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Test anxiety and self-esteem in senior high school students: a cross-sectional study

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ABSTRACT

Purpose: In this study, it is aimed to determine the level of test anxiety and self-esteem in the high school students preparing for the university exam in Bitlis, Turkey, and to investigate the effect of test anxiety on self-esteem.

Material and methods: Seven-hundred and twenty-four high school students who were preparing for the university entrance examination in Bitlis participated in the study. A questionnaire which includes socio-demographic data form, Rosenberg Self-Esteem Scale and Revised Test Anxiety Scale was prepared as an e-questionnaire for the students to fill easily and uploaded to the Bitlis State Hospital's website. Schools were called and informed for the students to fill out the e-questionnaire on the Internet.

Results: The most important findings from our study are that gender is influential on test anxiety and self-esteem score and test anxiety level are negatively correlated. It was observed that female students had more test anxiety than male students and those who had higher self-esteem had less test anxiety.

Conclusion: Consequently, our study shows that university entrance examination creates anxiety on students and reduces self-esteem, especially in female students.

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Test anxiety; self-esteem; students

Introduction

Tests are an essential piece of society in which they are utilized to gauge and decide edges in training, profession arrangement, and progression. As society keeps on developing and advance, test execution will presumably turn into an undeniably more prominent consider deciding achievement (e.g. admission to college, admission to graduate school, and professional exams) [1]. Probably, because of the weight to perform well, among different variables, students frequently encounter increased anxiety and uneasiness amid tests. In this manner, test tension has turned into an unavoidable issue throughout the years.

Students in Turkey and many other countries are faced with many exams in many fields in the education and training process starting from primary school. Each step left behind leads to new exams to be encountered and natural stresses. In Turkey, it is necessary for high school students to enter the university entrance exam to be accepted by a university. In addition to that, the unstable structure of the Turkish educational system, which is constantly changing and causing many debates, multiplies the existing stress on the student.

Another issue that needs to be addressed is the situation after college graduation. Unfortunately, many university graduates in Turkey, except for major professions, are experiencing serious difficulties in finding jobs. This situation necessitates a certain success in the university entrance exam for students who are aware of this problem even in high school and creates excessive pressure and worries on parents and students, leading to the fear of *'cannot do'* and the damage to self-confidence.

Aim

In the light of all these mentioned above, in this study it is aimed to determine the level of test anxiety and self-esteem in the high school students preparing for the university entrance exam in Bitlis, Turkey, and to investigate the effect of test anxiety on self-esteem.

Test anxiety

Test anxiety is a special fear for the test, which increases during examinations, even though there is no obvious anxiety in normal times. It is portrayed by uneasiness, dread, misery, and expectations of disappointment [1,2]. Typically, it happens as a built up set of reactions to boosts, based upon the student's past encounters in testing circumstances [2].

Students with test anxiety regularly encounter ruminating musings about potential disappointment joined by passionate pain and physiological excitement that is often translated as debilitating and risky. When they take the exam, they experience panic and thoughts of failure, causing them to

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believe that the testing circumstance represents a potential catastrophe [2–4].

Physiological symptoms such as mental symptoms such as wakefulness, forgetfulness, focus and difficulty in gathering attention and/or palpitation, increase in breathing, mouth instability, trembling in hands, feeling of nausea, diarrhea may be seen in person with test anxiety. In addition, while an overly busy test anxiety affects a great deal of success, it undermines the individual's positive feelings about the future education process and the attainment of future goals. It also deduces self-confidence and causes loss of motivation [4,5].

Self-esteem

Rosenberg [6] defines self-esteem as an individual's judgment of his or her self-worth. Self-esteem is generally considered the evaluative segment of the self-concept, a more extensive portrayal of the self that incorporates intellectual and behavioral perspectives and also evaluative or full of feeling ones [7]. It states how the individual perspectives and qualities the self at the most significant levels of psychological experiencing [8].

The development of self-esteem is a dynamic process that is shaped by the experiences and learning experiences that have been experienced throughout the life that begins with the birth of the individual. Adolescence is a risky period in terms of self-esteem. The individual develops a certain level of self-esteem in this period. In this period, they begin to reevaluate their values and use their previous experiences as a tool in this process. Therefore, the self-esteem that the adolescent has developed up to this turn becomes important [9].

