Research / Araştırma

Adaptation of the Short-form of the UCLA Loneliness Scale (ULS-8) to Turkish for the Adolescents

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ABSTRACT

Adaptation of the short-form of the UCLA Loneliness Scale (ULS-8) to Turkish for the Adolescents

Objective: The purpose of this study is to adapt short form of the UCLA Loneliness Scale (ULS-8) to Turkish and investigate the validity and reliability of the scale for Turkish adolescents.

Method: The participants in this study were 293 high school students aged between 14 and 19. Among the participants 110 (37.5%) were male, 183 (62.5%) were female and mean age was found to be 15.85 (SS=1.20). Exploratory factor analysis and confirmatory factor analysis were used to evaluate the construct validity of the scale. In order to check criterion validity of Turkish version of the ULS-8 scale, the General Belongingness Scale, and the Life Satisfaction Scale were used. For reliability of Turkish version of the ULS-8, average variance extracted (AVE), composit reliability, Cronbach alpha level and test-retest correlation were computed.

Results: The factor analysis resulted in one factor. Factor loadings of the items varied between 0.31 and 0.71. All of the fit indices indicated a good-fit model for the ULS-8. Criterion-related validity analysis revealed that there were significant relationships between loneliness and the general belongingness (r=-0.71), life satisfaction (r=-0.42). The results also showed that internal consistency coefficients of the factors were highly satisfactory for whole scale α=0.74. Test-retest reliability scales was found to be (r=0.84, p<0.001) on a sample of 64 high school students in a period of two weeks.

Conclusion: Findings suggested that the Turkish version of the ULS-8 was found a valid and reliable instrument for Turkish adolescents.

Key words: Adolescence, loneliness, reliability, scale adaptation, validity

ÖZET

UCLA Yalnızlık ölçeği kısa formunun ergenler için Türkçe'ye uyarlanması

Amaç: Bu çalışmanın amacı, UCLA Yalnızlık Ölçeği Kısa Formu'nu (ULS-8) ergenler için Türkçe'ye uyarlayarak geçerlik ve güvenirliğini araştırmaktır.

Yöntem: Araştırmanın örneklemini yaşları 14 ile 19 arasında değişen toplam 293 ergen oluşturmuştur. Katılımcıların 110'u (%37.5) erkek, 183'ü (%62.5) kadındı ve yaş ortalamaları 15.85 olarak bulundu. UCLA Yalnızlık Ölçeği Kısa Formu'nun (UYÖ-KF) yapı geçerliği için açıklayıcı ve doğrulayıcı faktör analizi kullanılmıştır. Ölçüt bağıntılı geçerliği için Genel Aidiyet Ölçeği ve Yaşam Doyumu Ölçeği kullanılmıştır. Ölçeğin güvenirliği için birleşik güvenirlik, ortalama açıklanan varyans, iç tutarlık katsayısı ve test tekrar test güvenirliği hesaplanmıştır.

Bulgular: Faktör analizi sonuçları ölçeğin tek boyutlu olduğunu göstermiştir. UYÖ-KF'nin faktör yük değerleri 0.31 ile 0.71 arasında bulunmuştur. UYÖ-KF'nin, bütün uyum indekslerinin iyi düzeyde olduğu belirlenmiştir. Ölçüt bağıntılı geçerliliği için 80 öğrenci üzerinde yapılan analizlerde yalnızlık ile genel aidiyet ve (r=-0.71) ve yalnızlık ile yaşam doyumu (r=-0.42) arasında, anlamlı düzeyde ilişki bulunmuştur. Ölçeğin Cronbach alfa iç tutarlık katsayısı α=0.74 olarak bulunmuştur. UYÖ-KF'nin, 64 lise öğrencisi ile iki hafta ara ile yapılan test-tekrar test güvenirliği r=0.84 olarak bulunmuştur.

Sonuç: Araştırmadan elde edilen bulgular, UYÖ-KF'nin, ülkemizdeki ergenlerde kullanmak için geçerli ve güvenilir bir araç olduğunu göstermiştir.

