The Validity and Reliability of the Interaction Anxiousness Scale: Gender and Social Status Differences among Turkish Adolescents

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Abstract

The main purpose of this study is to investigate the validity and reliability of the Interaction Anxiousness Scale and to examine whether there are gender and social status differences among Turkish adolescents. The Interaction Anxiousness Scale, is a 21-item Likert-type scale, was distributed to several high schools and data obtained from 622 students was examined. Cronbach's Alpha reliability was found to be .86, and split-half reliability was calculated as .74 for the first half and .79 for the second half of the data. For reliability, Spearman-Brown and Guttman's reliability coefficients were also calculated and found to be .85 for both. Analysis of the data revealed acceptable results for Turkish adolescents. A paired sample t test was carried out for the examination of gender differences, and a one-way ANOVA was conducted to analyze social status differences in social anxiety, but no statistically significant differences were found.

Keywords: Adolescent, interaction anxiousness, social anxiety

1. Introduction

Social anxiety is a broad concept that includes various forms of anxieties that are defined in the literature. While some researchers suggest that social anxiety includes social-evaluative anxiety, shyness, dating anxiety, audience anxiety, heterosexual anxiety, speech anxiety, and communication apprehension (Leary, 1983), Patterson and Ritts (1997) added reticence, social communicative anxiety, and interpersonal anxiousness to this concept. Leitenberg (1990) broadened the concept of social anxiety by adding a stratum of similar sub-terms under it, such as performance anxiety, social phobia, avoidant personality disorder, social withdrawal, social isolation, public speaking anxiety, fear of interpersonal rejection, separation anxiety, stage fright, fear of strangers, embarrassment, social inhibition, and timidity. Although these terms are not equivalent to each other, they include some aspects of communicative anxiety. Some of these terms reflect violent aspects, along with separation. For example, social phobia reflects some specific and severe sequences of formation, whereas shyness and communication apprehension are defined as more common illnesses (Trower et al., 1990).

Social anxiety is defined as a state of anxiety that results from interpersonal evaluations of real or imaginary social positions (Schlenker & Leary, 1982). According to Leary (1983), social anxiety should be discussed in the context of an individual's situation at a particular time in a particular position; social anxiousness, however, is the frequency and/or intensity of anxiety experienced by the individual in that time and circumstance. If almost all the real or imaginary interactions that a person experiences cause a strong state of anxiety, then that person has chronic social anxiety. As suggested by self-presentation theorists, expectation of interpersonal evaluation brings on social anxiety. Individuals with social anxiety have low expectations of creating a positive impression on others; they have doubts about their interpersonal competency, and, therefore, they adopt protective self-presentation styles (Jackson, 2007).

Adolescence, especially in the beginning stages, is conceptualized as a critical developmental life period during which social anxiety and psychopathology generally increase (Essau et al., 1999). According to Buss (1986), adolescence is the developmental life period in which individuals experience the highest levels of social anxiety; self-consciousness also increases during this period. Increased self-consciousness accompanied by the anxiety of being evaluated by society is quite prominent during this period (Loukas et al., 2005). Social anxiety begins to rise significantly in early adolescence and reaches a peak around the age of 15 (Mancini et al., 2005).

Especially when combined with anxiety, shyness and social introversion/withdrawal, social anxiety leads to various negative psychosocial situations. Timid children often seem pessimistic and are prone to depressive symptoms. These problems are observed to increase as the child develops, and they intensify particularly at the beginning of adolescence (Schneider & Tessier, 2007). According to Erath et al. (2010), the reason for the increasing rates of social anxiety at the beginning of adolescence is that abstract reasoning skills increase in accordance with changes in the social arrangements in schools, and concurrently, complexity of peer groups and increasing number of peers with peer groups in the activities involved. Social anxiety is defined as an excessive discomfort in social settings due to the intense fear of negative evaluation (Beidel & Turner, 2007), and it is a troublesome situation in peer groups for socially anxious children and adolescents (Rao, 2007; as cited in Erath et al., 2010). With the psychological, social, and biological changes they have during this period, adolescents can be affected by increasing levels of self-consciousness when they transition to a new school (Loukas et al., 2005). Kessler et al. (2005), assert that social anxiety is the most common problem, and the intensity of this problem gradually rises during this period. Some researchers contend that social anxiety begins in earlier stages of life (Buch et al., 1986; Cheek & Shedlack, 1987; as cited in Cheek & Melchior, 1990); others, however, refer to the adolescence stage (Beidel et al., 1999; Moutier & Stein, 1999; Kessler et al., 2005; Mancini et al., 2005; Schneider & Tessier, 2007).

