

A Comparative Review of Two Screening Instruments; The Aga Khan University Anxiety and Depression Scale and The Self Reporting Questionnaire

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The Prevalence of Mental Illness:

Globally mental illness is on the rise. WHO in 1993 reported a world wide prevalence of 500 million cases and has further quoted that the ratio between psychiatrists and patients in developing countries is 1:1 million¹. The psychiatrists that are present are concentrated in the cities. The majority of the population is deprived of health care in general and mental health care is non-existent. Goldberg² has reported a prevalence of psychiatric illness of 30% in general medical patients and further states that out of 250 psychiatric patients per 1000 per year 230 were accessible to primary health care. Rieger states that an overwhelming majority of mentally ill patients are treated by general practitioners and allied health professionals³.

The Role of Community Health Workers in Identification of Mental Illness:

WHO has clearly designated case finding as the responsibility of Community Health Workers (CHW). Buesenberg states that currently CHWs miss 2 out of 3 cases of mental disorder encountered during their routine work. This situation of wide spread morbidity and dismal access to proper care led WHO to developing a screening instrument that could be used by the CHWs for case finding.

The WHO Screening Instrument:

Harding et al in 1980⁴ under the aegis of WHO, carried out a multinational collaborative study in which they reviewed several already existing screening instruments and selected 20 items by mutual agreement and developed a questionnaire. Initially psychiatrists, public health workers and other experts involved were from India, Senegal, Columbia and Sudan. Later they were joined by representatives from Egypt, Brazil and Philippines. This instrument was named the Self Reporting Questionnaire (SRQ) as it was planned to use it as a self administered instrument. It was soon realized that due to the low literacy level in the developing countries, it would have to be used as a verbally administered questionnaire by the CHWs. Buesenberg in 1993 developed a training manual for the CHWs, which has been published by the mental health division of WHO titled "A User's Guide to the Self Reporting Questionnaire"¹. The initial SRQ had 24 items. Four of these were to assess psychosis, which were dropped, as psychosis is not as common as the affective illnesses (the life time prevalence for schizophrenia is 1.3%⁵, for depression it is 20% in women and 10% in men⁶) and that psychosis is more easily identified. Out of the 20 items of SRQ, 12 are psychiatric and 8 are somatic. Two items address the same attribute, reliability, this is done 'to find out whether the answers obtained are reliable or not. In reality the SRQ evaluates 19 attributes of anxiety and depression. The CHWs inquire about the presence of symptoms listed over a period of 4 weeks. It is a dichotomous scale seeking 'yes' or 'no' answers. Each 'yes' response to a stem has to be followed by open ended questions. Instructions are provided for CHWs regarding when to interpret an affirmative answer as significant and when not to do so. The actual questions asked are many more than the 20, as each question is to be followed by more questions and paradoxically it no longer remains a self-reporting questionnaire and is vulnerable to rater bias. There is no possibility of recording an answer for which the patient is not sure. The instructions are that when in doubt the CHW should leave it to the supervisor to review. Availability of a competent supervisor is again not guaranteed in a PHC setting.

Development of Aga Khan University Anxiety and Depression Scale (AKUADS):

The Aga Khan University Anxiety and Depression Scale (AKUADS) is an indigenous screening scale developed at the Aga Khan University (AKU), Karachi, Pakistan. Karachi is a mega city with a cosmopolitan population, estimated to be around 120 million⁷. 40% of the inhabitants live in urban squatter settlements⁷. Aga Khan University (AKU) has established several PHC centers in the urban squatter settlements of Karachi. AKUADS is in Urdu language which is widely understood and spoken in Pakistan and India. It has been developed from a list of complaints collected by a retrospective file review of symptoms mentioned in Urdu by patients of anxiety and depression coming to the Community Health Center (CHC) of AKU. It is a 25 item questionnaire which includes 12 psychiatric and 13 somatic symptoms. It is a differential scale which is rank ordered for severity and inquiries about the presence and severity of psychiatric and somatic symptoms of anxiety and depression over a period of last 2 weeks. The CHWs are not required to formulate their judgement requiring the validity of symptoms as the subject himself is required to provide a direct quantifiable estimate of his/her distress, i.e. whether the symptoms have been present all the time, most of time, some time or have not been there at all, There is a do not know column provided if the patient is unsure of the response. It has been validated in a community setting keeping the psychiatrist's diagnosis as the gold standard⁸.

Comparison of Characteristics of AKUADS, SRQ and DSMIV:

This paper compares the criterion validity of AKUADS and SRQ with DSM IV and with each other. The criterion indices of sensitivity, specificity, positive predictive value, negative predictive value and overall misclassification rate of both the instruments is also documented.

