.7)
Family system	nuclear	55(67.1)	13(15.9)
	joint	14(17.1)	
Ethnicity	Punjabi	44(53.7)	
	Balochi	1(1.2)	
	Sindhi	1(1.2)	
	Kashmiri	4(4.9)	
	others	11(13.4)	
Marital status	Single	69(84.1)	11(13.4)
	married	2()2.4	
Income	10,000-30,000	3(3.6)	
	30,000-50,000	8(8.11)	
	50,000-70,000	6(6.13)	
	70,000-90,000	8(8.18)	
	90,000-120,000	8(9.7)	41(50)
	120,000 and above	9(9.19)	
Education	undergraduate	26(30.6)	31(36.5)
	Post-graduate	28(32.6)	
diagnosis	No diagnosis	25(30.5)	48(58.5)
	general	7(8.5)	
	Psychiatric/psych	2(2.4)	
Treatment	No treatment	18(22.0)	60(70.6)
	general	7(8.5)	
	psychiatric	0	
Medication	yes	7(8.5)	59(72)
	no	16(19.5)	

The assumption for the contrast groups as an indicator of group difference was that the participants in the clinical group would score significantly high on CUXOS-Urdu than those in the nonclinical group. The mean difference was significant between the clinical sample with a mean age of 28.62±18.22 years and the nonclinical sample with a mean age of 15.23±16.09 years (p<0.001) (Table-5).

For the cross-language validation study, the demographics of the participants were noted (Table-6). The alpha coefficients for the scale were good (Table-7). Significant positive correlation between the original and the translated versions were found (Table-8). Mean difference was non-significant (p>0.05) (Table-9).

Table-7: Descriptive statistics and alpha coefficients of cross-language validation study (n=82).

Scale	Versions	Items	Mean	SD	α
CUXOS	Urdu	20	16.62	17.56	.96
CUXOS	English	20	18.07	17.02	.95

CUXOS: Clinically Useful Anxiety Outcome Scale.

Table-8: Inter-scale correlation between Urdu and English versions of CUXOS.

	N	r
Urdu - English	32	.71
English - Urdu	50	.70

P<0.01, CUXOS: Clinically Useful Anxiety Outcome Scale.

Table-9: Descriptive statistics and pair t-test for the translated CUXOS-Urdu.

	Urdu N=82	Eng N=82			95% CI		
Scale	M(SD)	M(SD)	t(81)	P	LL	UL	Coden'sd
Cuxos-U	18.09(18.13)	16.48(16.21)	1.09	.78	-1.32	4.54	0.12

p>0.05, CUXOS: Clinically Useful Anxiety Outcome Scale, M: Mean, SD: Standard deviation.

Discussion

The translated version of the CUXOS exhibited good psychometric properties. The mean scores were higher in the clinical group as per the study's baseline assumption. The internal consistency of the translated version matched with that of the original CUXOS;[11] whereby the test-retest reliability coefficient matched with the Korean version of CUXOS.[12]

All the 20 items on the scale were internally consistent, as shown through item-to-total correlation. This led to retaining all the items. The translated CUXOS showed its convergence with Urdu version of DASS through exhibiting significant positive correlations between the scores of the two scales. Translated CUXOS showed its discriminating ability through significantly negatively correlating with Urdu version of SWLS.

Mean comparison revealed significant differences between clinical and nonclinical groups which was also supported by Cohen's d. Hence, it can be inferred that the translated CUXOS distinguished significantly between the

clinical and nonclinical samples.

The original CUXOS[11] and its Korean translation[12] studies were conducted on outpatient samples, whereas the current study collected data from clinical and nonclinical samples, hence paving the way for the translated version to be used in general and disorder -specific population.

Evidence of equivalence between the original and the translated versions was obtained through cross-language validation study conducted on bilingual participants. Significant positive pre-post-test correlation and non-significant mean difference between Urdu and English versions of CUXOS suggested that the translated version of CUXOS was equivalent[23] to the original English version and both scales can be used interchangeably.

The original CUXOS is compatible with DSM-5.[24] It was developed by the authors[11] keeping the patient's, the clinician's and the administrator's needs in view. Hence, the end-product was user-friendly with easy-to-follow directions for the patients. The items were brief and relevant to the patient's problems. The original scale could be scored in <2 minutes,[11] saving significantly on time-consumption for both the patient and the clinician. This made the scale feasible to be completed in the same way that blood pressure, body temperature and weight are routinely measured in healthcare settings.[11] While translating and validating the scale, the current study tried to preserve the characteristics of the original CUXOS. The translated scale was completed in two 2-3 minutes depending on the literacy level of the participant. The Urdu version of CUXOS retained the simplicity of the items which makes it easy to administer and score on every visit to the clinician.

The current study was limited as it used convenience sampling technique due to which the groups could not be matched in terms of gender and age. Replications studies in the future can overcome this limitation. Large studies incorporating different geographical locations and demographics can help obtain a more representative finding from different ethnic and cultural backgrounds.

Conclusion

The Urdu version of CUXOS was found to be reliable and valid. During the process of translation, all the item from the original scale were retained. The translated version had good psychometric properties and could be used within minutes in population that speaks and understands Urdu. It can help clinicians in planning evidence-based treatment and to evaluate treatment outcome. The translated CUXOS can also be used for research purposes.

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