It is proposed that social anxiety in adolescents is related to poor social functioning (low support and low acceptance of classmates), and females with high levels of social anxiety have few friendships and close friendships and less intimacy (La Greca & Lopez, 1992). These results show the importance of close friendships and social functionality in understanding social anxiety in adolescents. However, it has not been validated whether social anxiety varies according to gender or not. Some research shows that males' social anxiety is higher than females', some research shows the opposite, and yet other research reveals that there is no significant difference between females and males. For example, in some studies female students were observed to be higher in terms of social anxiety than males (Loudin et al., 2003; De Gregoria & Carver, 1980; Rose & Rudolph, 2006; La Greca & Lopez, 1992); in some studies males showed higher social anxiety (Subasi, 2005; Palanci & Ozbay, 2003); and in some other studies no difference was found between genders (Teachman & Allen, 2007; Sertelin, 2007; Erath et al., 2007). Feingold (1994) and Patterson and Ritts (1997) did not find any significant gender difference in social anxiety in their meta-analyses of social anxiety studies.

According to some studies, females show a dramatic increase in stress reactions and negative responses, share their concerns, think over their problems, and focus on their negative feelings more than their male peers do, and these actions can increase their difficulties (Rose & Rudolph, 2006). In contrast, males might internalize their problems in peer relationships and focus more on introversion and passive behavior, so they can be affected more negatively than females (Earth et al., 2007). Leary and Kowalski (1995) examined the contradictory results of the studies about gender differences in terms of self-presentation, and they concluded that these results were not surprising. According to them, females and males socialize differently and are motivated to reflect different patterns of behavior. Therefore, the social anxiety of men and women is related to the responses and self-presentations they receive from the society in which they live. The Interaction Anxiousness Scale was adapted to Turkish university students by Subasi (2003). The purpose of this study was to examine the validity and reliability of this Interaction Anxiousness Scale among Turkish adolescents and to investigate whether or not there were gender differences and level variance in adolescence.

2. Method

2.1. Participants

This study was conducted among 9th, 10th, and 11th grade high school students (n = 622). 216 of the participants were 9th grade, 194 of them were 10th grade, and 212 of them were 11th grade students. 322 of the participants were females (51.76%), whereas 300 (48.24%) of them were males. Although data were collected from 622 participants, 226 cases were excluded from the gender comparison analysis based on the examination of sociometric classification.

2.2. Measure

In this study, the Interaction Anxiousness Scale (IAS) which had been developed by Leary (1983) and adapted to Turkish university students by Subası (2003) was used. IAS is a 21-item Likert type scale.

The test-retest reliability of the scale among university students was calculated as .95. The internal consistency coefficient (Cronbach's Alpha) of the scale was found as .90. For convergent validity, the correlation of IAS with the Shyness Scale was calculated as .89. For the construct validity of scale, a factor analysis was run, and it was observed that the scale revealed a unidimensional solution. The scale was tested via a principal component analysis for its validity; and for reliability, Spearman-Brown split-half, Guttman's internal consistency, and Cronbach's Alpha coefficients were calculated in the adolescent sample.

2.3. Procedure

To test gender differences in social anxiety, first the whole sample was compared using a t-test, and then the participants were classified based on their sociometric status. Along with the instructions, participants were given some questions to determine different groups according to participants' peer perceptions of sociometric status. Participants were asked to select a same-sex classmate who best fits the following seven characteristics: (1) most liked, (2) least liked, (3) class leader, (4) best sense of humor, (5) most aggressive, (6) most submissive, and (7) most cooperative.

Implementation was conducted by the researcher with the help of the classroom teacher. Then, definitions of each of the participating students' frequencies with respect to gender and class were summed and used as raw scores. Those scores were transformed into z scores based on class and gender. Scores of two basic dimensions to conceptualize sociometric status, Social Preference (SP) and Social Impact (SI), were calculated using Liking (L) and Disliking (D) scores. While SP scores were found by subtracting the Disliking from Liking score (SP = L − D), SI scores were obtained by adding the Liking and Disliking scores (SI= L + D). Therefore, four basic criteria were calculated for each of the students and were used in deciding into which sociometric status the participating students fell. The criteria were standard L score, standard D score, SP score, and SI score.

