

WCES-2011

## Reliability and validity of the Turkish Version of the UCLA Loneliness Scale (ULS-8) among university students

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### Abstract

The aim of this study was to examine the psychometric properties of the short-form UCLA Loneliness Scale (ULS-8) in Turkish undergraduate students. A total of 553 university students from Sakarya University participated in the research. The psychometric properties of the scale were analyzed by means of internal consistency, exploratory and confirmatory factor analysis and criterion-related validity methods. The exploratory factor analysis resulted in a factor, and confirmatory factor analysis demonstrated that the model fitted well with the original scale. The Turkish version of ULS-8 demonstrated good psychometric properties, with a high level of internal consistency. The Turkish version of the ULS-8 is a brief, reliable, and valid instrument for the assessment of loneliness.

*Keywords:* ULS-8; UCLA Loneliness Scale; validity; reliability.

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### 1. Introduction

Interpersonal relationships are one of the more important determinants of the quality of one's life. A lack of social skills and understanding and a lack of social support lead to feelings of loneliness. Loneliness is defined by Peplau and Perlman (1982) as the distress that occurs when one's social relationships are perceived as being less satisfying than what is desired. The UCLA Loneliness Scale is one of the most frequently used scales for the measurement of loneliness. It was originally presented by Russel, Peplau and Ferguson (1978) and then revised and examined in a number of cross-cultural studies for its psychometric properties (Anderson & Malikiosi-Loizos, 1992; Demir, 1989; de Grace, Joshi & Pelletier; Lasgaard, 2006; Döring & Bortz, 1993; Hojat, 1982; Pretoirus, 1993; Ruchkin, Eisemann, & Hagglof; Russel, Peplau & Cutrona, 1980; Wilson ve Ark., 1992). The UCLA Loneliness Scale (ULS-8) is an eight-item scale which was derived from the 20 item ULS by Hays and DiMatteo (1987) with an internal reliability of .84. Another study among Taiwanese undergraduate students was carried out to examine the psychometric properties of ULS-8 by Wu and Yao (2008). In this study, the results of confirmatory factor analysis supported the one-factor model of the ULS-8 with adequate values of various fits of indices. In addition, the ULS-8 was found to have a negative relationship with life satisfaction and social support and a positive one with anxiety and avoidant attachment tendencies. The validity and reliability of ULS-8 was also examined by Swami (2010). The internal consistency coefficient of the Malay ULS-8 was .83 and test-retest reliability obtained after 60 days was

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found to be .90 ( $p < .001$ ). Explanatory factor analysis identified a one-factor solution with an eigen-value of 3.56, explaining 44.5% of the variance.

The aim of this study was to adapt the ULS-8 into the Turkish language and to examine the psychometric properties of the ULS-8 among Turkish university students. Since ULS-8 is an easy-to-use and convenient tool it would be widely preferred among researchers.

## 2. Research Method

### 2.1 Participants

The sample of this study consisted of 553 (213male/338 female) undergraduate students enrolled in the Faculty of Science and Letters and Faculty of Education at Sakarya University in the 2010-2011 academic year. The ages of the participants ranged from 17 to 28 with a mean age of 20.30 years ( $S=1.83$ ).

### 2.2 Instruments

*Social and Emotional Loneliness Scale Short Form (SELSA-S)* The SELSA-S was developed by DiTomasso, Brannen ve Best (2004). It is a 15 item, 7 point likert scale which has three dimensions/subscales (social, family and romantic loneliness). The Turkish adaptation of the scale was carried out by Çeçen (2007). The factor structure of the Turkish version of the SELSA-S was consistent with the original scale ( $X^2= 385.92$ ;  $df= 86$ ;  $CFI=.92$ ;  $GFI=.91$ ;  $IFI=.92$ ;  $RMSEA=0.2$ ). The internal consistency reliabilities for the social, family and romantic subscales were .74, .76, .83, respectively. Test-retest reliability coefficients for the social, family and romantic subscales were .88, .83 and .89, respectively.

*Zung Self-Rating Depression Scale (ZSDS)*: This scale is a 20 item self-report inventory assessing symptoms of depression using a 4-point Likert scale. The Zung Depression Scale was adapted into Turkish by Gençdoğan (2001). The correlation coefficient between ZSDS and the Beck Depression Inventory and between ZSDS and the Symptoms Check List SCL-R-90 was found as .89 and .81 respectively. The Cronbach's alpha of the scale was .80.

*Multidimensional Scale of Perceived Social Support (MSPSS)*: MSPSS is a 12 item, 7 point Likert scale developed by Zimet et al., (1990). The Turkish adaptation of the scale was conducted by Eker et al., (2001). The internal consistency reliability of the scale was found between the values of .80 to .95 in different groups. Factor analysis revealed a three factor structure of the scale. The total score of the scale was used in this study.

*UCLA Loneliness Scale (ULS)*: It is a 20 item, 4 point Likert scale developed by Russel et al., (1978). High scores are interpreted to suggest high loneliness. The Turkish adaptation of the scale was conducted by Demir (1989). The internal consistency coefficient of the scale was .96 and the test retest reliability coefficient was .94.

