

## ORIGINAL ARTICLE

**Measurement of Vulnerability Markers for Depression: A Study on Translation, and Validation of DAS-A**

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**ABSTRACT**

**Objective:** The objective of current research was to establish the validity and reliability of Dysfunctional Attitude Scale-Form A in Pakistani population.

**Study Design:** The present study incorporates the cross-sectional design based on confirmatory factor analysis.

**Place and Duration of Study:** The study was conducted in twin cities of Rawalpindi and Islamabad from March 2016 to February 2017.

**Materials and Methods:** The data was collected through purposive convenient sampling. The Dysfunctional Attitude Scale- Form A (DAS-A) was translated in Urdu language and construct validity of the instrument was tested by the aid of confirmatory factor analysis. It is a 40-items self-report instrument measuring both the dysfunctional and the adaptive aspects of attitudes. The study included a total sample of N=641 (324 male & 317 female) young adults aged above 18 years (M= 19.56; SD = 1.79) and selected from the normal population.

**Results:** The findings revealed significant alpha coefficients, homogeneity, and stability of the DAS-A. Meanwhile, the confirmatory factor analysis provided strong support for a two-dimensional model. Using the sample variance-covariance matrix as input and a maximum likelihood solution, the overall chi-square was statistically non-significant ( $CMIN/df=1.24; p > .05$ ), the Tucker-Lewis Index was .90, the incremental fit index was .96, the Normed Fit Index was .97, the Comparative Fit Index was .96 and the Root Mean Square Residual / Error (RMSE) for the predicted minus observed correlation matrices was .03. All these values suggest good model fit for the DAS-A.

**Conclusion:** Subsequently, findings suggest that DAS-A (Urdu) is an efficient, reliable, and valid instrument for the assessment of dysfunctional attitudes which predispose to depression among young adults. Meanwhile, this research laid the foundation for further research in clinically depressed population.

**Key Words:** *Depression, Dysfunctional Attitudes, Reliability, Validity.*

**Introduction**

Dysfunctional attitudes are an important risk factor in the onset and maintenance of depression. Beck<sup>1</sup> proposed that dysfunctional attitudes are vulnerability factors that play a causal role in the onset of depression. In Beck's theory, negative self-schemas that include irrational or dysfunctional beliefs are the core of vulnerability to depression. Childhood experiences along with a negative stressor increase the risk of depression in those individuals with maladaptive cognitive patterns.<sup>2</sup> Accordingly, these dysfunctional attitudes are considered as predisposing risk factors for

depressive episodes or indirectly as a factor of vulnerability under stressful conditions.<sup>3</sup> Previous studies revealed that dysfunctional attitudes are related to the incidence of depression<sup>4,5</sup> and that there was a correlation between high levels of dysfunctional attitude and the longer duration of episode<sup>5,6,7</sup> as well as shorter remissions in depression.<sup>8</sup>

Taken together, a reliable and valid measure is necessary for understanding depression.<sup>9</sup> Thus, dysfunctional attitudes are measured with the Dysfunctional Attitudes Scale (DAS)<sup>2, 10</sup> which has been one of the leading cognitive instruments in clinical research and diagnosis for measuring levels of cognitive vulnerability to depression<sup>11,12,13</sup> for more than 30 years.<sup>14</sup> DAS is one of the cognitive assessments that have a direct link or direction to symptoms of depression.<sup>15</sup> It is a self-report inventory designed to measure attitudes that can predispose a person to depression. DAS was originally a 100-item scale developed using a college student population. It was divided into two parallel

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forms, 40-item forms A and B. The DAS Form A (DAS-A) has been widely used in depression research, particularly in testing the cognitive theory of depression.<sup>16</sup> Items were rated on a seven-point scale, ranging from totally agree (1) to totally disagree (7). Total scores can range from 40 to 280, with higher scores indicating greater presence of negative beliefs. The original English version of this scale was found to have satisfactory reliability coefficients and could discriminate significantly between depressed and non-depressed groups. Additional studies have further supported the adequacy of this scale in terms of internal consistency and validity among college students.<sup>1,2,4,17,22</sup> Also, some researchers supported its adequacy in terms of internal consistency and validity in the general population.<sup>23</sup>

