

## THE DISTRESS TOLERANCE SCALE FOR UNIVERSITY STUDENTS: A VALIDATION STUDY

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### ABSTRACT

**Objectives.** To develop a valid and reliable scale to measure distress tolerance in a sample of undergraduate students of Pakistan.

**Design.** A cross-sectional research design was used.

**Place and Duration of study.** Lahore during the period of 2016-17.

**Subjects and Method.** The phenomenology of distress tolerance was explored from 30 undergraduate university students (Men=15, Women=15) with the age range of 18-25 ( $M=19.22$ ,  $SD=1.69$ ) using a semi-structured interview technique that yielded a list 52 items, retained as a self-report measure (Distress Tolerance Scale, DTS), and was piloted on 50 university students (Men=25, Women=25) with the age range of 18-25 ( $M=19.39$ ,  $SD=1.86$ ). In the final phase, 300 undergraduate university students (Men=153, Women=147 with the age range of 16-25 years ( $M=20.05$ ,  $SD=1.75$ ) were recruited through multistage sampling using, educational sector, gender and class as two strata and then a sample was withdrawn systematically and were given a demographic questionnaire, DTS and Depression Anxiety Stress Scale-SF (DASS-21) for the purpose of concurrent validity.

**Results and Conclusion.** Two Factor solutions for Distress Tolerance Scale was namely Lack of Emotional Regulation and Negative Appraisal ( $\alpha=.95$ ; split half reliability  $r=.88$ ). DTS was found to have acceptable level of psychometric properties and can be used further for reproach, intervention and counselling services.

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**Keywords:** Distress Tolerance, Factor Analysis, Personality, Psychometrics, University Students

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## INTRODUCTION

For almost a decade, researchers are asserting to bridge the gap between basic and applied researches to make use of theoretical integration for prevention than intervention in clinical psychology (Cicchetti & Hinshaw, 2002). University years are emotionally and intellectually more disturbing for an individual (Wangeri, Kimani, & Mutweleli, 2012) and an individual faces pressures and challenges that pose a ramification in terms of adjustment with the new changes (Rodgers & Tennison, 2009). Continuous change in psycho-social and emotional world may pose university students at greater risk of mental health problems (Hunt & Eisenberg, 2010). An alarming increase in mental health problems has shown to influence academic, personal and social functioning of an individual. Studies have also revealed that a large number of university students in Pakistan are also either at risk or suffering from serious psychological issues that disrupt their functionality (Bukhari & Khanam, 2015; Saleem, Mahmood, & Naz, 2013).

With the ever increasing prevalence of mental health problems, it is pertinent to identify the risk factors of mental health problems in university students (Chioqueta & Stiles, 2007). Amongst them, one such risk factor is *Distress Tolerance* (DT) which is defined as the potential to experience and withstand negative mental states (Simons & Gaher, 2005). Distress may be the end result of cognitive or physical exhaustion, however, manifests in an emotional state. Hence, DT is considered a meta-emotion that consists one's expectations of experiencing terrible emotional states in terms of tolerability and aversiveness, appraisal and acceptability, tendency to absorb, and emotional regulation (Simons & Gaher, 2005). In a broader context, Leyro, Zvolensky, and Bernstein (2010) have defined DT as the *individual's ability to endure the negative states being experiences internally like uncertainty, physical discomfort, ambiguity, frustration and other emotions*.

A rich research evidence revealed that DT has been associated with depression (Ameral, Bishop, & Reed, 2017), anxiety (Reitzel, Smith, Obasi, Forney, & Leventhal, 2017), substance abuse (Simons, Sistad, Simons, & Hansen, 2018), eating problems (Emami, Woodcock, Swanson, Kapphahn, & Pulvers, 2016), self-harm (Viana, Woodward, Raines, Hanna, & Zvolensky, 2018), impulsivity and alexithymia (Gaher, Hofman, Simons, & Hunsaker, 2013). Daughters et al. (2009) found that distress tolerance levels are significantly related to delinquent behaviours and substance use in men whereas it is more linked to internalizing behaviours in women.

