

## The Validity and Reliability Study of Tolerance Scale

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### ABSTRACT

The aim of this study was to develop and describe a tolerance scale (TS). Its validity and reliability was ensured over a sample of 606 university students (male:303, female:30). The data was analyzed by a statistical analysis program SPSS. In a TS' reliability study the Cronbach's alpha coefficient was found (alpha: .84). The factor analysis indicated that the scale is one dimensional and it comprises 39.37% of the total variance. The structure of the 11-item scale was tested through confirmatory factor analysis and the findings supported the data gathered through exploratory factor analysis. Finally, TS' convenience and practicality were discussed and some suggestions were made.

**KEYWORDS:** Tolerance, Tolerance Scale, Validity, Reliability, Scale Development.

### INTRODUCTION

Tolerance is a concept commonly used nearly in every field of life. The term tolerance is described in a psychology dictionary as "the ability to bear stress, burden, pain, pressure, etc. without suffering in general" (Budak, 2003, p.753). Tolerance enables individuals to endure pressure with their own will; that is, one is able to tolerate within their own power. Yürüşen (1993) defines the term as avoiding using the power an individual has, which implies one who has tolerance, has the power. Tolerance is being able to withstand and endure internal tensions with the aid of internal powers. Actually, it is displaying patience. However, this patience is forced, which means the individual does not approve it internally (Gürsoy, 1999, p.93). Tolerance means one's allowance of what others do, without approval. Similarly, Forst (2004) proposes in his study that for tolerance to exist there should be a drawback perceived by the individual. In the case of a lack of a drawback, it is indifference and acceptance, rather than tolerance (Forst, 2004, p.314). Likewise, accepting the differences as one does not have the power to intervene cannot be thought as tolerance, but resignation (Kuyutar, 2000, p.9).

Since tolerance can be described as one's response to his inner tension, the borders of this response may change from individual to individual and it has an upper and a bottom line. Whereas the bottom line is failure to endure any tension one faces, the upper line is tolerance to all. Tolerance may be directed from one group to another as well as from one individual to the other. The individual tries to balance internal tension through tolerance, in other words, in a way he tries to preserve his mental health. On the basis of positive mental health lies an individual's allowance to his or others' faults, flexibility, ambiguity tolerance, prevention tolerance and responsibility awareness. Tolerance is an indicator of all of these bases.

The terms 'tolerance' and 'indulgence' are mistakenly used interchangeably in literature. In fact, the term indulgence in Turkish is different from the term tolerance, which has particularly the meanings of refusing, suffering, and bearing (Aslan, 2001, p.70). Gürsoy also emphasizes that tolerance is mostly related to intellect, since people decide by using their minds and indulgence is related to heart and it is done with acceptance (Gürsoy, 1999, p.91). According to Meyer (2002), individual tolerance is the core of virtue.

Tolerating the ones who are different from you and accepting their existence, means giving them the chance to change and most importantly, giving them hope. Tolerance also means taking risks, Aydın states that one cannot be tolerant to those who are superior than them (Aydın, 1999, p.45). However, the superiority here is the perception of the individual who shows tolerance. Bulaç proposes that when others start to pose a threat to the individual, the limits of tolerance are formed (Bulaç 1995, p.78). Fear is one of the reasons of a lack of tolerance. According to Spinoza, religious intolerance results from hope and fears emerging from people's desires and other moods (Rosenthal, 2003). Tolerance, which is very important in terms of human relations, prevents resistance formation in others. Because, when resistance exists, communication fails. Relationships become harder and hence, changes are hindered. Therefore, tolerance can be considered as an attitude which gives way to changes. At the same time, tolerance assists compromise to be fostered.. It also helps individuals become more democratic since it extends the time of response when it is thought that it saves time in interpersonal relationships. The concept of tolerance has been of major concern to students of both interracial attitudes and democratic society (Jackman, 1978, p.302). Besides, there is a positive correlation between tolerance and the level of education. (Demirtürk, 2005; Yazgan, 2007).

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It is evident from these explanations that tolerance is a very important attitude for healthy human affairs and democratic atmosphere. Therefore, it appears to be vital to assess tolerance in order to give more effective and healthy services within the fields of psychology, psychological counseling, and in every kind of communication and interaction. This situation creates the need to develop a scale to assess tolerance, which is a very important predictor in human relationships. Based on this need, the purpose of this study is to develop a valid and reliable tolerance assessment tool and to determine its factor information.

