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Determining the Psychometric Properties of Siddiqui Anxiety Scale-Revised

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This study aimed to determine the psychometric properties of the Siddiqui Anxiety Scale (Hasnain & Siddiqui, 1993) in the Pakistani community. A pilot study with 15 males and 15 females (mean age = 25.07 years) was carried out to reassess its language and comprehensiveness, followed by a committee review by four mental health professionals. The validity and reliability estimates of Siddiqui Anxiety Scale-Revised (SAS-R) with 27 items were determined in the main study, using a convenient sample of university students (*N*=494) including 215 males and 279 females with a mean age of 20.8 years. Cronbach's alpha reliability of SAS-R was found to be 0.90. The exploratory factor analysis revealed two factors in SAS-R (i.e., cognitive-affective and somatic), accounting for 34.48% cumulative variance. The convergent and divergent validity was determined by comparing it with Urdu translations of Beck Anxiety Inventory (BAI) (Raza, 2013) and Life Orientation Scale-Revised (LOT-R) (Shaheen, Tabassum, & Andleeb, 2015), respectively. SAS-R has a positive correlation with BAI and a significant negative correlation with LOT-R for optimism subscale and pessimism subscale. Furthermore, a cut-off score of 30 was determined using ROC curve analysis, obtaining a sensitivity index of 81.4 %, specificity index of 77.66%, the positive predictive power of 53.3%, and negative predictive power of 93% in the community sample. The psychometric properties of SAS-R are found to be robust enough to be recommended for screening anxiety symptoms in the Pakistani community.

Keywords. Anxiety, indigenous anxiety scale, Pakistan, psychometric assessment

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Anxiety is the 9th leading cause of disability (Rehm & Shield, 2019; Vos et al., 2017), affecting 267 million individuals globally (Baxter, Vos, & Whiteford, 2013; World Health Organization, 2017). Annually, US$2.5-8.5 trillion of lost output worldwide is accredited to mental disorders, with anxiety and depression in the lead (Bloom et al., 2011; Chisholm et al., 2016). Anxiety lowers the adaptive functioning of an individual in all areas of life including personal, social, occupational and familial fronts and also decreases their productivity. It is also associated with poverty, marginalization, stigmatization and vulnerability in lower and middle income countries, like Pakistan (World Health Organization, 2013).

In the context of Pakistan, there are many factors which have increased the vulnerability of the lay person to experience clinical symptoms of anxiety (Mirza & Jenkins, 2004); whether it is sociopolitical challenges due to incidences of terrorism (Nasim, Khan, & Aziz, 2014), natural disasters like earthquakes (Ayub et al., 2012) or exposure to violence through media (Jahangir, Nawaz, & Khan, 2014; Maqbool, 2015; Yusufzai, 2014). Despite this, a treatment gap of 95% for anxiety and depressive disorders exists in the country (Vos, et al., 2017) as an average of US $2 is being spent annually (World Health Organization, 2015) on an individual‘s mental health. The high prevalence and the potential adverse effects of anxiety on the individual‘s health, the society and the economy, advocate a need for early screening of symptoms of anxiety. This would assist in provision of treatment services and prevent further impairment and distress in vulnerable individuals.

The services for mental health are insufficient in Pakistan (World Health Organization, 2013). Moreover, stigma of mental illness and lack of awareness with regard to mental health issues results in somatic presentation of distress and therefore, many people suffering from symptoms of anxiety consult cardiologist or other specialist perceiving their symptoms to be grave in nature. Considering the limited number of mental health professionals in Pakistan, early screening of anxiety would benefit both the patient and the clinician in differentiating the psychological anxiety from other medical concerns. The primary healthcare setting, where most of the patients with symptoms of anxiety first report, screening of anxiety through clinical judgement and without the use of standardized instruments, results in excessively low sensitivity and specificity, 14% and 69% respectively (Weitzman & Wegner, 2015).