In western literature, varied scales of DT has been found like Distress Tolerance Scale (Simons & Gaher, 2005), Distress Intolerance Index (McHugh & Otto, 2011), Distress Tolerance Test (Nock & Mendes, 2008). However, the experience and manifestation are influenced by cultural experiences (Weisz, Weiss, Suwanlert, & Chaiyasit, 2003). Pakistan is a collectivist culture having more inclination being an oriental and religious society where ways of tolerating, adapting and behaving as a reaction of distress varies (Saleem, Mahmood, & Subhan, 2015) and there is a scarcity of literature with reference to distress tolerance. Recently, a study reported that distress tolerance is related to parenting and mental health functioning of university students. It revealed that rejection from mother and low distress tolerance is positively associated with mental health problems of young adults (Azhar, Saleem & Mahmood, 2020). Therefore, the current research focused on exploring the experience, expression and manifestation of distress tolerance with regard to Pakistani cultural context in university students.

## METHOD

### *Phase I: Item Generation*

Participants and procedure. The concept of Distress Tolerance was operationally defined as, *“the ability of an individual to handle the stressful situations”*. The definition was given to a sample of randomly selected 30 university students (men=15, women=15) having age range of 18- 25 years ( $M=19.22$ ,  $SD= 1.69$ ), studying in Bachelor’s degree program from a government and a private sector university of Lahore, Pakistan. All participants were interviewed individually and were asked to describe the characteristic features of individuals having lack in DT. This phenomenological inquiry lasted for 15 minutes had resulted in a list of 60 items.

### *Phase II: Expert Validation*

Participants and procedure. Subsequently, the list of items and definition of DT was provided to five experienced clinical psychologists with the 5 years’ experience. The experts rated each item on a 5-point rating scale of 0 (*not at all related*) and 4 (*highly related*). The scoring range of each item was 0-20 and the cut-off point for retaining an item was 10

This helped in assessing the suitability and relevance of each item in terms of the concept's definition. A league table was made where total score of each item was listed in an ascending order, and the items having less than 50% of agreement were excluded which were 8 in number. At the end of this phase, after exclusion of the items, a scale was formed having a name of Distress Tolerance Scale (DTS) which has 52 items on a 4- point Likert scale.

### ***Phase III: Pilot Study***

**Participants and procedure.** The aim of this phase was to assess the understanding, comprehension and user – friendliness of the Distress Tolerance Scale (DTS). For this purpose, 50 university students (25 men and 25 women) were randomly selected, who were studying at undergraduate level, having age range of 18 to 25 years ( $M=19.39$ ,  $SD= 1.86$ ). At the end of the phase, it was analyzed that the scale is user-friendly and is ready to be used for further psychometric phase.

### ***Phase IV: Main Study***

**Participants.** Multistage sampling strategy was used to recruit the sample of 300 university students (153 men, 147 women), from a government and a private university of Lahore, Pakistan. The sample was further sub-divided evenly on the basis of semester or education year. Using the systematic random sampling technique, every 3<sup>rd</sup> participant was recruited, having ages of 16 – 25 years ( $M = 20.05$ ,  $SD = 1.75$ ).

### ***Measures***

#### **Distress Tolerance Scale (DTS)**

To assess DT in university students was indigenously developed having 52 items in Urdu (National language of Pakistan) on 4 point Likert Scale where lesser the scores mean higher the distress tolerance is. The response options are 0 (*never*), 1 (*sometimes*), 2 (*often*), and 3 (*most of the time*).

***Depression Anxiety Stress Scale – Short form*** (DASS-SF, Lovibond, & Lovibond, 1995)

To assess the mental health of university students, Urdu translated version of DASS – SF was used which consists of 21 items and measures the three related negative emotional states of an individual. Ratings have to be done on a 4 – point scale, where the response options are: 0 (*not at all*), 1 (*occasionally*), 2 (*often*), and 3 (*always*).

### ***Procedure***

Firstly, the research protocols and procedures were approved by Institute Ethical Committee of Institute of Clinical Psychology, University of Management and Technology, Lahore. Then, Government and Private sector universities were contacted for permission of carrying out the research project with brief explanation of aims and objectives of research project. The four universities agreed for student participation. Following that, registrar office provided list of departments having equal proportions of men and women, where on the basis of university type, gender and class, strata were made. Then, every 3<sup>rd</sup> participant was selected from each strata. The participants were briefed about free will to participate, confidentiality of personal information and rights to withdraw the study using informed consent. The research protocol comprising demographic questionnaire, DTS and DASS-21 was administered in group setting, having 10- 15 students on average, using paper and pencil followed by a debriefing session. On the basis of missing or incomplete information, almost 10 protocols were discarded.

