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# TRANSLATION, VALIDATION AND EFFECTIVENESS OF DEPRESSION, ANXIETY AND STRESS SCALE (DASS-21) IN ASSESSING THE PSYCHOLOGICAL DISTRESS AMONG FLOOD AFFECTED INDIVIDUALS

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## ABSTRACT OBJECTIVE



To evaluate the efficacy of an Urdu translation of Depression, Anxiety and Stress Scale (DASS-21) for measuring Depression, Anxiety and Stress among flood Affected Individuals.

## STUDY DESIGN

The co relational study design

## PLACE AND DURATION OF STUDY

The study was conducted during March to June 2012, and data was collected fromthe flood affected areasof Pakistan.

## SUBJECTS AND METHODS

Sample of 2000 participants was taken from different flood-affected areas of Pakistan. It included both men and women (n = 1402 men, and n = 598 women).The age ranged of the participants was from 16 to 60 years (M=28.67, SD=4.47). The translated version of The Depression, Anxiety Stress Scale 21 (DASS-21) was used to assess Anxiety, Depression and Stress.Reliability and validity of the DASS-21 were examined, and confirmatory factor analysis(CFA) was reported.

## RESULTS

The translated version of DASS-21 showed reliable Cronbach's alpha (0.93), Cronbach's alpha for the subscales was also good; 0.83 for stress, 0.86 for anxiety and 0.84 for depression, and .93 for the overall measure of DASS-21. Confirmatory factor analysis (CFA) showed a good fit of the modelto the data with all recommended items loading well on respective subscales.The values of lambda were ranged from

.49 to .72. For construct validity CFA was calculated. The values of fit indices were in acceptable range; incremental fit index (IFI) = 0.91; tucker-Lewis coefficient (TLI) = 0.89; normed fit index (NFI = 0.91); comparative fit index (CFI) = 0.90; and root mean square error of approximation (RMSEA)= 0.06.

## CONCLUSION

The DASS-21 Urdu is an effective measure for assessing Depression, Anxiety and Stress.The Urduversion of the scalehasbeen appeared to have sound psychometric properties. The factor structure of DASS-21 scores in our data is consistent with the original scale. It isculturally valid, reliable and acceptable instrument and is ready to be used in clinical as well asresearch settingsfor floodaffected population.

## KEYWORDS

Depression, Anxiety,Stress, Validation, Flood affectees.

## INTRODUCTION

Pakistan's vulnerability to natural and technological disasters ischaracterized by floods, earthquakes,landslides, and a range of complex emergencies.' Natural disasters are a major cause of the rise in psychological distress in developing countries.' Hence, the stress, anxiety and depression are the most frequent sequelae of trauma. Research showed that after experiencing the flood in 2010 in Pakistan, many people developed psychological problems such as PTSD, depression, anxiety, stress, and flood phobia. This disaster has left unforgettable and most sickening effects on the minds of survivors irrespective of their gender, age, and other socio­ demographics.' It has been evident that disorders like depression and anxiety are associated with functional impairment and poor psychological outcome.' It isessential to accurately identify and screen these disorders by using the readily available, cost-effective,speedy, and reliable methods.

The pervasiveness of depression and anxiety after a natural disaster is well-established and intensively documented. For instance, after the Marmara earthquake in Turkey almost 30.8 percent survivors had probable depression diagnoses and likewise anxiety disorder was higher than the normal population.' Similarly, the prevalence of generalized anxiety disorder and major depressive disorder were 12.0 percent and

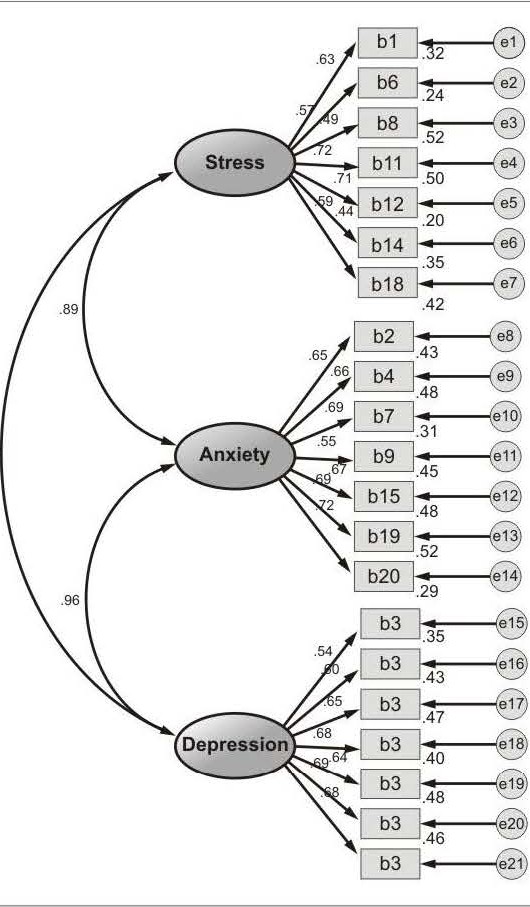
17.6 percent respectively among the affectees of super­ cyclone.' Similarly almost three years after the Wenchuan earthquake, nearly 44.8 percent and 37.6 percent of the respondents reported clinical symptoms of depressive illness and anxiety disorder respectively.' While among the elderly survivors the prevalence rates of anxiety and depression were