The screening tools can measure anxiety objectively and help in the promotion of self-management strategies, detection of residual symptoms, assessment of the effectiveness of treatment and positively

impact help-seeking behaviors in the individual (Lam, Michalak, & Swinson, 2005). The evidence supports relying on indigenous instruments developed using the emic approach (Hazlett-Stevens, 2008; Hong, 2014; Sonuga-Barke, 2014). The tool also must be with sufficient validity and culturally sensitive, accounting for locals' language, level of acculturation and their unique concept of construct (Groth-Marnat, 2009). In Pakistan, due to lack of availability of locally developed tools for anxiety, most tools are borrowed from the West and have dubious cross-cultural validity (Ahmer, Faruqui, & Aijaz, 2007). Most of them are either translated or adapted in Urdu and are not tailored for Pakistani population. There are only three indigenous tools for measuring anxiety: Aga Khan University and Depression Scale (AKUADS) (Ali, Reza, Khan, & Jehan, 1998), Siddiqui Anxiety Scale (SAS) (Hasnain & Siddiqui, 1993) and Siddiqui Shah Depression Scale (SSDS) (Siddiqui & Shah, 1997). Amongst these, SSDS solely measures depressive symptoms in individuals and AKUADS yields a combined score of anxiety and depression.

Realizing the need for a screening instrument for anxiety, Siddiqui Anxiety Scale (Hasnain & Siddiqui, 1993) was developed from the verbatim of patients presenting anxious distress in the psychiatric facility of hospitals. The initial study found 89% sensitivity, 69% specificity, 56% positive predictive power and 89% negative predictive power (Majeed & Siddiqui, 2007). The revision of psychometric properties was considered necessary, owing to increasing psychosocial stressors in the Pakistani society and how they might have also resulted in a changed expression of the distress. The authors also felt that many of the original expressions in Urdu need to be reviewed to reaffirm their comprehension and relevance. This study was, therefore, undertaken to re-determine its psychometric properties, explore the underlying factor structures and gauge the clinical utility of the scale in a non-clinical community-based sample.

Method

This study has a cross-sectional correlational research design. It has two phases. The first phase focused on revision of the items of SAS for their ease of comprehension and the second aimed to determine psychometric properties of the revised tool in the local non-clinical population.

Objectives

Following were the objectives of the study:

1. To explore the underlying factor structures of the Siddiqui Anxiety Scale (SAS-R) revised among university students.
2. To determine the psychometric properties of the revised tool including reliability, convergent validity and divergent validity.
3. To assess the clinical utility of the revised tool including sensitivity, specificity, positive predictive power and negative predictive power in a non-clinical community sample of university students.

Phase 1: Pilot Study and Item Revision

The Pilot Study was carried out to examine the comprehensibility of items of SAS.

Sample. A small convenient sample of 30 individuals (15 men and 15 women), with mean age of 25.07 (*SD* = 7.9) years was selected from the community for the pilot test.

Expert panel. After examining the responses of participants on each item, four mental health professionals (two psychiatrists and 2 clinical psychologists) reviewed all the scale items to assess the relevance of the items in accordance with their experience with patients, using a committee approach.

Procedure and results. After taking their consent, participants were asked to highlight the difficult terms and phrases and suggest alternative terms to describe them. Then, the expert panel assessed items in terms of their relevance to clinical presentation of anxiety. Finally, the authors screened the tool for double-barrelled questions, introduced 4 reverse-scored items (Item number 3,4,7 and 25) and incorporated the suggested changes.

Phase 2: Main Study

Sample. The sample size was calculated using subject to item ratio (*n* = 6) (Arrindell & Van der Ende, 1985). A convenient sample of 500 individuals (280 females and 220 males) from universities of Lahore and Islamabad was selected. According to the inclusion criteria, individuals aged 17-35 years with minimal educational level of matriculation were chosen. After excluding six incomplete forms, the final sample comprised of 494 individuals that is 279 (56.5%) females and 215 (43.5%) male with a mean age of 20.8 years (*SD* = 3.03).

Instruments. The following scales were used in this study after acquiring permissions from the developers of the translated versions. The participants first filled out their demographic details including age, gender, level of education, marital status, and birthplace using a demographic sheet.

