Development of An Indigenous Screening Instrument in Pakistan: The Aga Khan University Anxiety and Depression Scale

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Abstract

The use of translations of instruments for detecting anxiety and depression continues to be debated. An indigenous screening instrument has been developed in Urdu for anxiety-depression syndromes at the Aga Khan University. It has been developed from the complaints of 150 anxious and depressed patients presenting to a non-speciality clinic and has been validated in 53 patients in a psychiatry clinic, The questionnaire has 25 items, 13 psychlogical and 12 somatic. At a score of 20 it has a sensitivity of 66°k, a specificity of 79%, a positive predictive value of 83 and a negative predictive value of 60. In comparison with available instruments in Urdu, comprising of either psychological orsomatic items, this scale includes both, which increases its reliability for use as a screening instrument by Community Health Workers in a primary health care setting, in epidemiologic work in Pakistan and in transcultural psychiatric research (JPMA 48:261,1998).

Introduction

Psychiatric morbidity figures in Pakistan vary considerably, Akhund et al reported a prevalence of 12%[1] while Mi et al quoted a much higher figure of 38.4%[2]. Both studies were conducted in Karachi but differed substantially in their design. The former was set in primaiy health care setting and was based on physician interviews while the latter was conducted in a non-speciality clinic of a secondaiy/tertiary care hospital and was based on an Urdu version of a Western screening instrument, the Hospital Anxiety and Depression Scale[3].

Using physician's interviews for diagnosing psychiatric illness in large scale epidemiologic studies is as impractical as biopsies would be for routine screening for cancer[4]. In fact the professionals required to carry out a detailed survey of psychitric morbidity in a developing country would be more than the total numberof trained professionals providing mental health services in the country[5]. The most realistic alternative, therefore, would be a reliable and valid screening instrument which could be administered by less skilled workers.

Although not so useful for determining specific psychiatric disorders, questionnaire-based symptom scales are well established as screening tools for determining the mental health of a community[6]. In these questionnaires and inventories, anxety and depression are considered reliable indicators of overall mental health of communities[7] Epidemiologic surveys have shown that distinction between these two conditions is unclear, that these conditions form the bulk of psychiatric morbidity in the community and the most clinicians prefer a single scale that screens bothfor anxiety and depression[8].

Several Urdu translations (Nacem 1990)[9] of psychiatric screening instruments have been used in Pakistan. These include Beck Depression Inventory (BDI)[10], Self Reporting Questionnaircl(SRQ)[11], Bradford Somatic Inventory (BSI)[12] and Hospital Anxiety and Depression Scale (HADS)[13] Among these instruments, only HADS has been translated systematically and validated for its linguistic, conceptual and scale equivalence, despite the rigorous methods adopted, the authors reported

difficulties with translating several phrases into Urdu . BSI in is an exception in that it is the only instrument which was developed simultaneously in Urdu and English languages. It isbased partly on symptoms of Pakistani patients and has been validated in Pakistan but as the name suggests its content validity is restricted to the somatic manifestations and ignores the cognitive and emotional domains[12]. The cultural relevance and clinical usefulness of translations of selected Western instruments into non-Western languages have been subjects of much controversy[13,14]. This practice has been justified as an interim measure until such instruments are developed indigenously[15]. There are also other reasons which limit the usefulness of these instruments in epidemiologic surveys. Most of these instruments have carefully excluded somatic symptoms to avoid the likelihood of false positive responses in the presence of coexisting physical illness for which patients present to general medical clinics. It has also been argued that close verbal equivalence is more easily achieved for somatic symptoms than for psychological symptoms[12]. Partly based on this and almost as a reaction to exclusive psychological focus of existing instruments, BSI was developed to screen only for somatic symptoms of anxiety and depression. These instruments which discriminate between psychological and somatic symptoms may be helpful for therapeutic purposes in institution-based populations, but for population based studies a scale that includes psychological and somatic symptoms will have a better domain validity.

A research project was launched at the Aga Khan University Hospital (AKUH) to develop and validate an instrument in Urdu language for screening for psychiatric morbidity (anxiety and depression) in Pakistan. Urdu is widely understood in Pakistan and lndia. The development and initial validation of this indigenous screening instrument is reported.