## 3. Results

### 3.1 Structure Validity

Before employing EFA, the Kaiser-Meyer-Olkin (KMO) test and the Bartlett's test were conducted. The Kaiser-Meyer-Olkin (KMO) statistic obtained for the data was .78 and the Bartlett's Sphericity test  $\chi^2$  value was  $\chi^2_{(28)}=671.206$  ( $p<.000$ ). Overall the KMO should be .60 or higher and the Bartlett's test should be significant to proceed with factor analysis (Büyükoztürk, 2004). On the basis of factor analysis, principal component analysis was

used and revealed two factors. Items 3 and 6 which are reverse code items and took place in the second factor. However, considering the fact that the second factor had a low contribution to the total variance, that the scree-plot indicated a one-factor structure and that the original scale has only one factor, the analysis was repeated. This time, principal components analysis limited to one factor structure revealed a one factor structure accounted for 36.69 % of the total variance (eigenvalues 2.94). The factor structure, the factor loads of the items and common factor variances of ULS-8 are given in Table 1.

Table 1. ULS-8 Exploratory Factor Analysis and Factor Loadings

Items	Factor Loadings	Common Factor Variance
Item1	.62	.38
Item2	.60	.36
Item3*	.45	.20
Item4	.72	.52
Item5	.54	.30
Item6*	.55	.30
Item7	.62	.38
Item8	.71	.50
Total Variance		% 36.69
Eigenvalues		2.94

\*Reverse items.

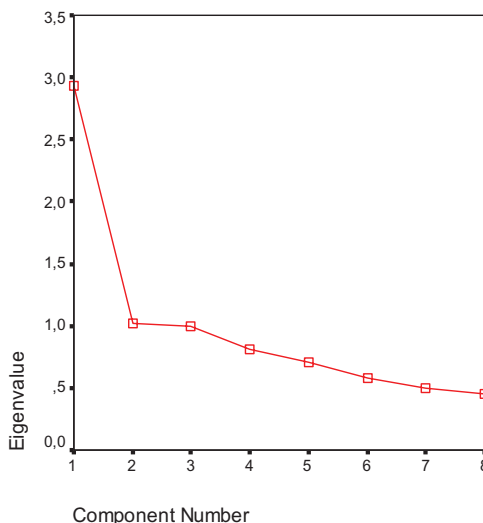


Figure 1. Scree Plot

### 3.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis was used to verify the one factor structure of the scale which was obtained by EFA. The  $\chi^2$  statistic was 56.03 (df= 18) with the  $\chi^2/sd$  ratio having a value of 3.11, less than 5 which indicates an acceptable fit (Kline, 2005; Tabachnick ve Fidel, 2001). The goodness fit indexes were GFI=0.97, NFI=0.92, CFI=0.94, IFI=0.94, AGFI=0.94, RMSEA=0.066. Values above 0.90 are considered good, and above 0.95 is an excellent model fit. RMSEA should be below the recommended level of 0.08 (Brown, 2006; Schumacker ve Lomax, 1996; Steiger, 2007; Sümer, 2000). These values indicated that the one factor structure of the scale had a reasonably

satisfactory goodness of fit and the previously identified one factor structure of the scale was supported in a sample of Turkish university students.

### 3.3 Criterion-Related Validity

To determine the criterion-related validity of SELSA-S (DiTomasso et al., 2004), ZSDS (Zung, 1965), MSPSS (Zimet et al., 1990) and ULS (Russel et al., 1978) were used. The results of the analysis showed that the correlation between ULS-8 and the overall score of SELSA-S was .29 ( $p < .001$ ), and the correlation for subscales were as follows: .35 ( $p < .001$ ) for social loneliness, .13 for family loneliness and .16 for romantic loneliness. The correlation between the ULS-8 and ZSDS was .45 ( $p < .001$ ), between ULS-8 and MSPSS was -.47 ( $p < .001$ ). In this study, the relationship between ULS-8 and UCLA Loneliness Scale was also examined and the correlation between these two scales was found as .88 ( $p < .001$ ). These results can be interpreted as supportive evidence for the validity of ULS-8.

### 3.4 Reliability

The scale was administered to a sample of 453 students for reliability studies. Internal consistency reliability of the scale, as measured by Cronbach alpha, was .72.

## 4. Discussion

The aim of this study was to adapt ULS-8 into the Turkish language and examine the psychometric properties of the scale in Turkish undergraduate students. In this respect, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), criterion-related validity and internal consistency were tested. Exploratory Factor Analysis (EFA) yielded one factor accounting for 36.69% of the total variance. Confirmatory factor analysis was performed in order to verify the previously identified one factor structure of the scale obtained by the initial EFA in a sample of Turkish university students. CFA revealed that the one factor structure of the scale had a reasonably satisfactory goodness of fit. The relationship between perceived social support, social emotional loneliness and depression were examined for criterion-related validity of the scale. The ULS-8 had a positive correlation with social-emotional loneliness and depression and a significantly negative correlation with perceived social support. The correlation between ULS-8 and the UCLA Loneliness Scale was .88 ( $p < .001$ ). The internal consistency of the scale was good with a Cronbach's Alpha of .72. In summary, all of these results indicate that the ULS-8 is a reliable and valid instrument for estimating the level of loneliness within a Turkish cultural context.

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