The factor structure of the DAS has been studied with models consisting of two factors<sup>18, 24-27</sup> three factors<sup>28,29</sup>, and four factors.<sup>30,31</sup> Meanwhile, in Pakistan previous research had explored the four-factor model<sup>32,34</sup> and unidimensional model of DAS-A English version, while the existing research is still scarce on adaptive attitudes. To date, no study has been designed to assess adaptive aspects of the instrument, although the ten items in the instrument are designed in a functional way.<sup>1,35</sup> Consequently, valid and reliable cognitive measures are important for two reasons; first, to establish the adequacy of this instrument specially designed to assess depressive cognitions in a Pakistani context and second, to further investigate the theoretical and empirical validity of the cognitive-behavioral approach in Pakistan to measure both adaptive and dysfunctional attitudes. Therefore, considering the current status of the DAS, the objective of current research was to establish the validity and reliability of Dysfunctional Attitude Scale-Form A in Pakistani population, so that the DAS could be used with confidence to assess the vulnerability markers of depression.

## Materials and Methods

The present study is a cross-sectional research which was being approved by the ethics committee of the National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan. Data was collected by researcher from 641 community individuals of Rawalpindi and Islamabad through a purposive

convenient sampling technique from March 04, 2016 to February 16, 2017. Materials needed for the administration include the 40 items Dysfunctional Attitude Scale- Form A. The subject must be adequately motivated and in good physical and mental condition. The scale is administered without a time limit after all the necessary materials and adequate environmental conditions are provided. The 40 items of DAS are phrased as statements usually underlying depressive idiosyncratic thinking. Each item elicits information on the individual's dysfunctional beliefs, which act as schemas used to construct the world.<sup>1,36-37</sup> These beliefs include approval, love, achievement, perfectionism, entitlement, omnipotence, and autonomy. Subjects assess each statement, considering the way they usually think, by using a 7-point Likert scale, where: 1 = Totally agree, 2 = Agree very much, 3 = Agree slightly, 4 = Neutral, 5 = Disagree slightly, 6 = Disagree very much, 7 = Totally disagree. Meanwhile, the 10 items i.e., items 2, 6, 12, 17, 24, 29, 30, 35, 37, 40, were designed in an adaptive way. Afterwards, the data was assessed to test the assumptions of normality, and it was found that the data was essentially suitable for parametric testing. Thus, the first step to meet the study objectives was to translate the scale from English to Urdu. After taking permission from the authors, the scale was translated into Urdu by following Beaton's<sup>38</sup> translation method. Another essential phase in the translation of the scale was to establish that potential respondents could understand statements of the translated items. With this aim, the final translated scale was administered on 25 volunteer young adults. Respondents of this pilot-testing confirmed that translated items were suitable and simple to comprehend. After translation, the instrument was validated into Urdu language. The process of cross-language validation tries to produce equivalency between source and target language based on content. During this step 40 adults (13 male & 27 female) were tested. Accordingly, the scales were administered twice to two researcher's identified groups of bilingual Pakistani adults in English-Urdu, and Urdu-English sequences. The administration of the test was carried out individually on one to one basis. Participants were randomly assigned to the two conditions in first

administration i.e., English test and Urdu retest; Urdu test and English retest, and these groups were made to control the experiences of learning that may take place due to the administration of Urdu and English tests with two weeks apart retesting. Afterward, the factor structure of the translated instrument was confirmed through a confirmatory factor analysis. The findings helped in determining the structure of factors for young adults and examined whether the construct has the same structure, or they depict a new pattern for the Pakistani sample. CFA basically depends on multiple statistical tests to assess the acceptability of model fit to the data. CFA aimed to confirm to what extent the existing factor structure fits the present study data.<sup>39-42</sup> In the current study, the researcher has considered widely used model fit indices i.e., CMIN/df, CFI, NFI, TLI, and RMSEA<sup>43,44</sup> and factor loading (.30 and above) as criteria to test the validity of items.<sup>45</sup> The data was analyzed through AMOS 24<sup>46</sup> and the Statistical Package for Social Sciences 25.0 for Windows.<sup>47</sup>

**Results**

Table I, II, and III show the findings of test-retest reliability, establishment of alpha coefficients reliability, and the confirmatory factor analysis. In order to determine cross-language validity and test-retest reliability of the scales (Table I), moderate correlation coefficient ranging from .61 ( $p < .01$ ) to .72 ( $p < .01$ ) were found. Afterward, the instrument was tested on a diverse group to confirm the factor structure in the Pakistani population.