Materials and Methods

The research project was conducted in three steps at AKUH, a secondaiy/tertiarv care medical center which is the mnain teaching hospital of the Aga Khan University Medical College and School of Nursing. Initially, the questionnaire items were developed in Urdu language based on complaints of the patients presenting to the Community Health Center (CHC), a section of AKUH where family physicians conduct non-speciality clinics. Next, the items were reviewed and refined after pilot testing in the CHC. Finally, the questionnaire was validated in the psychiatry clinic of AKUH. At each step informed consent was taken.

In the first step of developing the questionnaire items, one of the authors (BSA) verbally administered the Urdu version of HADS[3] to all adult patients (age 16-60 years) clinically suspected of havmg anxiety or depression attending her clinic 1nCHC overa period of 18 months (October 1990 to March 1992). The presenting complaints of patients who scored 11 or more onHADS, were separated. Out of this initial list of 74 complaints, 36 complaints were reported by 10 or more patients. These were used to develop the initial close-ended questionnaire on a 4-point differential scale to measure the frequency of these symptoms over the preceding 2 weeks.

In the second step, this close-ended questionnaire was pilot tested on 50 randomly selected adult volunteers in CHC to determine its language comprehension, cultural acceptance, reliability and administrative difficulties. It was verbally administered by (BSA). Item-item correlation[16] of responses obtained was carried out and items which had a correlation coefficient of 0.75 or more (measuring that these stems were likely to be measuring the same attribute 75% or more times) were reviewed by two psychiatrists (HR and MMK) and based on their best clinical judgement items with similar content and patient responses as indicated by their high correlation coefficients were dropped and the final questionnaire prepared. This final questionnaire (Table I) was named the Aga Khan University Anxiety and Depression Scale (AKUADS).

In the third and final step, AKUADS was validated in psychiatry clinics of AKUN. AKUADS was

verbally administered to all adult patients (age 16-60 years) attending the clinics of two psychiatrists (HR and MMK) over two consecutive weeks by a group of two undergraduate medical students and twojuniordoctorwhose inter-raterreliability had been established. Patients in psychotherapy and those unable to take the questionnaire, either due to their agitated state or inability to understand Urdu, were excluded. Each respondent was then interviewed by the psychiatrist who was blind to the questionnaire score. The psychiatrists, using DSM-III-R criteria, grouped the patients into four categories: anxiety disorder (including generalized anxiety and panic disorder), major depressive disorder, other psychiatric disorders or 'well'. During analysis patients with psychiatric disorders other than anxiety and depression were dropped. Patients with anxiety and depression were taken as cases and those who were assessed as well were taken as non-cases. Mean scores, along with 95% confidence intervals (CI) and rates of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NP\\f) for all questionnaire scores were calculated.

Results

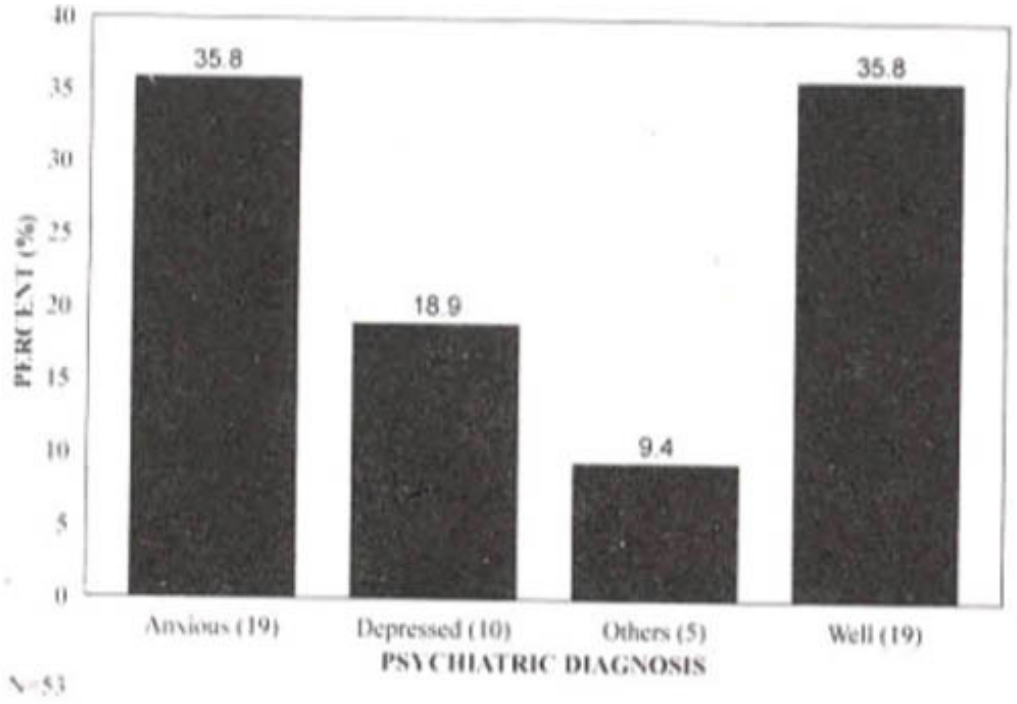
Five hundred patients attended BSA's clinic during step I of the study. HADS Urdu version was administered to 386 (77.2%) who fulfilled the study critria. The sample of anxious and depressed patients included 150 (30%) patients who scored 11 or more on HADS. Out of a list of 74 presenting complaints of this sample, 36 symptoms were repeated by 10 or more patients. The initial questionnaire was based on these 36 symptoms.