42.9 percent and 35.2 percent, respectively.In terms of gender differences, women scored high on anxiety as compared with men.' To accurately screen these disorders seems to be challenging for the mental health professionals.

The gap between the demand and delivery of mental health services in Pakistan can be reduced by translating and validating freely accessible or available scales with sound psychometric properties. There is scarcity of the scales in the Urdu language that measures the stress, anxiety and depression simultaneously. The content of the already available scales, no doubt, successfully distinguish between the depressed and non-depressed individuals.However,these scales do not take into account dimensional approach rather



these are based on categorical approach. A dimensional concept of depression, anxiety and stress proposes that symptoms should be associated with a continuum of deficits.' The Depression, Anxiety Stress Scale(DASS) isaself-report measure.It has threesubscales that assess the depression, anxiety and stress at the same time. Thus, the DASS meets the requirements of both scientists and practitioners. The supposition on which the DASS was developed is that the differences between the stress, anxiety and depression experienced by healthy individuals and the clinically disturbed individuals are actually differences of degree." The Depression Anxiety Stress Scale (DASS)" thus, demonstrated high specificity and sensitivity identifying clinical cases of depression, anxiety, and stress in individuals affected in natural disaster."·" DASS has moderate convergent and discriminating validity. This instrument is very sensitive to change with treatment. Correlation studies with the DASS showed that the scores on DASS are positively associated both with Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI). In addition, the factor structure of DASS-42 is also consistent with the both clinical and normal populations."·""·" The DASS 21, that have also a three-factor structure, has been found to have be even more coherent and consistent" and has been interpreted as support for a tripartite model of anxiety and depression."



The validation of DASS would minimize the gap between the demand and screening of psychological disorders and would help in addressing the issues of the scarcity of the scales in the Urdu language that measures the Depression, Anxiety and Stress simultaneously. The aim of this study is to validate the DASS-21 in UrduLanguage.

**SUBJECTS AND METHODS**

## Participants

Sample of the current study consisted of 2000 individuals, by using purposive sampling technique.Sample was taken from several flood­ affected regions of Pakistan including Punjab, KPK, and AJK. Both men (n = 1402) and women (n = 598) participated in this study. Before the data collection participants' informed consent was taken and they were assured about the confidentiality of the data.

## Materials

The Depression, Anxiety and Stress are the three subscales of DASS. It is a 4-point Likert scale with response options ranging from Oto 3. Each subscale is comprised of 14 items that depicts negative emotions experienced by the respondents in the past week.'° DASS- 21 is a brief version that contains all three subscales. Each subscale has 7 items. The depression scale includes items that measure the self-disparaging, desertedness, feelings that life has no significance, cynical about what's to come, not able to experience pleasure or fulfillment, unable to become involved in activities, ailing in activity. The anxiety scale measures the panicky, apprehensive, precarious, restless, dryness of the mouth, trouble in breathing, uncertainty, heart pounding, clamminess of the palms, loss of control, worried about performance and the stress scale measures being over­ aroused, tense, not able to unwind, petulant, easily startled, easily upset, irritable, nervous, edgy, jittery, intolerant of delay or interruption. The DASS-21 has satisfactory internal consistency and

gives meaningful discrimination for the normal and clinical population at diverse settings. The scale, thus meet the need of both the academicians and practitioners to gauge current state of negative emotions.The DASS can be administered either individually or in group settings.Thealpha reliability of the DASS-21 is.83,.86 and

.84 respectively. The translation of the DASS-21 was completed in four steps (forward translation, committee approach, back translation, and cross language validation). Moreover, the instrument was judged on the basis of criteria of sample appropriateness, culture appropriateness, language difficulty level, construct clarity and gender biasness. Translation was carried out by using the guideline proposed by Brislin."