Using the whole sample, internal consistency, and validity analysis was conducted. The reliability of the two factors i.e., dysfunctional attitude and adaptive attitude was evaluated. Table II shows the internal consistency and descriptive values of the DAS-Urdu. Using Cronbach's alpha to estimate the reliability coefficient, a high to moderate alpha was obtained for the dysfunctional attitude (.86), and the adaptive attitude (.62). CFA was subsequently utilized to examine the construct validity of the two-correlated factor model. The findings of CFA are presented in table III. Given these results, using Maximum Likelihood procedures to estimate the model, most of the indices indicated a good fit ( $\chi^2 = 357.60$ ,  $df = 289$ ;  $CMIN/df=1.24$ ,  $CFI=.96$ ,  $IFI=.96$ ,  $TLI=.90$ , and  $RMSEA=.03$  which is indicating a good model fit. The

CFA has confirmed the factor structure. These results depict that the translated version of the Dysfunctional Attitude Scale is statistically valid for measuring the respective attitudes across Pakistan. The inspection of non-standardized regression weights indicated significant loadings for all items that were above .30.

**Table I: Retest Reliabilities of Urdu and English version of the 2-Factors of Dysfunctional Attitude Scale (DAS) (N=40)**

	UE	EU
Dysfunctional Attitude	.72**	.72**
Adaptive Attitude	.61**	.67**

Note. UE = Urdu English, EU = English Urdu  
 \*\* $p < .01$ , \* $p < .05$

**Table II: Descriptive of Subscales of Dysfunctional Attitude Scale among Young Adults (N=641)**

Variables	Item	$\alpha$	M	SD	Range	
					Potential	Actual
Dysfunctional Attitude	30	.86	3.5	.72	1-7	1.9-5.7
Adaptive Attitude	10	.62	3.2	.73	1-7	1.3-5.4

**Table III: Confirmatory Factor Analysis (indices of model fit) for Dysfunctional Attitude Scale (DAS) (N=641)**

Indices	CMIN	Df	CFI	IFI	TLI	NFI	RMSEA
	357.60	289	.96	.96	.90	.97	.03

Note. CFI=Comparative Fit Index, NFI= Normed fit index, RMSEA=Root Mean Square Error of approximation, TLI =Tucker-Lewis Index

**Discussion**

The purpose of the present research is to assess the factor structure, reliability, and validity of the DAS-Urdu among the Pakistani population. This paper shows that the Dysfunctional Attitudes are a hallmarks of depression. Despite a central role for dysfunctional attitudes in cognitive theories of depression and the widespread use of the Dysfunctional Attitude Scale, form-A,<sup>1</sup> the psychometric advancement of the DAS-A has been limited. Few studies have been published which report its use as a measurement tool of the presence and intensity of dysfunctional attitude among the depressive individuals. It is a self-report instrument measuring both the dysfunctional and the functional (adaptive) aspects of attitudes. The present study

establish that DAS-A is reliable and can assess the dysfunctional as well as adaptive attitudes. Meanwhile, it is consistent with the previous literature<sup>1,34-37</sup> which asserted that 10 items are phrased in functional way.

The strength of our study is that this tool is translated and validated in Urdu to assess dysfunctional and adaptive attitudes in the Pakistani population, addressing a gap in the literature. One limitation of the study is geographical, as the data were collected from only two cities due to convenience sampling. In addition, our sample in this study was based on a higher educated population than the mean education level in the country. Furthermore, in view of these limitations, further studies on diverse samples are required to achieve a higher level of validation of the Urdu version of the DAS-A. Accordingly, it was established that the DAS-A (Urdu) is a reliable instrument for assessing the vulnerability markers of depression in Pakistani population. It is a valid scale, appropriate to be used in clinical and research settings. It is a concise yet two-dimensional measure with solid psychometric properties to facilitate screening in both clinical and research settings. However, future research is strongly recommended to continue to assess the scale reliability and validity in clinically depressed population.

### Conclusion

Taken together, it is concluded that the DAS-A (Urdu) is an efficient, reliable, and valid instrument for the assessment of dysfunctional attitudes which predispose to depression among young adults. Meanwhile, this research laid the foundation for further research in clinically depressed population.

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