In step 11 item-item co-relation was determined on the data collected using the 36 item questionnaire. Twenty-two items showed a correlation coefficient of 0.75 or more. After review by the psychiatrists, 11 items were removed because of their close correlation coefficient and similarity. This resulted in AKUADS, the final questionnaire of 25 items (Table I).

Table I. The Aga Khan University Anxiety and Depression Scale (translation from Urdu)

S.No.	Don't Know 9	Never 0	Sometimes 1	Mostly 2	Always 3
During the past 2 weeks:					
1.	Have you been sleeping less?				
2.	Have you had lack of interest in your daily activities				
3.	Have you lost interest in your hobbies?				
4.	Have you been anxious?				
5.	Have you had a sensation of impending doom?				
6.	Have you had difficulty in thinking clearly?				
7.	Have you preferred to be alone?				
8.	Have you felt unhappy?				
9.	Have you felt hopeless?				
10.	Have you felt helpless?				
11.	Have you been worried?				
12.	Have you cried?				
13.	Have you thought of taking your life?				
14.	Have you had loss of appetite?				
15.	Have you had retrosternal burning?				
16.	Have you had indigestion?				
17.	Have you had nausea?				
18.	Have you had constipation?				
19.	Have you felt difficulty in breathing?				
20.	Have you felt tremulous?				
21.	Have you felt numbness of hands and feet?				
22.	Have you felt a sensation of tension in you neck and shoulders?				
23.	Have you had headaches?				
24.	Have you felt pain all over your body?				
25.	Have you passed urine more frequently?				

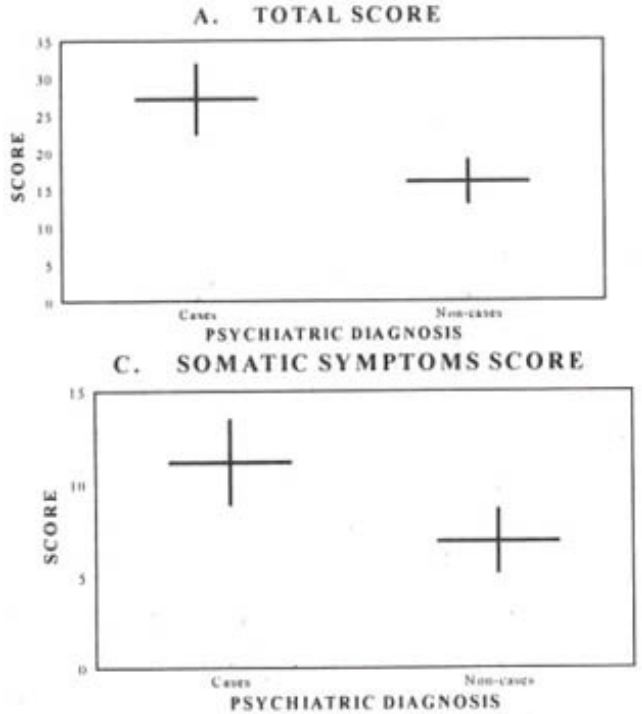
In step III of the study, 61 patients presented to the psychiatry clinics of AKUH. Eight (13.1%) did not fill in the questionnaire: 4 were in psychotherapy, 2 were grossly agitated and one each did not meet our age or language eligibility criteria, the remaining 53 patients were included in the study.



5 patients had psychiatric diagnoses other than anxiety and depression. 29 patients had anxiety and depression while 19 were judged to be well on this visit.

Figure 1. Percentage distribution of diagnostic categories of the study population.