In addition, it has been found that factors such as economic status, gender, parental occupation, educational status, academic success, number of siblings and birth order have an effect on self-esteem [10–12].

Material and methods

Participants

In this study, participants are the students who continued their education between March 2015 and June 2015 at Science High School, Anatolian High Schools, Anatolian Imam High Schools, Anatolian Vocational High Schools and Private High Schools in Bitlis, Turkey. The necessary permissions for the research were obtained from the Governorship of Bitlis and the Provincial Directorate of National Education of Bitlis. An e-questionnaire was prepared for the students to fill easily and to reach more students and was uploaded to the Bitlis State Hospital's website. Schools were called and informed for the students to fill out the e-questionnaire on the Internet. Therefore, schools without computer laboratories were not included in the study. A total of 724 students from 34 high schools participated in the study.

Socio-demographic questionnaire

Socio-demographic questionnaire forms the introductory part of the e-questionnaire prepared by the researchers and includes variables related to students which are age, gender, high school type, academic success, number of siblings, socio-economic status, educational status of mother, educational status of father and family structure. Academic success was calculated from the average of the grades of the students and the scores were categorized as bad (0–49), medium (50–69) and good (70–100). All the information was provided by students except academic success which was calculated by students' teachers.

Rosenberg self-esteem scale (RSES)

The students' self-esteem scores were calculated by using the Rosenberg Self-Esteem Scale which was originally developed by Rosenberg [6] for the purpose of measuring global self-esteem. The RSES consists of 10 items and was rated on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) for the 1st, 2nd, 4th, 6th, and 7th questions and reversed for the 3rd, 5th, 8th, 9th, and 10th questions. Possible self-esteem scores range from 0 to 30. The self-esteem scores below 15 is considered low, 15–25 normal and above 25 high [12].

Revised test anxiety scale

Benson and El-Zahhar [13] shortened Sarason's [4] 40-item scale to 20-item scale. Both scales are almost equally good at measuring the four segments of the test anxiety, but Benson and El-Zahhar's [13] 20-item scale is quicker to apply and score [14]. Therefore, we used this one in this study.

The 20-item scale require participants to evaluate the degree of various self-statements related to the four subscales of test anxiety (e.g., tension: 'I feel distressed and worried before a test'; worry: 'During a difficult test, I worry whether I will pass it'; test-irrelevant thinking: 'During tests I find myself thinking of things unrelated to the material being tested'; bodily symptoms: 'I get a headache before a test'). Items are rated based upon a 4-point Likert scale (1 = 'Not at all typical of me', 2 = 'Only somewhat typical of me', 3 = 'Quite typical of me', and 4 = 'Very typical of me'). Possible RTT scores range from 20 to 80 with 80 showing most extreme test anxiety [14].

Statistical analysis

All the analysis was conducted in IBM SPSS Statistics. Cronbach alpha was used to test the reliability of the scale. Responses to questionnaire were converted to self-esteem and test anxiety scores using Rosenberg Self-Esteem Scale and Revised Test Anxiety Scale. Chi-square test was used to determine the demographic variables that statistically significantly affected students' academic success. One-way ANOVA was used to determine whether self-esteem and test-anxiety means statistically significantly differed from group to group, and Tukey's HSD was used to determine which groups the difference originated from. Pearson Correlation Analysis was used to test whether there was a statistically significant

Table 1. Demographic data of students.

		n	(%)
Gender	Male	370	51.1
	Female	354	48.9
Age	16	43	5.9
	17	97	13.4
	18	381	52.6
	19	203	28
Academic success	Bad (0–49)	61	8.4
	Medium (50–69)	371	51.2
	Good (70–100)	292	40.3
Mother's educational status	Illiterate	262	36.2
	Primary school	308	42.5
	Secondary school	78	10.8
	High school University	54	7.5
		22	3.0
Father's educational status	Illiterate	66	9.1
	Primary school	250	34.5
	Secondary school	161	22.2
	High school University	154	21.3
		93	12.8
Family structure	Nuclear family	464	64.1
	Extended family	224	30.9
	Parents divorced	7	1
	Stepparents	0	0
	Mother or father died	29	4
Number of siblings	1	18	2.5
	2	59	8.1
	3	133	18.4
	4	128	17.7
	5+	386	53.3
Family's monthly income	0–1000 TL	248	34.3
	1001–2000 TL	271	37.4
	2001–4000 TL	159	22
	4000+ TL	46	6.4

TL: Turkish Lira (currency).

correlation between self-esteem and test anxiety. In all statistical tests, significance level was assumed to be .05.