Anahtar kelimeler: Ergenlik, yalnızlık, güvenirlik, ölçek uyarlama, geçerlik

INTRODUCTION

There have been several psychological, philosophical and sociological descriptions of loneliness. Loneliness is described by researchers as a concept involving cognitive awareness of the individual on his deficiency in social and close relationships, and despair, longing or emotional emptiness reactions accompanying the awareness (1). Others described loneliness as a disturbing experince of the individual when social interactions are qualitatively or quantitatively deficient (2,3). According to this description, loneliness has three scientific aspects. First, loneliness is a consequence of an individual deficit of social relations. Loneliness happens when there is an inconsistency between actual social relations and individual needs or social interaction demands. At times, it results from changing social needs of the individual rather than changes in social relation levels. Second, loneliness is a subjective experience and is not synonymous with social isolation. Individuals may feel lonely when they are alone or they are among crowds. Third, loneliness is an aversive experience. Although loneliness supports personal growth, it is a non-pleasant and distressing experience by itself (2).

According to Kohut (citation from reference 4), humans have a subjective sense of commitment or belonging and they have to feel they are part of something to prevent feelings of loneliness. Chipuer (4) states that individuals lacking a "community feelings" are at a very high risk of social isolation and alienation and that can lead to feelings of loneliness. Larson (5) indicates that adolescents reporting higher loneliness in school and community contexts have lower self-esteem and a higher level of depressive symptoms. On the other hand, parent and teacher reports indicate that these adolescents have a lower adaptive level.

It has been accepted that adolescents are at a higher risk for loneliness experience when compared with children. Adolescents are prone to subjective distress since during adolescence they separate from their parents; show an active search for identity and increased need to be praised in their relations with their peers

during this period (6). During adolescence and all developmental periods, being accepted by parents, peers and other social environment and to feel their support is a great social need. When this social need is not fulfilled, individual may prefer to withdraw from social contexts and may have impaired social and personal adaptation with social isolation feeling.

According to Margalit (6), loneliness during childhood is a distressing affective experience, that affects current quality of life of the individual and is a developmental risk factor for future well-being. Loneliness points to a failure in a valuable field of interpersonal relations. Besides, lonely and refused children have problems in social skills development along with dealing with difficulties they experience. Krause-Parello (7) states that loneliness is an emotional state which may affect physical and mental development and impair social development of a student. In children, loneliness involves deficient motivation and feeling pity for oneself. Lonely students have a higher risk of applying to school health services for somatic complaints and higher rate of absenteeism.

Loneliness, besides being an unpleasant and distressing experience, may also threaten mental health of the individual, particularly when it is severe and prolonged. Therefore, loneliness has a worthy position among important subjects which have been investigated by mental health investigators (2). Margalit (6) states that loneliness of children is a great source of distress which can lead to short and long-term negative consequences besides being an important developmental problem. There are important associations between loneliness and various indicators of human mental health. Among these studies, loneliness is positively associated with depression (8,9) social anxiety and social withdrawal (10,11), suicide attempt (12), shyness (10), low peer acceptance (13,14), victimization/being bullied (15-17), school avoidance and social unsatisfaction (18). In some other studies, loneliness is reported to be negatively associated with self-perception (19), self-esteem (10,20), life satisfaction (21), psychological well being (20), social support and social commitment (22), sense of belonging to school (13), commitment to

school and society (4). As can be seen from the results of these studies, loneliness must not be ignored by mental health workers, including psychological consultants, psychologists, psychiatrists, etc. Therefore, a valid and reliable instrument to detect severity of loneliness of adolescents is necessary to provide preventive mental health servives to these individuals, during a critical and important human developmental stage.

UCLA Loneliness Scale (ULS-20) long form (23) was used in several studies with adolescents conducted in our country. This form consists of 20 items and reliability and validity of the form was investigated among adults. There is no measure to detect level of loneliness among high-school period adolescents. Therefore, in this study, we investigated psychometric properties of UCLA Loneliness Scale Short Form (ULS-8), which has been widely used in local and foreign literature, since it is short and readily appliable in the adolescent group. We adapted ULS-8, which was developed by Hays and DiMatteo (24), to Turkish and investigated its reliability and validity with this aim.