## **RESULTS**

### ***Factor Analysis of Distress Tolerance Scale***

Initially, reliability was found .95 for 52 items. Table 1 indicates the factor structure of items loaded on respective factors amongst the two. The criteria for retaining items was .30 (Izquierdo, Olea, & Abad, 2014). Following that, various factor solutions were tried 4, 3, 2 and 2 factor solution was retained. The 2 factor solution contained the minimum dubious items and was giving a clear picture of clusters and clumps, explaining the variance of 34.17. The Kaiser-Meyer-Olkin (KMO) value was found to be .92 at  $p < .001$  for Bartlett test of Sphericity.

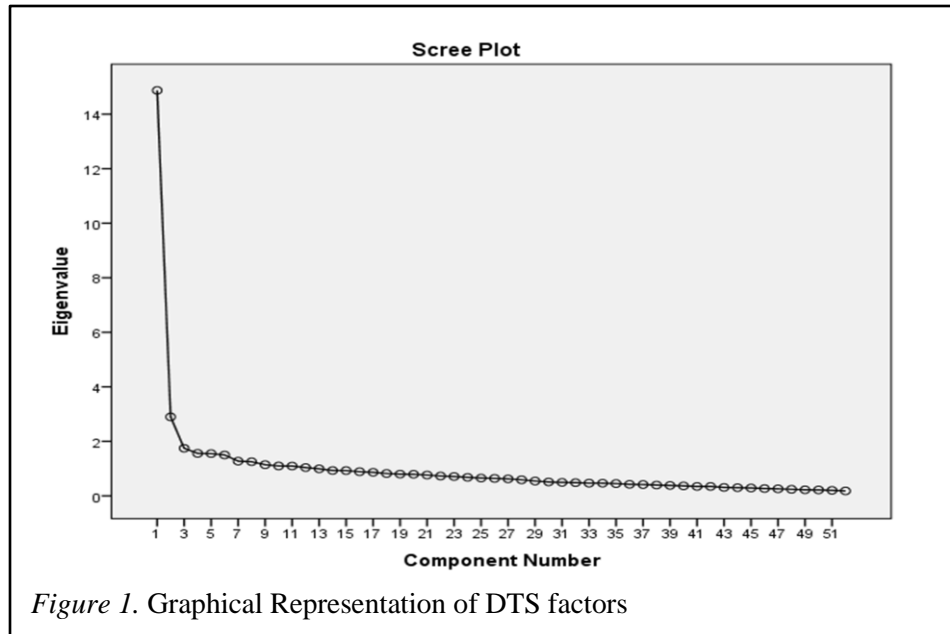


Figure 1. Graphical Representation of DTS factors

Factors which refined the personal judgment for factor extraction.

**Table 1**

*Factor Structure and Eigen Values of Distress Tolerance Scale (DTS) with Varimax Rotation for 49 items (N=300)*

| Item No | F1(28.60)  | F2(34.17) | Item No | F1(28.60)  | F2(34.17)  |
|---------|------------|-----------|---------|------------|------------|
| 4       | <b>.59</b> | .19       | 46      | <b>.41</b> | .02        |
| 5       | <b>.52</b> | .29       | 47      | <b>.40</b> | .20        |
| 9       | <b>.31</b> | .09       | 49      | <b>.47</b> | .20        |
| 12      | <b>.45</b> | .08       | 51      | <b>.43</b> | .22        |
| 13      | <b>.49</b> | .03       | 52      | <b>.71</b> | .07        |
| 15      | <b>.41</b> | .29       | 1       | .04        | <b>.50</b> |
| 16      | <b>.51</b> | .06       | 2       | -.11       | <b>.57</b> |
| 19      | <b>.47</b> | .43       | 3       | .24        | <b>.59</b> |
| 20      | <b>.48</b> | .23       | 6       | .39        | <b>.40</b> |
| 22      | <b>.49</b> | .45       | 7       | .08        | <b>.58</b> |
| 24      | <b>.62</b> | .02       | 8       | .11        | <b>.31</b> |