Results

Cronbach alpha internal consistency coefficient for the Rosenberg Self-Esteem Scale was found 0.73. Cronbach alpha internal consistency coefficient for the Revised Test Anxiety Scale was found 0.89 for the whole scale, 0.74 for the bodily reactions subscale, 0.79 for the worry subscale, 0.70 for the test-irrelevant thinking subscale and 0.70 for the tension subscale.

Based on the data in Table 1, the factors affecting the student's course success were determined by Chi-Square test. The Chi-Square test showed that while father's educational status ($p = .00$), family structure ($p = .00$) and family's monthly income ($p = .03$) statistically significantly affected student's academic success, mother's educational status ($p = .14$), number of siblings ($p = .10$), age ($p = .35$) and gender did not.

The students' self-esteem scores were calculated using the Rosenberg Self-esteem scale with answers to the first 10 questions in the survey. One-way ANOVA and Tukey's HSD were used to test whether these scores varied according to the demographic characteristics of the students.

It was determined that the self-esteem score was statistically different according to age groups ($p = .04$). While the self-esteem scores of the students aged 19 and 17 were found to be statistically significantly higher than those at the age of 16, no statistically significant difference was found in the other age groups. It was also found that academic success positively affected self-esteem scores ($p = .00$). That is, as the course success increased, the self-esteem score also increased in statistically significant level. It was observed that mother's educational status affected the student's self-esteem score statistically significantly ($p = .04$). Accordingly, it was determined that the students whose mothers were secondary school graduates had more self-esteem scores than those whose mothers were high school graduates whereas no statistically significant difference was found in the other groups. It was also found that the family structure affected the self-esteem score statistically significantly ($p = .01$). So, it was seen that the students who live in the nuclear families have higher self-esteem scores than the students whose parents are separate while no statistically significant difference was detected in other family structure groups. On the other hand, it was seen that gender, father's educational status, number of siblings and family's monthly income did not affect students' self-esteem scores statistically significantly (p values, respectively, .33, .24, .71, .46).

Table 2. Self-esteem and test anxiety scores by gender.

	Self-esteem			Test anxiety		
Group	Mean	Standard deviation	*p*	Mean	Standard deviation	*p*
Female	19.30	5.11	[a].33	43.21	10.33	[a].00*
Male	19.68	5.46		40.74	10.01	

*Statistically significant at significance level .05.
[a]Independent samples *t*-test.

Table 3. Self-esteem and test anxiety scores by school type.

			Self-esteem			Test anxiety		
High School type	*n*	%	Mean	SD	*p*	Mean	SD	*p*
Science	64	8.8	17.1	5.8	[a].0*	43.52	10.0	[a].4
Anotolian Anotolian vocational	222	30.7	19.4	5.1		41.61	10.1	
Anotolian religious vocational	204	28.2	19.5	4.8				
Private	68	9.4	20.0	4.7				
	166	22.9	20.4	5.8				

*Statistically significant at significance level .05.
[a]One-way ANOVA.

Students' responses were converted to test anxiety scores using the Revised Test Anxiety Scale. One-way ANOVA and Tukey's HSD were used to determine whether students' demographic characteristics statistically significantly influence their test anxiety scores. It was observed that the gender had a statistically significant effect on test anxiety ($p = .00$). As seen in Table 2, it was determined that female students' test anxiety scores were statistically significantly higher than male students ($p = .00$).

It was observed that academic success affected the test anxiety scores ($p = .00$) and the students with good grades had lower test anxiety scores that the student with bad and medium grades. It was also found that mother's educational status had a statistically significant effect on test anxiety scores of students ($p = .01$). While the students whose mothers were high school graduates had higher test anxiety scores than those whose mothers were illiterate, primary school graduates and secondary school graduates, no statistically significant difference was detected in the other education groups. Another factor influencing the student's test anxiety score was the number of siblings ($p = .00$). It was observed that the students with 2 siblings had a statistically significant higher level of test anxiety than the students with 3 and 5 + siblings, while no statistically significant difference was found in the other sibling groups.