METHOD

Translation of ULS-8

In order to adapt the scale to adolescent population, Prof. Ronald Dale Hays was contacted by e-mail and necessary permissions were obtained in order to translate the scale. A separate translation study was not conducted. UCLA Loneliness Scale, which was translated by Demir (23), was checked by five separate experts, three English teachers and two Turkish teachers, in order to investigate suitabilty of the items for use in adolescents and after obtaining favorable expert opinions, this former translation was used.

UCLA Loneliness Scale Short Form (ULS-8)

After oblique promax rotation, confirmatory factor analysis (CFA), conducted by Hays and DiMatteo (24) in 199 college students (38.2% male, 61.2% female, mean age 21 years, SD=4.5 years), in order to develop a short form of Revised ULS-20, revealed 8 items with factor loadings between 0.31 ile 0.73, which loaded into a single factor that explains 67.44% of the total variance. There was a high correlation (r=0.91) between ULS-8 and ULS-20. Data obtained from 192 individuals for reliability analysis indicated internal consistency coefficient as 0.84. In order to investigate item discrimination, associations between ULS-20, ULS-4 and ULS-8 and life satisfaction, alienation, social anxiety, locus of control and health related behaviors (e.g. smoking, alcohol, exercise) were investigated, obtained data showed that both ULS-20 and ULS-8 had similar associations with related variables, consistent with conceptual structure of loneliness. Thus, discriminant validity of the item with related conceptual structure was detected. Hays and DiMatteo (24) stressed that, ULS-8 items reflected social isolation, which was perceived as a representative of individual loneliness.

ULS-8 has been used to evaluate severity of feelings of loneliness in individuals, from adolescence to adulthood. Scale consists of 8 items which were loaded into a single factor. ULS-8 is a Likert-type scale with 4 options "(1) Never, (2) Rarely, (3) Sometimes and (4) Always". "I am an extrovert person" and "I can find friends when I want" items are reverse-scored. Sum of 8 items reveal general loneliness score. Minimum and maximum possible scores are 8 and 32, respectively. Higher scores from USL-8 correspond to severe loneliness in adolescents.

Study Group

Sample of the study included adolescent students from Anatolian High School who were attending school in 2013-2014 academic year. A total of 293 adolescents, 110 (37.5%) males and 183 (62.5%) females, 14-19 years of age (mean age 15.85 years, SD=1.20 years) were included in the study. Data were obtained twice in two weeks from 64 highschool students for test-retest reliability study. Data obtained from 80 students were analyzed to study criterion validity. Demographical features of the subjects were summarized in Table 1.

Table 1: Demographic characteristics of the sample			
Variables		n (293	%
Gender	Boys	110	37.5
	Girls	183	62.5
Age	14	46	15.7
	15	73	24.9
	16	77	26.3
	17	74	25.3
	18	22	7.5
	19	1	0.3
Grade	9	72	24.6
	10	58	19.8
	11	100	34.1
	12	63	21.5

Scales

The General Belongingness Scale (GBS): GBS, which was developed by Malone et al. (25), is a Likert-type self-report to evaluate general belongingness level of individuals. GBS has two factors named "acceptance/inclusion and rejection/exclusion". General Belongingness Scale has a four-level structure "(1) Don't agree, (2) Rarely agree, (3) Usually agree, and (4) Totally agree". Scale consists of 12 items and items number 3-4-6-7-9-12 were scored reversely. Sum of 6 items give acceptance/inclusion score, addition of 6 items yield rejection/exclusion score and sum of 12 items give general belongingness score. Higher general belongingness scores in adolescents correspond to higher general belongingness levels. Yildiz (26) adapted the scale to Turkish. The study conducted by Yildiz (26) included 567 adolescents and exploratory factor analysis (EFA) indicated that GBS factor loadings were between 0.55 and 0.84. CFA showed that all goodness of fit indexes were at a satisfactory level. Analysis on 140 students to evaluate construct validity indicated that general belongingness was significantly associated with loneliness (r=-0.64), life satisfaction (r=0.36), attachment to parent (ranged between r=0.21 and r=0.39) and bonding to friends (ranged between r=0.33 and r=0.39). Composite reliability (CR) and average variance extracted (AVE) values of GBS for acceptance/inclusion factor were 0.77 and 0.459 (45.9%), for rejection/exclusion factor were 0.85 and 0.635 (63.5%), and for