|    |            |     |    |     |            |
|----|------------|-----|----|-----|------------|
| 25 | <b>.48</b> | .31 | 10 | .24 | <b>.35</b> |
| 26 | <b>.43</b> | .33 | 11 | .13 | <b>.73</b> |
| 27 | <b>.48</b> | .21 | 14 | .16 | <b>.56</b> |
| 28 | <b>.56</b> | .46 | 17 | .16 | <b>.49</b> |
| 29 | <b>.52</b> | .35 | 18 | .26 | <b>.53</b> |
| 30 | <b>.62</b> | .17 | 21 | .26 | <b>.64</b> |
| 31 | <b>.64</b> | .20 | 23 | .44 | <b>.58</b> |
| 33 | <b>.58</b> | .11 | 32 | .23 | <b>.48</b> |
| 37 | <b>.63</b> | .32 | 35 | .47 | <b>.50</b> |
| 38 | <b>.48</b> | .38 | 40 | .14 | <b>.50</b> |
| 41 | <b>.53</b> | .11 | 48 | .32 | <b>.45</b> |
| 42 | <b>.45</b> | .38 | 50 | .29 | <b>.30</b> |
| 43 | <b>.69</b> | .21 | 34 | .26 | .23        |
| 44 | <b>.71</b> | .14 | 36 | .24 | .24        |
| 45 | <b>.69</b> | .13 | 39 | .14 | .15        |

*Note.* Factor Loading >.30 have been boldfaced.

F1=Lack of Emotional Regulation, F2=Negative Appraisal

### ***Factor Description***

**Factor 1: Lack of Emotional regulation.** The first factor comprised 31 items revolving around the theme of experiencing and expressing emotions. Emotion regulation is the ability to handle the rush of emotions in response to stressful situations without permitting spontaneous reactions. However, individuals with low distress tolerance feels overwhelmed with emotions that leads to feelings of losing control which was reflected by items like: ‘inability to think rationally in tough situations’, ‘inability to face the stressful situations’, ‘asking for others’ opinion in stressful situations’, ‘inability to express anger’

**Factor 2: Negative appraisal.** The second factor consists of 18 items which is based on assigning meaning to situations and stressors. Appraisal is the evaluation of situations and events that evokes certain emotions in individuals. For people with low distress tolerance, appraisal is often clouded with negativity evoking unhealthy emotions which was reflected by items like, ‘inability to withstand negative behaviour of others’, ‘thinking excessively’, ‘focusing more on negative things’, ‘mistrusting others’.

**Table 2**

*Summary of Inter-Correlations, Means and Standard Deviations of 2 Factors and Total Scores of Distress Tolerance Scale (N=300)*

| Factors                          | F1    | F2     | Total  | DASS<br>Total | Cronbach<br>'s Alpha |
|----------------------------------|-------|--------|--------|---------------|----------------------|
| F1: Lack of Emotional Regulation | ---   | .71*** | .95*** | .53***        | .92                  |
| F2: Negative Appraisal           | ---   | ---    | .89*** | .68***        | .88                  |
| DTS Total                        | ---   | ---    | ---    | .77***        | .95                  |
| <i>M</i>                         | 27.41 | 24.53  | 51.94  | 20.00         |                      |
| <i>SD</i>                        | 15.90 | 10.81  | 24.77  | 9.50          |                      |

Note. *df*=299, \*\*\**p*<.001

#### **Validity and Reliability.**

Table 2 indicated that both the factors of Distress Tolerance Scale are significantly correlated with each other and also with the total scores of Distress Tolerance. Moreover, to establish the *concurrent validity* of the Distress Tolerance Scale, DASS – SF was used. Results have revealed the high positive correlation ( $r = .77^{***}$ ) between factors of Distress Tolerance Scale and DASS-SF which indicated the high concurrent validity ( $p < .01$ ) of DTS.

Sing the odd – even method, *split half reliability* of Distress Tolerance Scale (DTS) was determined by DTS divided into two halves, comprising of all 25 odd items (Form A) and 24 even items (Form B). The reliability indices of both the forms are .90 and .88 respectively. The correlation between two forms was found to be  $r = .88$  which indicates the high split half reliability of the newly developed scale.

