

Test Anxiety Prevalance and Related Variables in The Students Who are Going to Take The University Entrance Examination

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ABSTRACT

Test anxiety prevalence and related variables in the students who are going to take the university entrance examination

Objective: Test anxiety is common among students and has adverse effects on their exam performance. This study firstly focused on finding the prevalence of test anxiety. The second aim was to identify the predictors of test anxiety and its related variables among students who are going to take the university entrance exam.

Method: Totally 436 students (girls=220, boys=216) who were randomly recruited from four different schools to represent all the students who will take the University Entrance Examination in Sivas city centre participated in the study. The students filled in the Socio-demographic Data Form sociodemographic form, Test Anxiety Inventory (TAI), Beck's Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI), Liebowitz Social Anxiety Scale (LSAS), Wender Utah Rating Scale (WURS) and Adult ADHD Self-Report Scale (ASRS).

Results: Test anxiety was detected in the 48.0% of students (n=208). Additionally, exam anxiety was found in 40.3% of the males (n=87) and in 55.8% of the girls (n=121) and the difference between them was statistically significant (p<0.001). There was a statistically significant relation between test anxiety and WURS, ASRS, STAI-II (Trait anxiety), LSAS anxiety, BDI scores. The symptoms of depression, attention deficit hyperactivity disorder (ADHD), social anxiety avoidant behavior, and the state of taking additional courses were found as the independence factors that affect the exam anxiety. A lifetime rate of suicide attempts were significantly more in those with exam anxiety. There was a relationship between test anxiety and the time spent for internet.

Conclusion: Approximately half of the students taking the university entrance exams feel a high level of test anxiety. It may be useful for the test anxiety prevention programs to include the screening and treatment of ADHD, depression and social anxiety.

Key words: ADHD, depression, social anxiety, test anxiety

ÖZET

Üniversite giriş sınavına katılacak öğrencilerde sınav kaygısı yaygınlığı ve ilişkili değişkenler

Amaç: Sınav kaygısı öğrenciler arasında yaygındır ve sınav performansı üzerinde olumsuz etkileri vardır. Bu çalışmada üniversite sınavlarına girecek öğrenciler arasında sınav kaygısı yaygınlığını bulmak ve sınav kaygısının öngörücülerini belirlemek amaçlandı.

Yöntem: Sivas kent merkezinde üniversite sınavına girecek öğrencileri temsil edecek şekilde randomize olarak belirlenen dört farklı okuldan toplam 436 öğrenci (kız=220, erkek=216) çalışmaya katıldı. Öğrenciler sosyodemografik formu, Sınav Kaygısı Envanteri'ni (SKE), Beck Depresyon Envanteri'ni (BDE), Durumluk-Süreklilik Kaygı Envanteri'ni (DSKE-I), Liebowitz sosyal anksiyete ölçeğini (LSAÖ), Wender Utah Derecelendirme Ölçeğini (WUDÖ) ve Erişkin DEHB Kendibildirim Ölçeğini (ASRS) doldurdu.

Bulgular: Sınav kaygısı yaygınlığı %48.0 olarak saptandı (n=208). Erkeklerin %40.3'ünde (n=87) ve kızların %55'inde (n=121) sınav kaygısı vardı. Sınav kaygısı ve WUDÖ; ASRS, DSKE-I, LSAÖ ve BDE puanları arasında istatistiksel olarak anlamlı bir ilişki vardı. Depresyon, dikkat eksikliği hiperaktivite bozukluğu (DEHA), sosyal anksiyete kaçınan davranış belirtileri ve ek ders alma durumu sınav kaygısına bağımsız olarak katkıda bulunan faktörler olarak belirlendi. Yaşam boyu intihar girişimi sınav kaygısı olanlarda belirgin olarak daha fazlaydı.

Sonuç: Üniversite sınavlarına giren öğrencilerin yaklaşık yarısında yüksek düzeyde sınav kaygısı vardır. Sınav kaygısını önleme programlarının, DEHB, depresyon ve sosyal kaygının araştırılmasını ve tedavi edilmesini içermesi yararlı olabilir.

Anahtar kelimeler: DEHB, depresyon, sosyal anksiyete, sınav kaygısı



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INTRODUCTION

Test anxiety is an unpleasant state characterized by feelings of tension and apprehension, worrisome thoughts and the activation of the autonomic nervous system when an individual faces evaluative achievement demanding situations (1). Fear of exams and test situations is widespread and appears to become more prevalent and test anxiety has a negative/detrimental effect on test performance (2).