In this study, considering debates in the literature, the classification system suggested by Coie, Dodge, and Coppotelli (1982) was utilized. According to these criteria, classifications can be made as below:

1- Popular; if the SP score is greater than 1.0, the standard L score is higher than 0, and the standard D score is lesser than 0 (SP > 1.0, L > 0, D < 0).
2- Rejected; if the SP score is lesser than 1.0, the standard L score is lesser than 0, and the standard D score is higher than 0 (SP < 1.0, L < 0, D > 0).
3- Neglected; if the standard SP score is lesser than -1.0, the standard L score is lesser than 1, and the standard D score is lesser than 0 (SI < -1.0, L < 0, D < 0).
4- Controversial; if the standard SI score is greater than 1.0, the standard L score is higher than 0, and the standard D score is higher than 0 (SI > 1.0, L > 0, D > 0).
5- Average; if the standard SP score is between -0.5 and 0.5 and the standard SI score is between -0.5 and 0.5.

Gender differences of participating students according to groups were calculated with a t test. A one-way analysis of variance (ANOVA) was run for the class differences.

3. Results

3.1. The Validity and Reliability of the Interaction Anxiousness Scale in Adolescents

A factor analysis was utilized to check the construct validity of the scale. To test whether the scale was suitable for factor analysis or not, a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Barlett's test of sphericity were run. The KMO was found to be .91, and Barlett's test of sphericity was found to be significant. As Büyüköztürk (2006) suggested, a statistically significant Barlett's test of sphericity and values of the KMO being larger than .60 are measures of sampling adequacy criteria to run a factor analysis. Since those criteria were met, a factor analysis was conducted.

Since determining the number of dimensions in the measurement model is important in testing the construct validity, a factor analysis was utilized to examine the factor structure of the scale. A principal component analysis was run, and the results revealed a four-factor solution. Eigenvalues for the factors were 27.69 for the first factor, 6.04 for the second factor, 5.67 for the third factor, and 5.07 for the fourth factor.

It was concluded that the scale might be regarded as a single-factor scale, since the eigenvalue for the first factor was much higher than the eigenvalue of the second factor, and the eigenvalues for the second, third, and fourth factors were very close to each other (Lord, 1980). Moreover, the examination of the factor analysis indicated that 20 out of 21 items were clustered in the first dimension of the scale. The 10th item was the exception. In addition, the examination of the scree plot of eigenvalues (Figure 1) showed a sudden decrease after the first dimension; therefore, it was thought that the measure could be a unidimensional scale. Thus, according to these results, the Interaction Anxiousness Scale was considered to be unidimensional and the item of the scale and their corresponding factors were presented in Table 1.

3.1.1. Internal consistency of the scale

To estimate the reliability of the Interaction Anxiousness Scale based on classical test theory, Cronbach's Alpha of the scale was calculated using the variances of the items in the scale and the variance of the whole scale. Cronbach's Alpha coefficient of the scale was found as .86.

3.1.2. Split-Half reliability of the scale

The split-half reliability of the scale was calculated; the coefficient for the first half was found as .79 and for the second half as .74. The Spearman-Brown reliability coefficient was calculated as .85. In addition, Guttman's internal consistency of the scale was calculated as .85.

3.2. Gender Differences

This study investigated whether or not there were gender differences in social anxiety scores. First, social anxiety scores for the whole data were examined. Then, participating students were divided into five sociometric groups according to their peers' sociometric ratings, and then social anxiety scores for female and male students in each of the groups were compared.

3.2.1. Gender Differences for the Whole Data

The means and standard deviations of the interaction anxiousness scale of the participating students are given in Table 2. As seen in Table 2, the mean for males ($\overline{X}$ = 49.01) was higher than the mean for females ($\overline{X}$ =47.59). To test the statistical significance of the mean difference between the two groups, a t test was conducted, and it was found that there was no significant mean difference between males' and females' social anxiety scores t(620) = -1.340, p>.01.