- ***Beck Anxiety Inventory (BAI).*** BAI (Beck, Epstein, Brown, & Steer, 1988) was used to determine the convergent validity and clinical utility of SAS-R. It has 21 self-report items to measure anxiety symptoms on a 4-point Likert-type scale (0 = *Not at all*, 1 = *Mild*, 2= *Moderate* and 3 = *Severe*). The maximum score is 63 and minimum is 0. Higher score indicates higher anxiety. A cutoff score of 26 differentiates those likely to be suffering from clinical anxiety. Its reliability is .92 (Beck, Epstein, Brown, & Steer, 1988; Creamer, Foran, & Bell, 1995). An Urdu translation of the tool was used in the study (Raza, 2013).
- ***Life Orientation Test – Revised (LOT-R).*** LOT-R was used to determine divergent validity of SAS-R. LOT-R (Schier, Carver & Bridges; 2013) is a self-report questionnaire, which measures dispositional optimism and pessimism in terms of general outcome expectations. It has 10 items based on a 5-point Likert scale (0 = *Strongly disagree*, 1 = *Disagree*, 2 = *Neither agree nor disagree*, 3 = *Agree* and 4 = *Strongly agree*). There are three items to measure optimism and pessimism each and four other filler items. The items measuring pessimism are reverse keyed. An Urdu version of the scale (Shaheen, Tabassum, & Andleeb, 2015) translated by local researchers following WHO guidelines was used in this study. Its internal consistency is .79 for Optimism and .78 for Pessimism.
- ***Siddiqui Anxiety Scale – Revised (SAS-R).*** SAS-R is a self-report screening tool, developed to assess anxiety. The revised version has 27 items (23 positively keyed and 4 negatively keyed items) with a Likert-type 4-point scale, assessing symptoms of anxiety based on their frequency (0 = *Never*, 1 = *Sometimes*, 2 = *Most of the times* and 3 = *All the time*). The maximum score of the scale is 81 while the minimum is 0. Higher scores indicate higher levels of anxiety.

Procedure. After taking permissions from universities and individuals separately, participants were informed about their right to withdraw from the study at any stage. They were asked to provide

their demographic details and fill out three self-report questionnaires. In accordance with the current practices for validation studies of psychometric tools, SPSS v. 21 was used for the data analyses.

Ethical Considerations

The Ethics Committee of School of Social Sciences and Humanities, NUST, Islamabad approved the study. The data was collected from universities of Lahore and Islamabad. Participants gave verbal consent prior to participation and were informed about their right to withdraw. They were also guided about mental health facilitation if after filling the forms or during the process, they were distressed by any symptoms of anxiety. The confidentiality of the collected data was ensured during all stages of the studies.

Results

Phase 1: Pilot Study and Item Revision

The revised tool, Siddiqui Anxiety Scale – Revised (SAS-R) consists of 27 items (23 positively keyed and 4 negatively keyed), instead of 25 items. These items tap on various aspects of anxiety. The items deemed unrelatable or incomprehensible (Item numbers 1, 6, 13, 14, 15, 19 and 21) were rephrased e.g., item 21 "پٹھوں میں درد رہتا ہے" was rephrased as "جسم کے اعضا میں درد رہتا ہے". Double barreled items were stated separately as two items, e.g., item 13 "گیس بنتی ہے اور پیٹ میں بوجھ رہتا ہے" was divided into "پیٹ میں بھاری پن محسوس ہوتا ہے" and "جسم کے کسی حصے میں گیس محسوس ہوتی ہے". Several reverse scored items were introduced (Item numbers 3, 4, 7 and 25) to cater to response sets and minimize acquiescence bias e.g., item 3 "سونے میں دشواری ہوتی ہے" is now stated as "پرسکون نیند سو پاتا/پاتی ہوں". The items are based on a 4-point Likert scale, which assesses symptoms of anxiety based on their frequency (0 = *Never, 1 = Sometimes, 2 = Most of the times and 3 = All the time*), with a maximum score of 81 and a minimum of 0. Higher scores indicate higher levels of anxiety.

Phase 2: Main Study

After data collection, it was cleaned and checked for missing responses and statistical abnormality. The Table 1 enlists sample characteristics.