If an examination particularly affects the person's carrier selection and future opportunities, it may be stressful (3). The university entrance examinations in Turkey are particularly important and significantly affect the carrier choice. The students preparing for these exams receive trainings in private teaching institutions for many years. They separate a budget for it to the extent of their economic powers. Therefore, it is important to determine the causes of test anxiety in Turkey.

Test anxiety prevalence has been reported as 10-41% in school aged children (4-6). Researchers have estimated test anxiety prevalence rates of between 15-20% for college students (7).

Test anxiety is primarily a concern over negative evaluation, so defined as a subtype of social phobia in DSM diagnostic system. Many studies have reported an association between test anxiety and anxiety disorders (8,9). In our previous study, we found a relationship between test anxiety and depression, social phobia and attention deficit/hyperactivity disorder (ADHD) in medical school students (10).

The purpose of this study is to find the prevalence of test anxiety among students who were going to take the university entrance examination and evaluate the relationship between test anxiety and depression, social phobia and ADHD in wider and different population.

METHOD

Participants

Four hundred and thirty six students participated in

the study to represent 15700 students who will take the university entrance exam in Sivas. The study population was determined via simple random sampling method with 5% margin of error and 95% confidence interval. The students filled in Socio-demographic Data Form, Beck Depression Inventory (BDI), State-Trait Anxiety Scale (STAS), Test Anxiety Inventory (TAI), Adult ADHD Self-Report Scale (ASRS), Wender Utah Rating Scale (WURS), Liebowitz Social Anxiety Scale (LSAS).

Measures

Socio-demographic Form. Questions related to participants' age, gender, internet habits, suicide attempt, family income and expectations about the exam, expenditure for exam preparations were included in this form.

Adult ADHD Self-Report Scale (ASRS): The ASRS is an 18-item self-report inventory which 9 items are designed to tap ADD symptoms, and 9 items are designed to tap hyperactivity symptoms. Each item is rated on a 5-point Likert scale ranging from "never" to "very often." Concerning the diagnosis of ADHD, screening was performed using the ADHD Self-Report Scale (ASRS), including 18 questions about frequency of recent DSM-IV Criterion A symptoms of adult ADHD, and the diagnosis of ADHD was then confirmed according to DSM-IV diagnostic criteria. The psychometric properties of the Turkish ASRS have been established using university students (11,12).

Test Anxiety Inventory (TAI): The TAI is a self report instrument that consists of 20 items or statements in which respondents are asked to report how often they experience anxiety symptoms before, during and after taking tests. Each statement is followed by a 4 point Likert -type scale, where respondents indicate how often they have experienced the reaction to tests described in the statement, yielding a total test anxiety score ranging from a minimum of a twenty to a maximum of 80 points. The TAI also yields two subscale scores that measure worry

and emotionality, the two major components of test anxiety, which reflect the cognitive concern and emotional responses associated with evaluation stress. Each subscale consists of eight items, and scores range from 8 to 32 points. TAI was translated into Turkish language and its reliability and validity was studied by Oner (13) ($\alpha=0.87$, $r=0.90-0.70$). According to T tables prepared by Oner, the cut-off point in high school students was taken as 41 for girls and 40 for boys. Worry and emotionality are component of test anxiety. The worry is the cognitive component of test anxiety. Worry refers to focusing of attention on concerns about performance, consequences of failure, negative self-evaluation, evaluation of one's ability relative to others, and the like. Emotionality refers to the affective-physiological experience generated from increased autonomic arousal.

State Trait Anxiety Inventory (STAI): The STAI assessed presence of anxiety, STAI developed by Spielberger et al. This examination consists of 40 multiple-choice questions. Twenty questions pertain to how the patient feels at that particular moment (STAI-I, state anxiety), while the remaining 20 questions deal with how the patient generally feels (STAI-II, trait anxiety). Each answer was scored on a scale of 1 to 4. The raw scores were then normalized. The mean normalized score for the general population has been 50.0, with a SD of 10.0 (13).

Beck Depression Inventory (BDI): BDI consists of 21 groups of statements, each with four possible responses. The patient was asked to select one statement from each group that described the best way how he had been feeling the past week. Each answer was scored on a scale of 0 to 3. A patient with a total score of 17 or more was considered to have significant depression in Turkish version (14).

Wender Utah Rating Scale (WURS): ADHD symptoms in childhood were self-rated retrospectively with the validated short-version of the WURS including 25 items on a five-point Likert-scale (Not at all to severe, Turkish version's cut-off score; 36) (15).