Table I. The number of stems in AKUADS and SRQ assessing the DSM IV criteria for depression.

DSM IV criteria	No. of Stems assessing the criterion in	
	AKUADS	SRQ
Depressed mood	2	2
Anhedonia	2	2
Loss of appetite	1	1
Sleep	1	1
Fatigue	-	1
Guilt	-	1
Difficulty in thinking	1	1
Suicidal ideation	1	1
Psychomotor symptoms	-	-

Table I shows that AKUADS and SRQ criteria for depression are quite similar to DSMIV, neither has stems relating to psychomotor symptoms and AKUADS does not inquire about fatigue and guilt. SRQ covers 5 criteria for anxiety and AKUADS covers 6 criteria out of the 8 mentioned in DSM IV (Table II).

Table II. The number of stems in AKUADS and SRQ assessing the DSM IV criteria for anxiety.

DSM IV criteria	No. of stem assessing the criterion in	
	AKUADS	SRQ
Apprehensive expectation	1	1
Worry	1	1
Restlessness	1	-
Fatigue	-	-
Difficulty in thinking	1	1
Irritability	-	-
Tension	1	1
Sleep disturbances	1	1

DSM IV lists 13 criteria for panic attacks, SRQ covers 4 and AKUADS covers 9 of these criteria (Table III).

Table III. The number of stems in AKUADS and SRQ assessing the DSM IV criteria for panic attacks.

DSM IV criteria	No. of stems assessing the criterion in	
	AKUADS	SRQ
Trembling	1	1
Difficulty in breathing	1	-
Choking	1	-
Abdominal distress	4	1
Numbness/trembling	1	1
Fear	1	1
Dizziness, unreal feeling, chills hot flushes, palpitations, sweating and chest pain	-	-

Table IV. The number of stems in AKUADS and SRQ assessing the DSM IV criteria for somatization.

DSM IV criteria	No. of stems assessing the criterion in	
	AKUADS	SRQ
Four pain symptoms	3	1
Two gastrointestinal symptoms	5	2
One sexual symptom	-	-
One pseudoneurological symptom	1	-

Table IV compares the criterion validity of AKUADS and SRQ with DSM IV for somatization. AKUADS and SRQ both do not have any stem addressing sexual symptoms and SRQ do not inquire about pseudoneurological symptoms while AKUADS does.

Table V. Attributes of anxiety and depression assessed by AKUADS/SRQ.

Attributes	AKUADS	SRQ
Headaches, appetite, sleep, fear, tremor, worry, indigestion, thinking, unhappiness, crying, anhedonia, loss of interest and suicide	Assessed	Assessed
Heartburn, nausea, constipation, numbness, tension in neck and shoulders, body aches and frequency of micturition.	Assessed	Not assessed
Tiredness, difficulty in making decisions, suffering of work, inability to play a useful part in life and feelings of worthlessness	Not assessed	Assessed

Table V compares the content validity of AKUADS and SRQ. Thirteen attributes are common to both the instruments. Headaches, appetite, sleep, fear, tremor, worry, digestion, thinking, unhappiness, crying, anhedonia, loss of interest and suicide i.e. 70% of the stems are the same in SRQ and AKUADS. Out of the 7 remaining stems of SRQ, 2 assess the same characteristic 'tiredness'. The remaining 6 stems of SRQ that are not present in AKUADS are related to difficulty in making decisions, suffering of work, inability to play a useful part in life, feelings of worthlessness and tiredness all related to cognitive and emotional domains. The attributes inquired in AKUADS that are not present in SRQ are, heartburn, nausea, constipation, numbness, tension in neck and shoulders, body aches and frequency of micturition, which are somatic in nature, it is known that most people with mental illness tend to somatise their distress particularly in the developing countries⁹.

AKUADS has been validated in an urban squatter settlement of Karachi. The interviewers were CHWs who were trained to administer AKUADS verbally to consenting adults who could understand Urdu.