the total scale were 0.90 and 0.690 (69.0%) respectively. Cronbach alfa coefficient was $\alpha=0.76$ for acceptance/inclusion factor, $\alpha=0.85$ for rejection/exclusion factor and $\alpha=0.81$ for total scale. Test-retest reliability, which was obtained by applying the scale twice to 97 students in two weeks, was r=0.80 for total scale.

Life Satisfaction Scale (LSS): LSS is developed to evaluate individual's satisfaction from life. Life Satisfaction Scale consists of 5 items with a single dimension and it is rated on 7 level Likert scale, (1=Don't agree, 7=Absolutely agree). Highest possible score is 35 and lowest is 5. Higher scores from the scale reflect higher life satisfaction. The scale can be applied to all ages from adolescence to adulthood. The scale was adapted to Turkish by Koker (27). Reliability analysis indicated test-retest reliability r=0.85, while item-test correlations were between 0.71 and 0.80.

Data Analysis

Data were analyzed with SPSS 17.0, LISREL 8.80 and Monte Carlo PCA Parallel Analysis softwares. In order to detect construct validity EFA and CFA were conducted. Criterion validity was also tested. In order to evaluate reliability, test-retest correlation, internal consistency coefficient Cronbach alpha value and CR and AVE were computed.

RESULTS

Validity of ULS-8

Exploratory Factor Analysis (EFA) Results

In order to evaluate construct validity, EFA was used first. Factors with eigenvalues higher than 1 were used in the analysis (28-32). A minimum factor loading of 0.30 was necessary for any item to be included in a factor (32-34). When an item was loaded into more than one factor, a minimum item loading difference of 0.10 was taken into account.

Before CFA, KMO (Kaiser-Meyer-Olkin) value indicating suitability of data was 0.83 and Bartlett Test

was significant (x^2=392.670, df=21, p<0.001) (29). Minimum KMO value for CFA is suggested as 0.60 (30,31,34). These results showed that data were suitable for CFA.

Scree-plot graphics and total variance table were analyzed together to detect number of factors (Figure 1). As can be seen in Figure 1, there was a steep break followed by two breaks which were smaller and closer to eah other. While steep declines in the graphic indicate dimensions, parallel analyses were conducted to detect whether the scale included separate factors. Pallant (30) suggests that parallel analysis were necessary in education and psychology fields and that the results must be reported. Eigenvalues obtained from parallel analysis and CFA were summarized in Table 2.

As can be seen in Table 2, eigenvalues in the first factor obtained by EFA were higher than obtained by parallel analysis. In the second factor, eigenvalues obtained by parallel analysis were higher. In addition to these analysis, when total variance table was investigated, it was evident that single factor explained 40.99% of total variance. When these results were taken
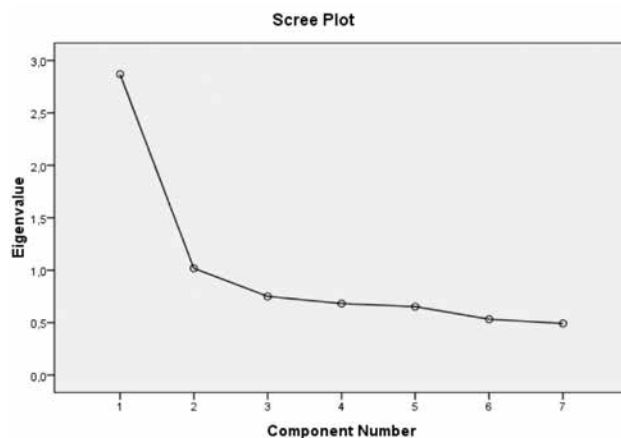
Table 3: Item loadings, eigenvalues and variance explained for the UCLA Loneliness Scale short form (ULS-8) after Principal Components Analysis

Items	Factor loadings
4. I feel left out	0.73
8. People are around me, but not with me	0.71
2. There is no one I can turn to	0.68
1. I lack companionship	0.67
5. I feel isolated from others	0.66
7. I am unhappy being so withdrawn	0.63
6. I can find companionship when I want it*	0.31
Eigenvalue:	2.87
Variance explained:	40.99%

*Reverse item

together, it was concluded that the scale had a single dimension as in the original form.