**Table 3**

*Means Difference of men (N=153) and women (N=147) for Distress Tolerance*

|                   |  | <i>Gender</i> |           |          |           | <i>UL</i> | <i>LL</i> | <i>t</i> | <i>p</i> < | Cohen's <i>d</i> |
|-------------------|--|---------------|-----------|----------|-----------|-----------|-----------|----------|------------|------------------|
|                   |  | Men           |           | Women    |           |           |           |          |            |                  |
|                   |  | <i>M</i>      | <i>SD</i> | <i>M</i> | <i>SD</i> |           |           |          |            |                  |
| Lack of Emotional |  | 24.9          | 16.36     | 29.94    | 15.04     | -1.3      | -8.54     | -2.7     | .01*       | .32              |



|            |    |      |      |      |      |       |     |      |     |
|------------|----|------|------|------|------|-------|-----|------|-----|
| Regulation | 7  |      |      |      | 9    |       | 3   |      |     |
| Negative   | 23 | 11.1 | 25.9 | 10.3 | -.41 | -5.29 | -   | .02* | .26 |
| Appraisal  | .1 | 4    | 9    | 0    |      |       | 2.3 |      |     |
|            | 4  |      |      |      |      |       | 0   |      |     |
| DTS Total  | 48 | 25.5 | 55.9 | 23.3 | -    | -     | -   | .01* | .32 |
|            | .1 | 5    | 3    | 5    | 2.2  | 13.3  | 2.7 | *    |     |
|            | 1  |      |      |      | 5    | 8     | 6   |      |     |

Table 3 has revealed that there are significant gender differences for distress tolerance. Women lack more in emotional regulation, appraises events negatively more and have a low distress tolerance level as compared to men. It is noteworthy that higher the score means lesser the distress tolerance.

## DISCUSSION

Distress Tolerance is the ability to withstand negative emotional states and maintaining goal directed activity when facing distressful situations either physically or psychologically (Simons & Gaher, 2005). In university years, it gets more crucial because university students faces dire challenges in terms of independence, responsibility, relationships while maintaining their identity and integrity. Therefore, regardless of all the privileges they get in university, they face quiet a great level of issues and challenges to deal with such challenges, distress tolerance could be the risk or protective factor which is scientifically stated to be developed in the social context of family mainly parenting (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Yet still, no study has been conducted in this line to establish this relationship in cultural context of Pakistan specifically.

The present study was pursued to develop an indigenous scale of DT because of the scarcity of literature and developed tools in our culture in this regard. This is why; efforts were done to assess distress tolerance in perspectives of cultural notions which was done with the development of reliable and valid psychological measure as reflected by Cronbach's alpha.95 and split half reliability. The concurrent validity was also established with Depression Anxiety Stress Scale (DASS) to ensure the psychometric properties of DTS. The two factors of Distress tolerance scale (having 49 items), i.e. lack of emotional regulation and negative appraisal, which were deduced very much reflected the traditional picture of collectivist culture with being relevant to

literature (Simons & Gaher, 2005). University students face various issues that are partially due to the transition from adolescence to adulthood (Wangeri et al., 2012). With advancement in their roles and responsibilities, they become more bound to deal with the societal expectations which are more related to suppression in Asian cultures. Pakistan is a collectivist culture where goals of community are far superior to individual goals; hence, the emotional expression is not reinforced rather ridiculed. Hence, university students begin to appraise their emotions and stressful situations negatively as they do not allow them to work up to their potential instilling emotions of anxiety/fear and frustration/powerlessness along with fewer positive emotions based on the appraisal profiles (Schmidt, Tinti, Levine, & Testa, 2010).

The point that needs to be pondered is that in variance to other measures of Distress Tolerance (Harrington, 2005; Simons & Gaher, 2005), no external or behavioural factor was identified. This could be due to the cultural differences because previous research have observed that Asian individuals experience more internalizing issues whereas Western individuals experience more externalizing issues (Yang, Soong, Chiang, & Chen, 2000). The “trouble suppression-facilitation model” (Weisz, Weiss, Alicke, & Klotz, 1987) considers suppressing or inhibiting the expression as one source of internalizing problems. Asian values encourage emotional control and restraint (suppression) while American/Western values encourage open emotional expression (Soto, Levenson, & Ebling, 2005). Suppression can be an emotion law method in China, as cultural expectancies might also inspire individuals’ to suppress their feelings in social conditions, but overuse of this approach is associated with poorer adjustment (Bonanno, Papa, Lalande, Westphal, and Coifman, 2004) and might incur internalizing mental health problems (Hsieh & Stright, 2012).

### ***Limitations and Suggestions***

The current study have certain shortcomings like the data was centred primarily on urban sector of main city which could have better generalization if the data sample become more expanded. Also, the age band of the sample was also quite narrower which could be broadened where postgraduate students could also be taken as a sample for research study. For further researches, parental account can also be taken in terms of familial patterns of distress tolerance to better understand the development of distress tolerance phenomenon in a collectivist cultural context where psychological resources are mostly learned.

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