### RESULTS

Data was analyzed by using SPSS 20.Demographic characteristics of the sample showed that 55.4% weremarried,44.2% were unmarried. Minimum education of the participants was ten years and the maximum was 16 years of education. Average monthly income (Median= 12000,SD= 12.44).

For Confirmatory Factor Analysis (CFA) AMOS was used. All items loaded perfectly on the subscales as figure 1 and table 2 showed. The

alpha reliability of the subscale stress was .83; Anxiety, .86 and depression, .84.while,the overall value of the DASS was ( *a* =.93).

**Figure I**

CFA of Depression Anxiety Stress Scale (DASS-21)

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**Table J** Table 3 demonstrates that Stress is positively associated with the Mean, Standard Deviation, AlphaReliability Coefficients, Ranges, and Anxiety and depression (rs=.73. &.76). Moreover, anxiety and Skewnessof DepressionAnxiety Stress Scale (DASS-2!) depressionare also positively associated with each other.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Range** | | | | | | | | |
| **Scale** | **D** | **Item** | **M** | **SD** | ***a*** | **Potential** | **Actual** | **Skew** |
| DASS | 1974 | 21 | 21.08 | 12.60 | .93 | o-63 | 0.0-62 | .52 |
| Subscalc Stress | 1968 | 7 | 8.22 | 4.37 | .83 | 0-21 | 0.0-21 | .30 |
| Subscalc Anxiety | 1971 | 7 | 6.03 | 4.63 | .86 | 0-21 | 0.0-20 | .63 |
| Subscalc Depression | 1971 | 7 | 6.85 | 4.70 | .84 | 0·21 | 0.0-21 | .60 |

Independent sample t- test was used for the comparison of means scores among thestudyvariables.

**Table 4**

Gender and Employment Status Differenceson rhe Variables ofDistressStress Anxiety. Depression (N = 1834)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Men  (11= 1289) | | Women  (11 = 545) | |  |  | 95%CI | |  |
| **Variables** | ***M*** | ***SD*** | ***M*** | ***SD*** | ***t(/812)*** | ***p*** | ***LL*** | ***UL*** | **Cohe**  ***d*** |
| Distress | 20.58 | 12.75 | 22.22 | 12.18 | 2.66 | .01 | -2.85 | ·0.43 | .13 |
| Stress | 7.96 | 4.38 | 8.79 | 4.28 | 3.90 | .001 | -1.25 | ·0.41 | .19 |
| Anxiety | 5.91 | 4.70 | 6.28 | 4.45 | 1.61 | .II | -0.81 | 0.08 | .08 |
| Depression | 6.73 | 4.75 | 7.12 | 4.59 | 1.69 | .09 | -0.84 | 0.06 | .08 |
|  | Employed  {11=800) | | Unemployed (11=922) | | 1(1720) |  |  |  |  |
| Distress | 18.51 | 11.91 | 22.91 | 12.69 | 7.65 | .001 | -5.52 | -3.27 | .36 |
| Stress | 7.45 | 4.25 | 8.81 | 4.37 | 6.74 | .001 | -1.75 | -0.96 | .31 |
| Anxiety | 5.22 | 4.35 | 6.56 | 4.70 | 6.31 | .001 | -1.75 | -0.92 | .29 |
| Depression | 5.88 | 4.38 | 7.53 | 4.77 | 7.71 | .001 | -2.07 | -1.23 | .36 |

**n's**

**Table 2**

Confirmatory Factor Analysis withFactor Loading of Depression Anxiety StressScale

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|  |  |  |
| --- | --- | --- |
| **Subscales** | **Item** | **Loading** |
| Depression | 3 | .54 |
|  | 5 | .60 |
|  |  |  |
|  | 13 | .68 |
|  | 16 | .64 |
|  | 17 | .69 |
|  | 21 | .68 |
| Anxiety | 2 | .65 |
|  | 4 | .66 |
|  | 7 | .69 |
|  | 9 | .55 |
|  | 15 | .67 |
|  | 19 | .60 |
|  | 20 | .72 |
| Stress | I | .63 |
|  | 6 | .57 |
|  | 8 | .49 |
|  | II | .72 |
|  | 12 | .71 |
|  | 14 | .44 |
|  | 18 | .59 |

*Note. CI= Co11jide11ce /11terval*

Table 4 showed the gender difference on study variables. Independent sample t-test demonstrated a significant difference at thep <.05 level in psychologicaldistressof menand women.Women scored significantly higher in overall distress as compared with men and the results are significant, t (1832) = 2.66, p < .01. In addition, women also scored significantly higher in stress as compared with men (t = 3.90, p <.05). Table 4 also showed that unemployed individuals scored higher on psychological distress, stress and anxiety as compared with employed individuals.