EFA analysis showed that factor loading of third item ("I am an extrovert person.") was 0.15. Since this was lower than critical loading value 0.30, third item was excluded and analyses were done with remaining items. As can be seen in Table 3, EFA results indicated that ULS-8, consisting of 7 items, had a single factor structure and explained 40.99% of total variance. Factor loadings were between 0.31 and 0.73. ULS-8 EFA results were presented in Table 3.

Confirmatory Factor Analysis (CFA) Results

CFA has been used extensively during scale development processes for psychometric evaluation and to determine construct validity and examine latent structure of the scale. With this method, researcher investigates a structure based on past evidence and hypothesis and its indicators. Thus, CFA is used to confirm the existing structure of a previously developed scale. CFA is an isdispensable analytic tool in social and behavioral sciences to confirm structures (28). Therefore, we evaluated whether the structure of USL-8 was confirmed in our culture by CFA. First CFA analysis to test the model with 8 items with a single latent variable indicated that t value of third item was 1.50 and that this was not significant, therefore this item was excluded from the analysis. EFA also showed that third item did not work in the factor analysis, as indicated by low loading value.

Figure 1: Scree-plot Graphic for ULS-8

Table 2: Results of Parallel Analysis

| Component number	Actual eigenvalues from PCA	Criterion value from parallel analysis	Decision
1	2.87	1.22	Accept
2	1.02	1.13	Reject

PCA: Principal Components Analysis

Table 4: Goodness of fit indices of the UCLA Loneliness Scale short form (ULS-8)

	Perfect values	Acceptable values	Actual Values
pᵃ (χ^2 test)	>0.01 or 0.05	<0.01 or 0.05	0.02 (M)
χ^2/df	≤ 2	2-5	27.12/14=1.94 (M)
RMSEA	≤ 0.05	≤ 0.08	0.06 (KE)
RMR	≤ 0.05	≤ 0.08	0.03 (M)
SRMR	≤ 0.05	≤ 0.08	0.04 (M)
GFI	≥ 0.95	≥ 0.90	0.97 (M)
AGFI	≥ 0.95	≥ 0.90	0.95 (M)
CFI	≥ 0.95	≥ 0.90	0.98 (M)
NFI	≥ 0.95	≥ 0.90	0.96 (M)
NNFI	≥ 0.95	≥ 0.90	0.97 (M)

RMSEA: Root Mean Square Error of Approximation, RMR: Root Mean Square Residuals, SRMR: Standardized Root Mean Square Residuals, GFI: Goodness of Fit Index, AGFI: Adjusted Goodness of Fit Index, CFI: Comparative Fit Index, NFI: Normed Fit Index, NNFI: Non-normed Fit Index

Later, goodness of fit indexes obtained from CFA to test the model of 7 items with a single latent variable were examined and it was found that chi-square value was significant (χ^2=27.12, sd=14, χ^2/df=1.94, p=0.02). When the goodness of fit indexes were examined, the results were as following: Root Mean Square Error of Approximation (RMSEA)=0.06, Root Mean Square Residuals (RMR)=0.03, Standardized Root Mean Square Residuals, (SRMR)=0.04, Goodness of Fit Index (GFI)=0.97, Adjusted Goodness of Fit Index (AGFI)=0.95, Comparative Fit Index (CFI)=0.98, Normed Fit Index (NFI)=0.96 and Non-normed Fit Index (NNFI)=0.97. These results indicated that, regarding goodness of fit indexes, the model and observed data were consistent and the proposed model showed good fitness. Critical N (CN) value is one of the goodness of fit measures used to determine whether sample size is sufficient to obtain a fit model and to make sure that the model will not be rejected in Structural Equation Model analysis and it has been suggested that CN value must be 200 or higher (35,36). CN=325.52 value obtained in the present study indicated that the sample size was sufficient. In the literature, CFA goodness of fit indexes are evaluated as "acceptable (A) and perfect (P)" (28,31,37,38). Goodness of fit indexes of the model were presented in Table 4 and path diagram was presented in Figure 2.