Table 1

Demographic Characteristics of Sample (N=494)

Background Variable	(*n*)	(%)
Gender		
Males	215	43.5
Females	279	56.5
Education		
Matric and Intermediate	240	48.6
Graduation	215	43.5
Post-graduation	39	7.9
Birthplace		
Capital	42	8.5
Punjab	388	78.5
Sindh	13	2.6
Khyber Pakhtun Khwa	12	2.4
Balochistan	3	0.6
Gilgit Baltistan	2	0.4
Azad Jammu and Kashmir	10	2
Other Country	13	2.6
Marital Status		
Married	22	4.5
Unmarried	472	95.5

Table 2 indicates the internal consistency of SAS-R and BAI. The analysis revealed that all 27 items are worthy of retention with sound item-total correlation in the range of 0.39 to 0.67, $p < 0.001$. The item-total correlation less than 0.3 is considered low and questionable (Nunnally & Bernstein, 1994).

Table 2

Alpha Coefficient and Split-Half Reliability (N=494)

Scales	Items	Cronbach Alpha Coefficient	Split-Half Reliability
SAS - R	27	.90	.85
BAI	21	.91	.83

Note. SAS-R = Siddiqui Anxiety Scale – Revised, BAI = Beck Anxiety Inventory

To study factor structures of the revised tool, Principal Component Analysis (PCA) with Varimax Rotation was carried out on all 27 items. The number of factors retained was decided after using scree plot, Eigen values and Parallel analysis. Factors with Eigen values greater than 1.5 were retained. The Kaiser-Meyer-Olkin

Measure of Sampling Adequacy was 0.904, which is considered excellent in sufficiency of sample size for exploratory factor analysis (Field, 2005). Table 3 shows the pattern of these internally consistent rotated factor loadings. Factor 1 comprises 14 items and taps on cognitive-emotional disturbances, hence named ‗Cognitive-Affective', accounting for 27.68% variance. The second factor has 13 items assessing physiological features of anxiety, hence named ‗Somatic', accounting for a much lower percentage of variance of 6.81%. The low cumulative variance might be explained by the low prevalence of anxiety symptoms since the sample was selected from the community.

Table 3

Factor Loadings, Eigen Values, Cumulative Percentages and Variance of Items of SAS-R on Two Factors (N = 494)

Item No.	*Statement*	*F1*	*F2*
1	دل گھبراتا ہے۔	.63	
2	دماغ پر بوجھ رہتا ہے۔	.67	
5	طبیعت میں بے چینی رہتی ہے۔	.65	
6	کسی بات یا واقعہ پر دل کی دھڑکن تیز ہو جاتی ہے۔	.44	
8	بغیر کسی وجہ کے خوف محسوس ہوتا ہے۔	.59	
9	یاداشت کمزور محسوس ہوتی ہے۔	.56	
10	ذہن میں پریشان کر دینے والے خیالات آتے رہتے ہیں۔	.70	
12	اُداسی رہتی ہے۔	.61	
20	مزاج میں چڑچڑاپن رہتا ہے۔	.51	
24	گھبراہٹ کی وجہ سے ٹھنڈا پسینا آتا ہے۔	.40	
25	کام پر توجہ دے پاتا/پاتی ہوں۔	.47	
26	پریشانی رہتی ہے۔	.66	
27	کام کرنے کو جی نہیں چاہتا۔	.45	
3	پُر سکون نیند سو پاتا پاتی ہوں۔		.46
4	بھوک ٹھیک سے لگتی ہے۔		.50
7	آسانی سے نیند آجاتی ہے۔		.42
11	تھکاوٹ محسوس ہوتی ہے۔		.42
13	جسم کے کسی حصے میں گیس محسوس ہوتی ہے۔		.56
14	پیٹ میں بھاری پن محسوس ہوتا ہے۔		.59
15	گردن کے حصے میں درد اور تناؤ رہتا ہے۔		.55

16	جسم کا کوئی حصہ سن ہو جاتا ہے۔	.52
17	سانس لینے میں دشواری ہوتی ہے۔	.55
18	چکر آتے ہیں۔	.57
19	سر میں درد رہتا ہے۔	.48
21	منہ خشک رہتا ہے۔	.41
22	جس کے اعضا میں درد رہتا ہے	**.61**