On the other hand, age, father's education status, family structure, and family's monthly income were found to be statistically insignificant on students' anxiety scores (*p* values, respectively, .09, .11, .27 and .13).

All schools participating in the study were divided into five categories according to their contents: science high schools, Anatolian high schools, Anatolian vocational high schools, Anatolian religious vocational high schools and private high schools. In Table 3, descriptive statistics and one-way ANOVA results of self-esteem and test anxiety scores according to school types are given. According to Table 3, school type statistically significantly influenced self-esteem scores ($p = .00$) and the self-esteem scores of the students studying in science high schools are lower than those studying at the other high schools. However, the self-esteem scores of the student studying at the remaining four school types are not statistically different from each other. On the contrary, it was observed that school type did not statistically significantly affect the students' test anxiety scores ($p = .44$).

Another vital issue that needs to be addressed is whether self-esteem and test anxiety are related. To investigate that, Pearson Correlation Analysis was conducted and the correlation between self-esteem and test anxiety was found statistically significant ($p = .00$). The Pearson correlation coefficient (*r*) was found −0.37, which indicates that there is a negative and moderate correlation between self-esteem and test anxiety. In other words, as self-esteem score increases, test anxiety score decreases.

Discussion

In the study, it was aimed to determine the test anxiety level in high school students, to examine the factors affecting test anxiety and to examine the effect of test anxiety on students' self-esteem.

The first important finding we found in our study was that academic success positively affects the self-esteem score in the positive direction ($p = .00$). Accordingly, the students with a good level of achievement were found to have higher self-esteem. In other words, as the course success increases, the self-esteem score also increases at a statistically significant level. This finding is in line with other studies that relate self-esteem to academic achievement [15,16].

Another significant finding that we found regarding test anxiety in our study was that the gender had a statistically significant effect on the student's test anxiety ($p = .00$). As seen in Table 2, it was determined that female students' test anxiety scores were statistically significantly higher than male students. Similar to our findings, previous studies that examined the relationship between gender and test anxiety show that female students have more test anxiety than male students [17,18]. This may be because females tend to be more emotional than males, and tend to live more intensely on emotions such as fear and anxiety. This situation is also influenced by the traditional judgments of the Turkish society. In Turkey, girls are grown under more social pressure than boys. It can be considered normal that the university exam, which is an obstacle to occupational action, raises such concern when it is thought that girls' social identities and values are worthy of their professions and that economic gains are more important than men's gains.

Another important finding related to the test anxiety is that the course success also affected the test anxiety score at a statistically significant level ($p = .00$). In other words, it was seen that the test anxiety scores of the students who had good academic success were statistically significantly lower than the middle and the bad ones. Similar studies of the negative relationship between the two variables exist in the literature [18–20].

It was found that the test anxiety scores of the students whose mothers are high school graduates were higher than those whose mothers are illiterate, primary school or secondary school graduates and no statistically significant difference was detected among the other mother's educational status groups. This is not in line with the literature [21]. The reason for that situation may be that as the educational level of mothers increases, her awareness for her child raises, leading them to have more expectations for their children's future.

Another important finding from our study is the statistically significant negative correlation between the self-esteem score and the test anxiety score ($p = .00$, $r = -0.37$). So, as the self-esteem increases, the test anxiety decreases. This is supported by similar studies [15,22].

Conclusions

The university entrance exam is an important step that must be taken on the way that young people will determine their future. Given the fact that high socioeconomic level and living in prosperity depend on the choice of occupation in Turkey, the importance of being successful in university examinations, the fierce competition amongst students and the high level of concern over exams can be better understood. All of these factors cause serious pressure on students and their families, leading to high test anxiety, lack of self-confidence and decreased self-esteem. Of course, factors such as the geographical area in which they live, the sociocultural level of the family, parental awareness, and the educational quality of the schools also affect the examination process and the pressure on the student. Our study in Bitlis, an Eastern Anatolian city with a low socio-economic and sociocultural level of Turkey, also shows that the university entrance exam creates anxiety over students and reducing self-esteem is especially high in girls than in boys.

Disclosure statement

The authors report no conflicts of interest.

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