3.2.2. Gender differences in social anxiety scores according to their sociometric status groups

An independent-sample t-test was utilized to test whether each of the social anxiety scores of the social status groups vary according to gender.   The mean social anxiety scores of females and males in the sociometric average group indicated that the mean of the males was 49.76, while the mean score for females was 47.31. For the rejected group, the males' mean was 52.60, and the females' mean was 45.45. The controversial groups' means were 49.25 for males and 41 for females. The neglected groups' means were 48.57 for females, and 49.80 for males. The mean score of the males included in the popular group was 47, while the females' mean score was 45.63. Although there was not much difference among the mean social anxiety scores of males except for the neglected group, the mean scores of males were observed to be higher than females' mean scores. The difference between the females' and males' mean social anxiety scores was tested via t test and the results are presented in Table 3.

Regarding the social anxiety scores of the average sociometric status group, the results of the t test indicated the gender difference for this group was t(248) = -1.581, p>.01. The t test result of the rejected group was found as t(23) = -1.123 p>.01. For the controversial group, the t test result was calculated as t(12) = -1.128, p>.01. The t test result of the neglected group was found as t(66) = 0.353, p>.01. Lastly, the popular group's t test result was calculated as t(37) = -0.348, p>.01. These results indicated that the social anxiety scores of social status groups did not reveal any statistically significant difference for gender.

3.3. Differences in Interaction Anxiousness According to Grade Level

A one way analysis of variance (ANOVA) was run to examine to what extent adolescent participants' social anxiousness levels differed in the 9th, 10th, and 11th grades. In Table 4, the means and standard deviations of participants' social anxiety scores are given.

As seen in Table 4, there were mean differences between the groups. The statistical significance of these mean differences was tested via ANOVA. The results of ANOVA are shown in Table 5. The results of the one-way analysis of variance did not reveal any significant mean difference in participants' social anxiety scores in terms of their grade levels ($F_{(2,611)} = 2.206$ p>0.001).

4. Discussion

The results indicated that the Interaction Anxiousness Scale was a valid and reliable scale for adolescents. A single-factor solution with 20 items was obtained via factor analysis, since 20 out of 21 items (except for 10th item) were clustered in one dimension. Cronbach's Alpha reliability coefficient was found as .86; therefore, the internal consistency of the items in the scale can be considered highly acceptable. As it was found in the Cronbach's Alpha calculation, the split-half estimation of reliability for the scale was found to be highly acceptable.

Although results related to gender difference revealed higher means in females than males either for the whole group or for the sociometric status groups, there were no statistically significant mean differences in terms of gender. Therefore, the results related to social anxiety in terms of gender were consistent with the related research (Teachman & Allen, 2007; Sertelin, 2007; Erath et al., 2007). Research on other types of social anxieties that are included in interaction anxiousness extracted similar results in terms of gender. For instance, no significant gender difference was found in studies related to embarrassment (Öztaş, 1996), shyness (Güngör, 2000), and social phobia (Eren, 1997). Similarly, Inderbitzen et al. (1992) did not find any gender difference in social anxiety among adolescents. Moreover, in their study among adolescents, Walters and Bukowski (1997) did not find any gender difference in social anxiety either for whole groups or for the sociometric status groups. Even though anxiety states are observed to be higher in females than in males, there is no significant gender difference in terms of social anxiety according to some research.

Researchers suggesting the existence of some social, cultural, and ethnic differences in gender-role relevant behaviors and conducting cross-cultural studies to test this notion asserted that any generalizations of the findings on gender difference should be made with caution (Fukuyama & Greenfield, 1983; Furnham & Henderson, 1981; Furnham, 1979; Stein & Bailey, 1973, cited in Tegin, 1990). Findings obtained from the sample could be limited in a rapidly changing social process of Turkey. Adolescent males and females could be examined in terms of gender in different samples obtained from different regions of Turkey, so that the impact of gender in different samples can be discussed in detail.