Continued…

Item No.	Statement	F1	F2
23	سینے میں درد رہتا ہے۔		.58
Eigenvalues		7.47	1.84
Variance		27.68	6.81
Cumulative Percentage		27.68	34.49
Cronbach alpha		.85	.82

Pearson correlation analyses between SAS-R, its two components, BAI and LOT-R are shown in Table 4. The significant correlation between SAS-R indicates equivalence between the two measures, demonstrating the tool‘s validity; its moderation suggests the presence of several differences in the manifestation of anxiety in culturally different populations. The negative correlation between anxiety and both Optimism and Pessimism indicates significant divergent validity of SAS-R, as indicated by previous literature (Carver & Scheier, 2001; Dewberry, Ing, James, Nixon, & Richardson, 1990; Shaheen, Tabassum, & Andleeb , 2015).

Table 4

Correlations between Siddiqui Anxiety Scale and Other Scales

	M	*SD*	SAS-R	CAS	SS	BAI
Siddiqui Anxiety Scale – Revised	27.97	11.75				
Cognitive Affective	15.8	6.7	.91*			
Somatic subscale	12.18	6.37	.89*	.62*		
Beck Anxiety Inventory	17.39	11.47	.76*	.67*	.65*	
Optimism	9.51	2.36	-.34*	-.35*	-.25*	-.26*
Pessimism	6.53	2.46	-.16*	-.11*	-.11*	-.15*

Note. *$p < 0.05$. SAS-R = Siddiqui Anxiety Scale – Revised, BAI = Beck Anxiety Inventory, CAS = Cognitive Affective subscale, SS = Somatic subscale.

The Area under Curve (Figure 1) suggests a sufficient accuracy of the test (AUC = 0.883). Against BAI cutoff score of 26 (Creamer, Foran, & Bell, 1995), the ROC Curve graph helped determine the cutoff for SAS-R at a score of 30, balancing the sensitivity and specificity of SAS-R. Results showed that SAS-R has 81.4% sensitivity, 77.66% specificity, 53% positive predictive power and 93% negative predictive power at this cutoff score of 30, 95% CI [0.851-0.915]. It is important to notice the lower positive predictive power value that may be due to community-based non-clinical sample where clinical features of anxiety are not common.

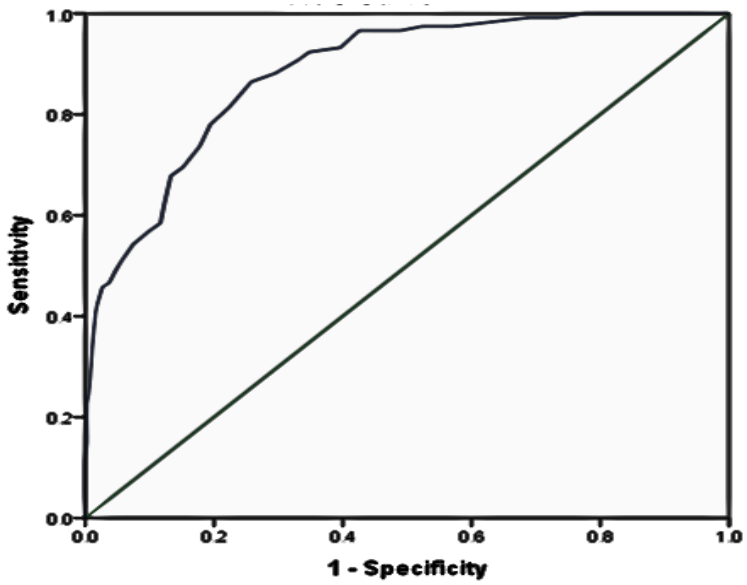

Figure 1. ROC Curve of SAS-R against BAI. The line above the diagonal represents area under the curve.