Figure 1 shows the diagnostic categories according to the psychiatrists' opinion.

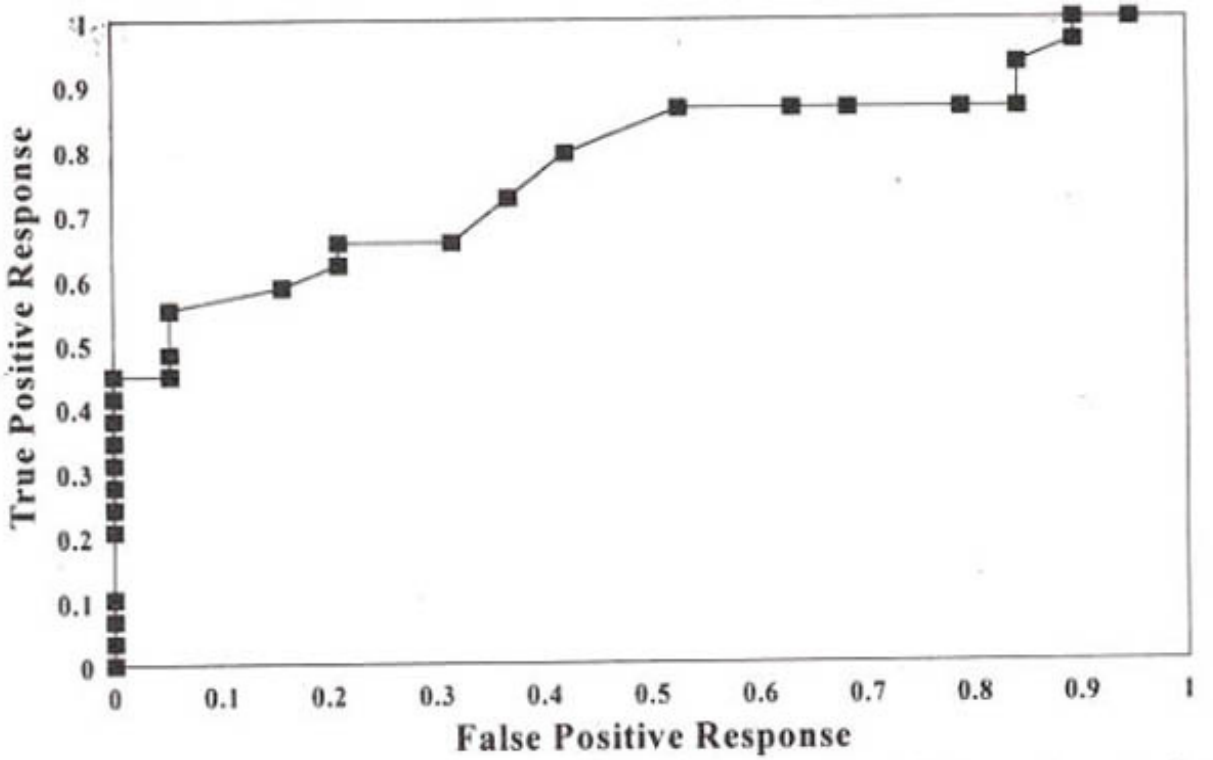


	Upper C.I.	Lower C.I.	Mean
A. TOTAL			
Cases	31.693260	22.444740	27.0690
Non-cases	18.797090	13.097710	15.9474
B. PSYC. SYMPTOMS			
Cases	18.733330	13.059870	15.8966
Non-cases	11.232080	6.873123	9.0526
C. SOMATIC SYMPTOMS			
Cases	13.411860	8.932937	11.1724
Non-cases	8.596194	5.193206	6.8947

Figure 2. 95% confidence interval of scores by psychiatrist diagnosis (n=48).

Figure 2 gives the total scores with 95% confidence intervals for cases and non-cases. It separately indicates the scores for psychiatric and somatic stems as well. An analysis of all scores obtained

showed that the best trade offbetween specificity and sensitivity was found at a score of 20 i.e., a sensitivity of 66%, a specificty of 79%, a PPV of 83% and a NPV of 60%.



A relative operating characteristic curve was developed. At a cut off score of 20 the questionnaire displayed a sensitivity of 66% and a specificity of 79%.

Figure 3. Roc curve.

Figure 3 shows the roc curve that complements the above analysis displaying that at a cut off score of 20 the questionnaire has a sensitivity of 66% and a specificity of 79%.

Table II. Comparison of items of AKUADS with other instruments.