## METHOD

### *Participants*

This study was conducted in 2009-2010 academic year. The sample consisted of 606 participants, chosen randomly from Psychological Counseling and Guidance, Special Education, Turkish Language Teaching, and Foreign Language Teaching departments. At a mid-size state university's Faculty of Education, with an equal ratio of male and female participants.

### *Data Analysis*

In this study, item analysis was done by calculating item-total score correlations; its validity was ensured by principal components factor analysis (using varimax rotation technique) and CFA. The Cronbach Alpha Formula coefficient was calculated for an internal consistency estimate (McIntire & Miller, 2000). These analyses were conducted by using SPSS 11.5. In addition, Lisrel 8.8 program was used by the researcher to conduct confirmatory factor analysis.

### *The Development of the Scale*

In order to develop a TS, initially, the related literature was revised and research and ideas related to tolerance were collected. In the light of the related literature and in accordance with the impressions based on the interviews with individuals, a 21-item question pool was constructed. Related to this, the ideas of 10 experts from the field of psychological counseling and guidance were asked for, and changes were made in some items in terms of wording and content in accordance with their criticisms and suggestions before a five point Likert Scale was formed. The participants were asked to score their views as (1) totally agree, (2) agree, (3) undecided, (4) disagree, (5) totally disagree. After these changes, the scale was conducted on the participants as required by literature. At the end of the procedure, the item-test correlation was calculated. Within this processing, the items whose correlation coefficient was below .30 were eliminated and the remaining scale consisted of 11 items. At the end of the factor analysis, the eventual scale consisted of 11 items since there was not any item whose factor load was below .30. The highest and the lowest scores possible in this 11-item scale were 55 and 11 respectively. High total scores indicate high levels of tolerance of individuals.

## RESULTS

In this part, the findings of the study are discussed. Under this heading, the findings related to the reliability and validity of TS are analyzed.

### *Item Analysis of TS*

Within the item analysis of the scale, mean and standard deviation together with item-total and item-deleted correlations were analyzed. The results are shown in Table 1.

Table 1  
*Item Analysis of TS*

Item	Mean	Ss	Item Total	Item Deleted
17	1.43	1.031	.476	.831
21	2.16	1.113	.462	.832
22	2.33	1.220	.369	.842
25	1.89	1.045	.474	.831
26	1.68	1.026	.539	.826
29	1.92	1.131	.545	.825
30	1.84	1.118	.542	.825
31	1.79	.999	.606	.821
32	1.69	1.039	.640	.817
34	2.03	1.124	.547	.825
35	1.70	1.029	.539	.826

In Table 1, the participants' arithmetic mean, standard deviation, item-total and item-deleted statistics of TS are given. The mean scores of the scale were determined as 1.86; the mean score of the Standard deviation

was determined as 1.08. After the calculation of Pearson Multiplication Moment Correlation Coefficient, it was determined that all of the items within the scale were meaningful at the level of .001. The reliability of TS was tested by calculating its internal consistency coefficient. The internal consistency coefficient of the 11-item scale was found as .84 (Cronbach Alpha).

*The Findings Related to the Reliability Studies of TS*

The item-test correlations of the scale varied between .37 and .64. The item-test correlation is an indicator of whether an item assesses the feature the whole test aims for or not. The lowest value which can be an indicator of an item’s consistency with the whole test is identified as .20 (Aiken, 1994). According to this, the correlation coefficients were at an acceptable level.

*The Findings Related to the Validity Studies of TS*

In order to test the validity of TS, construct validity was used. Factor analysis was conducted in order to assess the construct validity of TS. In order to analyze the factor structure and to determine the sub dimensions of the scale, principal components analysis with varimax rotation technique was conducted. A single factor explaining the 39.37 % of the variance was identified. During factor analysis, factor loads are acceptable at the level of .30 and higher (Merenda, 1997).