Discussion

This study is a part of a research project aimed at revising Siddiqui Anxiety Scale and determining its psychometric properties in various non-clinical and clinical populations of Pakistan. The current study addressed its revision and assessment of its properties in a community-based non-clinical sample. The anxiety scale was revised to adjust for any temporal changes in the understanding or presentation of anxiety among the people and to maintain its linguistic fluency. The findings suggest that Siddiqui Anxiety Scale – Revised concurs with standards of other assessment tools of anxiety being used globally. It is reliable and has sufficient internal consistency and split-

half reliability, which makes it suitable for use in both clinical and research settings (Groth-Marnat, 2009). The tool shows good convergent and divergent validity. With a cut-off score of 30, it was able to demonstrate adequate clinical utility such that it could successfully differentiate between anxious and non-anxious individuals in the non-clinical population.

Siddiqui Anxiety Scale – Revised is based purely on the indigenous concept of anxiety, developed from an item pool of verbatim of patients consulting the mental health for their anxiety related distress. Literature emphasizes the influence of culture in conceptualization and manifestation of anxiety in different ethnicities (Hofmann & Hinton, 2014; Marques, Robinaugh, LeBlan, & Hinton, 2011; Lee, Tsang, Chui, Kwok, & Cheung, 2007; Hoge, et al., 2006). Researchers suggest that the expression of anxiety is not universal (Marsella, 2009), therefore, mapping any distress through the Western understanding would only lead us to develop a pseudo-understanding of it. Consequently, when a psychometric tool based on this understanding is presented to a layperson, the material is not relatable for them and the language is incomprehensible. Even while using the translated or adapted versions of psychological tests, there is a high chance that the respondent is unable to identify with the items describing symptoms or wish to add something not stated. Psychological testing thus loses its credibility and validity altogether.

In Pakistan, this trend of using borrowed tests probably emerged due to limited resources and lack of availability of local tools. Most of them are either translated or adapted in Urdu and are not tailored for Pakistani population. These include Hospital Anxiety and Depression Scale (Mumford, Tareen, Bajwa, Bhatti, & Karim, 1991; Zigmond & Snaith, 1983), Beck Anxiety Inventory (Raza, 2013), Beck Depression Inventory (Khan, Marwat, Noor, & Fatima, 2013) and Self Report Questionnaire (Minhas, Iqbal, & Mubbashar, 1995). Among these, only HADS and BDI were translated following proper guidelines (Ahmer, Faruqui, & Aijaz, 2007; Khan, Marwat, Noor, & Fatima, 2013). However, BDI can only measure depression symptoms and HADS measure both anxiety and depression symptoms simultaneously. Bradford Somatic Inventory (Mumford, et al., 1991) is a scale simultaneously developed in English and Urdu but excessively focuses on the somatic component of anxiety while neglecting the cognitive and affective components.

SAS-R taps on the overall construct of anxiety instead of any specific types or other anxiety disorders. A number of items are related to worry and restlessness (Item number 1, 2, 5, 10, 20 and 26), the chief components of anxiety. Others mainly refer to the bodily

symptoms which accompany worry (Items 6, 13, 14, 15, 16 and 17) and those related with the normal functioning of a person (Items 3, 4, 7 and 25). Whereas, in BAI, items are mostly focused on the bodily/somatic symptoms and has only six items to assess the cognitive component of anxiety (5, 9, 10, 11, 14 and 16). SAS-R has two distinct dimensions, Cognitive-Affective and Somatic, which concurs with the theoretical breakdown of the construct (Beck, Epstein, Brown, & Steer, 1988).

Conclusively, Siddiqui Anxiety Scale – Revised is a reliable tool for the measurement of anxiety, which can be used with adolescents, young adults and older adults alike. It requires minimal training for administration and can be used by mental health professionals, counselors, teachers, parents and others alike in various settings; therefore, it can help screen anxiety in busy hospital settings or in the community to facilitate in accessing the required support. The tool is brief and easily comprehensible. It can save time and cost both for its users effectively.

Limitations and Suggestions

This study only focused on determining the psychometric properties of SAS-R in the community sample. Its cutoff values and properties in the clinical sample still need to be assessed. Further research can help to examine these aspects. Secondly, SAS-R needs readability on the part of the respondent. Hence, its administration is dependent on the reading ability of the person. In Pakistan, where the literacy rate is quite low, this might serve as a hindrance in its usage. Other methods of its administration, that is oral administration, need to be tested.