According to some researchers, social anxiety begins especially with the adolescence period and lasts throughout adolescence, peaking around the age of 15. In a study carried out among university students (Sübaşı, 2005), the social anxiousness mean score for females was X=47.60 and x=49.01 for males. Social anxiety mean scores were lower in that study than in the current investigation. This result showed that social anxiety continues in the adolescence phase and then declines in the young adult period.
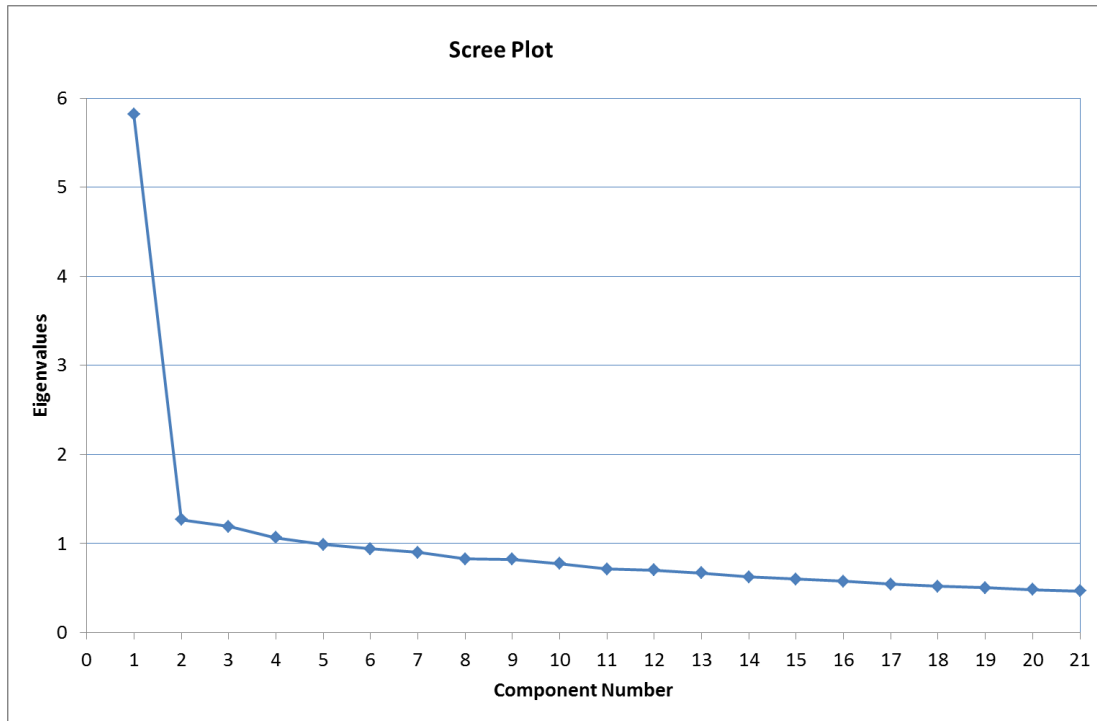
Figures

Figure: 1- Scree plot

Tables

Table 1: Factor Structure of Interaction Anxiousness Scale

Items	Factor 1
17.	.60
9.	.60
2.	.60
12.	.59
16.	.59
21.	.57
13.	.57
1.	.56
20.	.56
18.	.56
19.	.55
11.	.55
3.	.55
4.	.52
15.	.47
8.	.47
14.	.47
5.	.45
6.	.45
10.	.17
7.	.42

The 10th item was exluded from the analysis

Table 2: Means and Standard Deviations of Social Anxiety Scores for Female and Male Participants

Gender	N	Mean (M)	Standard Deviation (SD)
Females	322	47.60	13.58
Males	300	49.01	12.66

Table 3: t Test Results of Groups According to Sociometric Status

Gender	N	Mean	Standard Deviation	Df	t	p
Average						
Female	123	47.32	12.88	248	-1.581	.115
Male	127	49.76	11.57			
Rejected						
Female	20	45.45	13.36	23	-1.123	.273
Male	5	52.60	9.21			
Controversial						
Female	10	41.00	11.14	12	-1.286	.223
Male	4	49.25	9.91			
Neglected						
Female	35	49.80	15.39	66	.353	.726
Male	33	48.58	13.06			
Popular						
Female	19	45.63	13.72	37	-.348	.730
Male	20	47.05	11.73			

Table 4: Means and Standard Deviations of Participants' Social Anxiety Scores

	N	Mean	Standard Deviation
9th grade	216	49.4393	13.53429
10th grade	194	48.5789	12.40505
11th grade	212	46.7952	13.51912
Total	622	48.2687	13.21590

Table 5: Results of One-Way Analysis of Variance in Relation to Grade Level Differences of the Participants

Source	Sd	Sum of Squares	Mean Square	F	p
Between Groups	2	767.438	383.719	2.206	0.111
Within Groups	611	106299.221	173.976		
Total	613	107066.660			

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