The factor loads of the TS vary between .46 and .74. The results of EFA which indicated a uni-dimensional 11- item structure was supported by CFA conducted using Lisrel 8.8 program. Fit indexes [(Goodness of Fit Index=GFI), (Comparative Fit Index=CFI), (Normed Fit Index=NFI), (Root-Mean-Square Error of Approximation=RMSEA)] gathered according to the results of CFA were analyzed and it was found that the value of chi-square was statistically significant ( $\chi^2= 102.68$ ,  $N=606$ ,  $sd=44$ ,  $P=0.00$ ). Fit index values were found as  $RMSEA=0.047$ ,  $GFI=0.97$ ,  $CFI=0.98$ ,  $NFI=0.97$ . In fit indexes  $>.90$  is considered as a criteria for GFI, CFI, NFI and  $<.05$  for RMSA (Hu & Bentler, 1999; Sümer, 2000). According to these fit index values, it was seen that there was a balance between the model and the data observed and it was parallel to the model tested. At the end of CFA, the fit indexes as well as factor value of the 11 item scale are depicted in Figure 1.

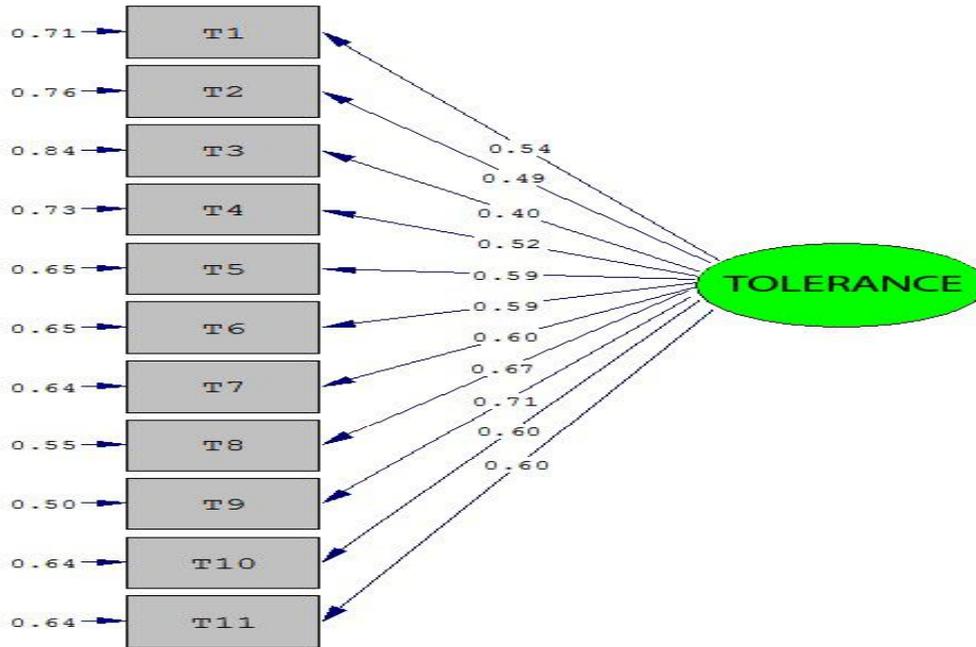


Figure 1. Factor Structure of TS (N=606)

## DISCUSSION AND CONCLUSION

The purpose of the study is to develop a tool to assess individuals' attitudes related to tolerance. A 21-item pool was formed for TS. The items were answered by the participants, statistical analyses were conducted and it was found that the reliability and validity of the scale were at a satisfactory level. After the analyses, 11 items remained in TS. When TS's validity and reliability were analyzed, it was found that the single factor structure explained the 39.37% of the total variation. As is seen in Figure 1, the factor loads for each of the items of the scale are at a satisfactory level. The factor analysis revealed that the items investigated were related with the underlying structure. CFA verified the single factor structure identified by EFA results. Having an accurate scale in both EFA (Pohlmann, 2004) and CFA (Sümer, 2000) depends on the size of the samples. In the studies involving both of the analysis, it is preferable to have more than 500 samples (Noar, 2003). Therefore, the data was collected from 606 individuals to calculate the statistics in the current study.

At the end of this study, which emerges from the need to have a means to assess tolerance, an important predictor for human relations, an 11-item, 5 point likert type, valid, reliable, and practical TS was developed.

Based on the validity and reliability results, it can be claimed that TS is a valid and reliable means which has promising psychometric features. This scale development study to assess individuals' general tolerance levels will form a basis for the future studies since it is the first both in Turkey and in the world. TS can be further be adapted according to age groups in future studies. In order to attain more time-efficiency and cost-efficiency, a computer-based TS can be developed for individual and group applications and it can be evaluated accordingly.

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