References

Ahmer, S., Faruqui, R. A., & Aijaz, A. (2007). Psychiatric rating scales in Urdu: A systematic review. *BioMed Central Psychiatry, 7*(59).

Ali, B. S., Reza, H., Khan, M. M., & Jehan, I. (1998). Development of an indigenous screening instrument in Pakistan: The Aga Khan University Anxiety and Depression Scale. *Journal of Pakistan Medical Association*, *48*(9), 261-65.

Arrindell, W. A., & Van der Ende, J. (1985). An empirical test of the utility of the observations-to-variables ratio in factor and component analysis. *Applied Psychological Measurement, 9*, 165-178.

Ayub, M., Poongan, I., Masood, K., Gul, H., Farrukh, A., Ali, M., Shaheen,

A… Naeem, F. (2012). Psychological morbidity in children 18 months after Kashmir Earthquake of 2005. *Child Psychiatry and Human Development*, *43*(3), 323-36.

Baxter, A. J., Vos, T., & Whiteford, H. (2013). Global prevalence of anxiety disorders: A systematic review and meta-regression. *Psychological Medicine, 43*(5), 897-913.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*(6), 893-897.

Bloom, D. E., Cafiero, E., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L. R., & Fathima, S. et al. (2011). *The global economic burden of noncommunicable diseases* (Report No. 87). World Economic Forum. Retrieved from

Carver, C. S., & Scheier, M. F. (2001). Optimism, pessimism and self-regulation. In E. C. Chang (Ed.), *Optimism and pessimism: Implications for theory, research, and practice* (pp. 31-51). Washington, DC: American Psychological Association.

Chisholm, D., Sweeny, K., Sheehan, P., Rasmussen, B., Smit, F., Cuijpers, P., & Saxena, S. (2016). Scaling-up treatment of depression and anxiety: a global return on investment analysis. *Lancet, 3*, 415-424.

Creamer, M., Foran, J., & Bell, R. (1995). The Beck Anxiety Inventory in a non-clinical sample. *Behavior Research and Therapy, 33*(4), 477-85.

Dewberry, C., Ing, M., James, S., Nixon, M., & Richardson, S. (1990). Anxiety and unrealistic optimism. *Journal of Social Psychology, 130*(2), 151-6.

Field, A. P. (2005). *Discovering statistics using SPSS* (2nd Ed). London: Sage.

Groth-Marnat, G. (2009). *Handbook of Psychological Assessment* (5th ed). New Jersey: John Wiley & Sons Inc.

Hasnain, M., & Siddiqui, S. (1993). *Development of an anxiety scale for clinical use*. Paper presented at 8th International Conference of Pakistan Psychological Association, Islamabad.

Hazlett-Stevens, H. (2008). *Psychological Approaches to Generalized Anxiety Disorder - A clinician's guide to assessment and treatment.* Boston, MA: Springer.

Hofmann, S. G., & Hinton, D. E. (2014). Cross-Cultural Aspects of Anxiety Disorders. *Current Psychiatry Reports, 16*(6), 450-59.

Hoge, E. A., Tamrakar, S. M., Christian, K. M., Mahara, N., Nepal, M. K., Pollack, M. H., & Simon, N. M. (2006). Cross-cultural differences in somatic Presentation in patients with generalized anxiety disorder. *The Journal of Nervous and Mental Disease, 194*, 962-66.

Hong, J. J. (2014). Anxiety disorders in Asians and Asian Americans. *Asian Journal of Psychiatry, 7*(1), 74-76.

Jahangir, S. F., Nawaz, N., & Khan, N. (2014). Effects of media (television) on mental health. *FWU Journal of Social Sciences, 8*(1), 97-107.

Khan, A. A., Marwat, S. K., Noor, M. M., & Fatima, S. (2015). Reliability and validity of Beck Depression Inventory among general population in Khyber Pakhtunkhwa, Pakistan. *Journal of Ayub Medical College Abbottabad, 27*(3), 373-375.