The gold standard for establishing concurrent validity was a psychiatrist's interview. The sample size was 487. Both males and females had a near equal distribution, all decades of respondents between the ages of 16 and 60 were represented. Sampling was continuous i.e. all consenting adults who volunteered for the interview and met the inclusion criteria for age and language were included. The psychiatrists classified the participants as having anxiety, depression, both anxiety and depression or as normal according to a structured interview schedule based on DSM III criteria (at the time of the interviews, DSM IV had not arrived). The salient feature of AKUADS is that it is not a translation. It has been developed from actual symptoms of patients as reported by them in Urdu and hence, is representative of local symptom complexes. In this population based study comprising of consenting adults AKUADS at a cut off of 19 demonstrated a sensitivity of 74% and a specificity of 81%, a positive predictive value of 61%, negative predictive value of 88% and an overall misclassification rate of 21%. Buesenberg (1993) has reviewed 28 studies done to establish the reliability and validity of SRQ. Most of the studies reported are not actually population based, the cut off point used is not consistent, varying between 5-12 and the results of criterion indices of sensitivity and specificity reported are widely different, the range for sensitivity is 62.9% - 90% and that for specificity is from 58% - 95.2%. The gold standard used for comparison was either GHQ-12, ICD-9, CIS depression scale, Hamilton depression scale or the psychiatrist's perception but in the later event either the sample of low scores interviewed in the second stage was small (Harding et al⁴) or the psychiatrists were not blind to questionnaire scores (Dhaphale et al)¹⁰.

A population based study using SRQ reported by Buesenberg (1993) are, by Rahim and Cederblad (1989)¹¹ in a suburban area of Khartoum, Sudan. The SRQ was administered to only 174 young adults and the cut off score is not mentioned. A positive correlation with the psychiatric assessment ($r=0.69$) is reported.

In another study carried out by Sen et al¹² in 1987 the sample size was 202, out of which only 48 were males, the criteria used were the CIS and the Hamilton scales. At a cutoff of 11/12 a sensitivity of 79%, a specificity of 75%, a positive predictive value of 76% a negative predictive value of 78% and an overall misclassification rate of 23% was reported. Compared to the SRQ- 20, AKUADS has the following advantages. AKUADS has been developed from the actual symptoms of patients and does not represent only the views of experts. It is not a translation and hence is representative of local symptom complexes and local expressions. It has a good content validity as compared to DSM IV criteria for diagnosis of the common neurotic disorders found in the community, i.e. anxiety, depression, panic attacks and somatization. It has been validated in a population based study on a sample of 487 adults as a verbally administered questionnaire by trained CHWs, the criterion being the psychiatrists interviews. At a cut off 19 it has a reasonable sensitivity of 74%, a high specificity of 81%, a positive predictive value of 63%, a high negative predictive value of 88% and a low misclassification rate of 21%. The desirable attributes of a screening questionnaire are a high specificity, a high negative predictive value and a low misclassification rate. If the questionnaire is over inclusive, the non cases are screened out on subsequent clinical evaluation, but if a case is not identified as a case, then there is the likelihood that the CHW will neither follow-up that case nor refer. AKUADS is a differential scale rank ordered for severity, it obtains an estimate of the distress caused by the attribute being assessed from the respondent directly, on a four point scale varying from present all the time, most of the time, some times only and not present at all. It thus minimizes inter-rater bias and makes establishing inter-rater reliability relatively easy. This makes AKUADS cost effective in terms of time required for training of CHWs, in terms of CHWs time in administration and the respondents' time in answering the questions. SRQ-20 on the other hand is a dichotomous scale which necessitates that the CHW has to assess the actual significance of a symptom by asking further questions even after receiving an affirmative answer. Dichotomous scales are advocated for dichotomous variables like day and night, or male and female, the attributes of psychiatric morbidity lie on a continuum and the challenge is to be able to assess where the normal emotions and somatic distress change to pathological

states. Leaving this decision to the CHWs with limited education and a lot of other responsibilities make SRQ-20 more susceptible to inter-rater bias. The SRQ-20 inquires as to the presence of symptoms in the preceding four weeks. It is advocated that recall bias is exemplified after a period of two weeks and for this reason AKUADS was designed to inquire about the presence of symptoms during the preceding 2 weeks only. DSM IV also requires the presence of symptoms for 2 weeks to be significant.

Which screening instrument is likely to be most useful in our Setting?

AKUADS not a translation, is representative of local symptom complexes as expressed in Urdu, is a differential scale rank ordered for severity and it is easy to train lay but literate interviewers in its use. It is cost effective regarding the time required by the interviewers and respondents and has the desirable attributes of a screening questionnaire, i.e., a higher specificity and a higher negative predictive value as compared to the SRQ. It is suggested that AKUADS should be included in the training manual for the national health workers. It is not suggested that the CHWs would administer AKUADS to all members in the community, but educating CHWs about the common attributes of mental illness would sensitize them to its presence. Then they could selectively administer AKUADS and refer the high scorers to health centers where doctors could evaluate. AKUADS has a potential to be used by researchers interested in Psychiatric epidemiology and in PHC Psychiatry in Pakistan, India and in countries that have a large number of Urdu speaking immigrants.

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