Standardized Lambda values of USL-8 were between λ=0.23 and λ=0.67 (Figure 2) and all items were significant (t>2.576). In order to test construct validity of the scale, measurement of CR, and Average Variance Extracted (AVE) is recommended (29). Hair et al. (29) reported that
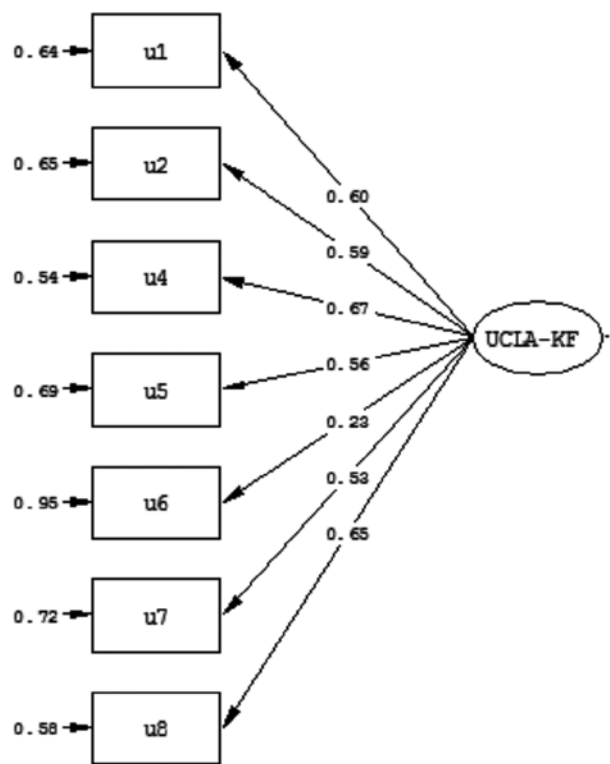
Figure 2: Path Diagram of seven-item of ULS-8

CR values between 0.60 and 0.70 are acceptable and values higher than 0.70 are good. For AVE, values over 0.50 are recommended (29,39). In Table 5, t, multiple correlation squares (R2), CR and AVE values of the items obtained from CFA analysis were presented. All values are significant at p<0.05 level.

In order to test criterion validity of ULS-8, associations between scores obtained from loneliness scale and belongingness and life satisfaction scores

Table 5: Multiple correlation squares (R2), t values, composite reliability and average variance explained

Items	R^2	t	CR	AVE
1	0.36	10.04		
2	0.35	9.79		
4	0.46	11.47		
5	0.31	9.19	0.75	0.40 (40%)
6	0.05	3.48		
7	0.28	8.57		
8	0.42	10.89		

CR: Composite Reliability, AVE: Average Variance Explained

were investigated. As can be seen in Table 6, there was a moderate negative correlation between loneliness and life satisfaction (r=-0.42). While there was a positive correlation between loneliness and GBS rejection factor (r=0.63), there were negative correlations between loneliness and acceptance factor (r=-0.65) and general belongingness score (r=-0.71).

Scoring of USL-8

USL-8 is responded with a four level structure as "(1) Never, (2) Rarely, (3) Sometimes and (4) Always". "I can find a friend when I want" item is reverse scored. Since one item was excluded in this study, the scale is scored with 7 items. Addition of 7 items gave general loneliness score. Minimum and maximum possible scores are 7 and 28, respectively. Lower scores indicate lower feelings of lonelines and higher scores indicate more severe feelings of loneliness in adolescents.