**DISCUSSION**

Loadings of theDASS are presented in Table 2 that isranged from.44 Trauma and disasters are one of the significant causes of human to .71. Factor loadings were examined and all the factor loadings afflictions, in terms of general sufferings and complexities of the were found above thecriteria (>.3).The scale was used without any mental health issues. It put long-lasting impact on psychological

modifications.Valuesof theFitindicesarepresented in Table3. functioning. Literature is flooded with the substantial mental health

morbidity after the disastrous situation." The occurrence of depression, anxiety and stress after the natural disaster is well-

**Table 3** documented.'·'·'·' However, there is lack of cost-effective and readily Relationship betweentheStressAnxiety Depression with LifeSatisfactionand available tests in Urdu language that screen these disorders Psychological Wellbeing simultaneously using a single instrument. Hence, the present

research translated and validated theUrdu version of theDASS-21on a community sample affected in a natural disaster. The translation and validation was done while keeping in mind the guidelines proposed by Brislin. The DASS has already been translated and validated into many other languages and is widely used by academicians, researchers and clinicians. DASS-21 is often not only considered best for research purpose but also is a good screening scale and thus meets the need for both the scientists and practitioners.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Variables** | I | **2** | **3** | **4** | **s** |
| I | Stress |  | .73\*\* | .7.6.° | \_.14\*\* | \_.4g.\*.\* |
| 2 | Anxiety |  |  | .78 | -.06 | -.52 |
| 3 | Depression |  |  |  | -.14\*\* | -.57.. |
|  | Mean (SD) | 8.79  (4.28) | 6.28  (4.44) | 7.12  (4.59) | 23.00  (7.31) | 21.15  (6.17) |





The alpha reliability of the subscale DASS-21 is satisfactory that is 0.84, 0.86, and 0.83 for the Depression, Anxiety, and Stresssubscales respectively and 0.92 for the overall DASS-21. Confirmatory factor analysis supported that the test is valid. The items in the DASS-21 were selected on the basis of item loadings. All the individuals had the item loadings greater than 0.3. The indices of validity are satisfactory including comparative fit index[CFI= .91], incremental fit index [IFI= .91], normed fit index [NF I= .90], tucker-Lewiscoefficient [TLI = .89], and RMSEA = .06. Each item had the satisfactory loading. The lambda values *A,* indicated the minimum loading is .44 and maximum loading is .72. For each domain ofDASS-21, the scale has satisfactory internal consistency. The three domains have been confirmed by factor analysis.Thisfactor structure and validity indices are in line with the past research and showed the cross-validation of the DASS. In sum, findings of the current study demonstrated the factor structure of DASS in community sample who are affected in natural disaster. The three factors seem to be coherent and interrelated."Thisscale discriminatesthose who had the depression, anxiety and stress from the normal people affected in a natural disaster. Additional prospective research is needed that could reestablish the sensitivity and specificity calculations by replicating these findings with diverse population with diverse socio demographics. This would ensure that mental health practitioners and researchers are employing the most speedy, cost-efficient, reliable and valid assessment tools in detecting those individuals who suffer from negative mood states or psychological distress. It would ultimately help in devising the appropriate interventions.

### LIMITATIONS

Utilization of convenient sampling technique, use of self-report measure, and the cross sectional designs are the limitations of the study. We only incorporated those individuals who were able to complete the questionnaire themselves. So the data of illiterate individualswas not available, thusit cannot be generalized to all the population. Use of random sampling techniques would give more generalizable findings. The sample consisted of the flood affected community and thegeneralizability of resultsto other samplesisnot known. The question whether Western indigenously devised measurescan be used in non-Western populationsmore specifically, in developing world has been hotly debated."·" Hence, for such instruments, the cultural sensitivity and validity for a certain cultural appropriateness needs to be clearly established.

### CONCLUSION

The Urdu version of DASS-21 has sound psychometric properties. It has satisfactory reliability. It is culturally valid measure can be used at diverseresearch andclinical settings with flood affected population. Hence, it meets the need of the both scientists and practitioners.

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