Symptoms	Number of items AKUADS	HAD	BSI	LSI	SRQ
Sleep	1	-	-	-	1
Interests	2	2	-	-	2
Anxiety/worry	4	3	-	-	1
Mood	5	1	-	-	3
Suicide	1	-	-	-	1
GI symptoms	4	-	3	1	2
Pain/burning	4	-	4	3	1
Breathing	1	-	1	1	-
Tremulousness	1	-	1	1	1
Numbness	1	-	1	1	-
Voiding	1	-	1	1	-

6 out of 13 psychological items of AKUADS are similar to HADS. All AKUADS somatic complaints, except for loss of appetite (item 14), are similar to the BSI. Lahore Somatic Inventory (LSI)[17], which showed better discriminating ability than the full version in a population of Pakistani patients shares 8 somatic items with AKUADS. SRQ, an instrument developed through the aegis of World Health Organization for use in the developing countries shares the largest number of items with AKUADS: 8 psychological and 4 somatic.

Table II compares the AKUADS stems with the stems of some commonly used scales.

Discussion

The conceptual equivalence of questionnaires and inventories remains a major dilenuna at the heart of research in transcultural psychiatry. The use of established Western instruments in non- Western languages has been considered less than ideal. Through a slow and systematic process the first instrument to screen for anxiety and depression has been developed in Urdu language.

The convenience of administration, training of interviewers and patient's acceptance were given paramount importance at all steps of development of AKUADS. These objectives were ensured at step 1. by only selecting the recurrent presenting complaints of anxious or depressed patients. In step II, only one each of the items which were closely correlated, resembled in language, content and patient response were retained. The final questionnaire of 25 items has been arranged so that the first 13 items relate to psychological complaints and next 12 to somatic complaints measured on a 4 point scale

(Appendix 1). The cut-off period of 2 weeks for the presence of symptoms has been chosen as recall bias increases after 2 weeks, DSM III criteria also require that the symptoms should be present for at least 2 weeks and finally it is a compromise between the time period of other instrument which varies from one week (e.g., HADS) to one month (e.g., BSI).

Step III has shown the discriminatory power of AKUADS. The population presenting to psychiatry clinics of AKUH, irrespective of their diagnoses, is likely to have much higher levels of anxiety and depression features, than the community. The abiity of AKUADS to discriminate between anxiety-depression syndromes and individuals who were well in a hospital sample (Figure 1) suggested that it would probably be a reliable screening instrument in the community.

Figure 3 indicates that AKUADS at a score of 20 was found to have a sensitivity of 66%and a specificity of 79%. For screening instruments a higher specificity is preferred because if the questionnaire is over inclusive the false positive can be weaned out on a subsequent clinical encounter. Positive predictive value is prevalence dependent and as expected it is 83% in the clinic population. The negative predictive value is likely to go up in a population based study as it is inversely related to prevalence.

AKUADS items cover most of the clinical features considered characteristic of anxiety and depressive disorders in the existing classification system: sleep, appetite, mood, interests, concentration, anxiety, loneliness, hopelessness, suicidal ideation, gastro-intestinal symptoms, breathing difficulties, etc. It makes notable comparisons with the Urdu translation of Western instruments (Table I).

Some of the AKUADS items, considered characteristic of depressive syndrome in DSM-IIl-R and LCD-tO are not included in any of the Western instruments discussed in this paper: complaints of preference for being alone, hopelessness and helplessness (items[7,9] and 10 respectively). On the other hand, there are symptoms in the Western instruments which are not represented in the AKUADS: loss of sense of humor, lethargy and concerns about looks (HADS); being easily frightened. indecisiveness, wo rthelssness, fatiguabi li ty and uncomfortable feeling in stomach (SRQ): most items of BSI and almost all of LSI. Our study sample did not show these symptoms with a frequency that met the eligibility criteria.

The most prominent feature of AKUADS is its being entirely based on patient complaints as expressed by them in Urdu. Almost all other psychiatric screening instruments are based on clinical features poposed by mental health care professionals, e.g., HADS and SRQ[11]. In this respect, AKUADS while being “grounded in local ethnographic context[14], has several similarities with well-established Western instruments. Thi. lends it the unique potential of resolving the dilemma of using a locally developed instrument in transcultural research which is culturally appropriate and valid in its place of origin as well as in international comparisons. However, unless studies involving translations of AKUADS into other regional and national languages are carried out this claim will remain to be substantiated.

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