Reliability of USL-8

Cronbach alpha coefficient, indicating internal consistency of the scale was α=0.74 for whole scale.

Test-retest reliability coefficient, which was obtained by applying the test twice in two weeks to 64 students was r=0.84 (p<0.001) for whole scale. Reliability measures specific to Structural Equation Model, AVE and CR, were also computed. AVE was 0.40 (40%) and CR was 0.75 for USL-8.

DISCUSSION

In this study, psychometric properties of the ULS-8, which was developed by Hays and DiMatteo (24) to measure loneliness levels of individuals, were investigated in an adolescent sample. When the EFA and CFA results, which were conducted to measure construct validity of the scale, were investigated, it was found that USL-8 had a single factor structure as in the original form. However, it was evident that third item of the scale did not have sufficient factor loading (>0.30) and therefore this item was excluded from the scale. Wu and Yao (40) also showed in their study with Taiwanese students that third item of USL-8 was weak. In another study, Zhou et al. (41), studied psychometric properties of USL-8 in a Chinese elderly population. Their results indicated that third and sixth items were excluded from the scale since these items had low loadings. Similar results in these studies suggest that, there may be problems in comprehensibility of these items in different cultures. One reason may be that "extroversion" is a product of Western culture (42) and that counterpart of this concept is not readily comprehensible in Eastern cultures. Therefore, the third item ("I am an extrovert person") may not be fully understood by adolescents.

Besides this item, sixth item also had a relatively lower factor loading and lambda value when

Table 6. Correlations between scores on short form of the UCLA Loneliness Scale (ULS-8), Life-Satisfaction Scale, and General Belongingness Scales (n=80)

	1	2	3	4	5
1. ULS-8	---				
2. Life Satisfaction Scale	-0.42**	---			
3. Rejection	0.63**	-0.53**	---		
4. Acceptance	-0.65**	0.46**	-0.65**	---	
5. General Belongingness Scale	-0.71**	0.55**	-0.92**	0.90**	---

**p<0.01

compared with other items. However, since factor loading of this item was greater than 0.30 and t value obtained from CFA was significant, it was not excluded from the scale. In Zhou et al.'s study (41), this item was excluded for low factor loading. Factor loadings and lambda values of other items were quite high. Average variance extracted value of USl-8 was somewhat lower than the recommended value of 0.50. This value can be computed again in different samples.

According to Pallant (30) construct validity is about the association of scale scores and a definite, measurable construct. In this context, Perlman and Peplau (2), stated that loneliness in emotional field was associated with general unsatisfaction and sorrow and that in cognitive field, lonely individuals were more cautious in their interpersonal relations; thus they continuously checked whether other persons responded to their interpersonal needs and that they were very sensitive to acceptance and rejection stimuli. There are studies which supported this notion in the literature. Studies showed that there is a significant negative association between loneliness and belongingness (4,25,26,43) and life satisfaction (26,43,44). Since the significant associations between loneliness and belongingness and life satisfaction were supported by research and theoretical explanations are in line with this, it has been accepted that scales

measuring belongingness and life satisfaction can be used as criterion validity measures for loneliness. In the present study, analysis for criterion validity showed that there were negative correlations between loneliness, life satisfaction and general belongingness. These results are consistent with the literature and theoretical explanations. Results indicated that criterion validity of USL-8 is sufficient.

Internal consistency coefficient, CR value and test-retest reliability of USL-8 were computed to evaluate reliaiblity of the scale in adolescent sample. Internal consistency coefficient, CR value and test-retest reliability of USL-8 indicated that the scale was highly reliable.

In conclusion, results obtained from validity and reliability studies of adaptation of USL-8 in Turkish for adolescents showed that this scale can be used reliably in studies with adolescents. Besides, shortness of the scale will provide easiness and functionality of use in future studies investigating loneliness in adolescents. A limitation of this study is that the adolescents in the sample did not have a clinical diagnosis. In future studies, investigating psychometric properties of the scale in an adolescent sample with clinical diagnosis and evaluation of associations between loneliness and mental problems will contribute to a better understanding of loneliness among adolescents.

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