Lam, R. W., Michalak, E. E., & Swinson, R. P. (2005). *Assessment Scales in Depression, Mania and Anxiety.* Oxfordshire: Taylor and Francis Group.

Lee, S., Tsang, A., Chui, H., Kwok, K., & Cheung, E. (2007). A community epidemiological survey of generalized anxiety disorder in Hong Kong. *Community Mental Health Journal, 43*(4), 305-319.

Majeed, A., & Siddiqui, S. (2007). *A validity study of Siddiqui Anxiety Scale* (Unpublished master's dissertation). Department of Psychology, Government College University, Lahore, Pakistan.

Maqbool, S. (2015). Mental Health Impact of APS Attack Begins to Surface. *The News.* Retrieved from http://www.thenews.com.pk/print/26089-mental-health-impact-of-aps-attack-begins-to-surface.

Marques, L., Robinaugh, D. J., LeBlan, N. J., & Hinton, D. (2011). Cross-cultural variations in the prevalence and presentation of anxiety disorders. *Expert Review of Neurotherapeutics, 11*(2), 313-322.

Marsella, A. J. (2009). Some reflections on potential abuses of psychology's knowledge and practices. *Psychological Studies, 1*, 13-15.

Minhas, F., Iqbal, K., & Mubbashar, M. H. (1995). Validation of self-reporting questionnaire in primary care setting of Pakistan. *Pakistan Journal of Clinical Psychiatry, 5*, 60-69.

Mirza, I., & Jenkins, R. (2004). Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan: a systematic review. *British Medical Journal, 328*(7443), 794.

Mumford, D. B., Bavington, J. T., Bhatnagar, K. S., Hussain, Y., Mirza, S., & Naraghi, M. M. (1991). The Bradford Somatic Inventory. A multi-ethnic inventory of somatic symptoms reported by anxious and depressed patients in Britain and the Indo-Pakistan subcontinent. *British Journal of Psychiatry, 158*, 379-86.

Nasim, S., M. Khan & S. Aziz (2014). Impact of Terrorism on Health and Hospital Anxiety Depression Scale Screening in Medical Students, Karachi, Pakistan. *Journal or Medical Sciences*, *4*(3) 275-280.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd Ed.). New York: McGraw Hill.

Pike, K. (1967). *Language in relation to a unified theory of structure of human behavior* (2nd ed.). Hague: Mouton.

Raza, K. K. (2013). *Anxiety prevalence and its academic influences among university students* (Unpublished doctoral dissertation). Department of Psychology, University of Peshawar, Pakistan.

Rehm, J., Shield, K. D. (2019). Global burden of disease and the impact of mental and addictive disorders. *Current Psychiatry Reports*, *21*(2), 10.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (2013). Retrieved from http://www.midss.org/sites/default/ files/lotr_scale.pdf

Shaheen, N., Tabassum, N., & Andleeb, S. (2015). Pessimism, optimism and psychological distress in breast cancer women. *FWU Journal of Social Sciences, 9*(2), 125-35.

Siddiqui, S., & Shah, S. A. (1997). Siddiqui-Shah Depression Scale (SSDS): development and validation. *Psychology and Developing Societies, 9*(2).

Sonuga-Barke, E. J. (2014). Editorial: Building global science capacity in child psychology and psychiatry—between the etic and emic of cross-cultural enquiry. *Journal of Child Psychology and Psychiatry, 55*(4), 301-303.

Vos, T., Abajobir, A. A., Abbafati, C., et al. (2017). Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet, 390*, 1211-1259

Weitzman, C., & Wegner, L. (2015). Promoting optimal development: Screening for behavioral and emotional problems. *Pediatrics*, *135*(2), 384-395.

World Health Organization. (2013). *Mental Health Action Plan 2013-2020.* Geneva: World Health Organization.

World Health Organization. (2015). *Mental health ATLAS 2014.* Geneva: World Health Organization.

World Health Organization. (2017). Depression and other common mental disorders: Global health estimates. Geneva: World Health Organization

Yusufzai, A. (2014). Peshawar Massacre to Cause Mental Problems among Students, Parents. *Dawn.* Retrieved from http://www.dawn.com/news/11 51832.

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica, 67*(6), 361-70.

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