Liebowitz Social Anxiety Scale (LSAS): The LSAS comprises of 24 social situations, each rated for level of fear (0=none to 3=severe) and avoidance (0=none to 3=usually) for the past week. LSAS is the most commonly used scale to measure the symptoms of social phobia. The patients' scores in the 24 items representing typical feared social situation in two subscales (social anxiety and avoidant behavior) from 0 (no anxiety or avoidant behavior) to 3 (maximum distress or full avoidant behavior) (16).

Procedure

The ethical approval for the study was received from Cumhuriyet University Research Ethics Committee. The permission was obtained from the provincial directorate of national education. 436 students from four different schools who accepted to participate in the study filled in the scales distributed. Tests were performed by psychiatric residents in 2012. Thirteen students did not agree to participate in the study.

Statistical Analysis

The data were evaluated using SPSS (14.0). The chi square test was used to analyze socio-demographic data. The comparisons were tested by t test and Pearson correlation analysis. The factors that contribute to test anxiety were determined by linear regression analysis. The statistical significance was defined at the $p<0.05$ level.

RESULTS

Four hundred and thirty six students participated in the study; 220 of the participants were girls (50.5%), 216 were boys, with an age range between 16 and 21 years (mean age 17.66 ± 1.18). In TAI, 48.0% ($n=208$) of the students scored above cut-off point (they scored above the cut-off point determined for this age and education status). The TAI subscales score calculated that emotionality subscale score were 25.25 ± 7.50 , worry subscale score 15.81 ± 4.76 . The cut-off scores on

Table 1: Correlations between test anxiety and scores of psychological measures

Test Anxiety Inventory	r	p
ASRS	0.428	<0.001
WURS	0.414	<0.001
LSAS Anxiety	0.290	<0.001
LSAS Avoidant behavior	0.244	<0.001
BDI	0.431	<0.001
STAI-I (State anxiety)	0.006	>0.05
STAI-II (Trait anxiety)	0.308	<0.001

ASRS: Adult Attention Deficit/ Hyperactivity Scale, WURS: Wender Utah Rating Scale, LSAS: Liebowitz Social Anxiety Scale, BDI: Beck's Depression Inventory, STAI: State-Trait Anxiety Inventory

the TAI, approximately 58% of those found in the range of 40-50 points. There was a statistically significant difference between girls and boys in TAI scores ($p < 0.001$). High level of test anxiety was found in 55.8% girls ($n=121$) and 40.3% boys ($n=87$).

There was statistically significant relationship between test anxiety and internet habituation. It was found out that the students with more test anxiety were spending more time for internet ($\chi^2=8.69$, $p=0.034$).

There was statistically significant relationship between test anxiety and life time suicide attempts. The students with test anxiety reported more suicide attempts than the ones without it. (Fisher exact test: 5.51, $p=0.026$).

There was no relationship between test anxiety and smoking, family income, family expectations, amount

of money spent for exam preparation, number of taking the exam ($p > 0.05$).

There was a significant correlation found between test anxiety scores and ASRS, WURS, BDI, LSAS and STAI-II scores (Table 1). Number of siblings, education level of parents, expectations of family, expenditure of family for exam, taking additional courses, time spent for internet, smoking, WURS, ASRS; BDI; STAI-I, STAI-II, LSAS scores, suicide attempts, family income variables were included into the regression analysis. Linear logistic regression analysis (forward stepwise LR) was performed and the status of taking additional courses, LSAS social anxiety avoidant behavior, ASRS, and BDI scores were identified as the risk factors for the test anxiety (Table 2). Table 3 shows family income and exam preparation expenditures.

DISCUSSION

The prevalence of test anxiety among students who are preparing to university entrance examination was 48.0%. These results are considerably different in previous studies for college students (7). Dordi Nejad et al. (17), found that the following levels of test anxiety existed: 44.0% of the students had low levels of test anxiety, 35.0% had moderate levels, and 20.7% yielded high levels of anxiety. They believed that, although these conditions were often seen in college students,

Table 2: Factors affecting the test anxiety (Multiple linear regression)

Variable	Beta	SE	p	Odds Ratio	95% CI	
Constant	-1.34	0.96	0.16	0.26	-	-
Taking additional courses	-1.23	0.42	<0.01	0.29	0.13	0.66
BDI	0.04	0.01	<0.01	1.04	1.01	1.07
LSAS Avoidant behavior	0.03	0.01	<0.01	1.033	1.01	1.06
Adult Attention Deficit/ Hyperactivity Scale	0.05	0.01	<0.01	1.05	1.02	1.09

CI: Confidence Interval, LSAS: Liebowitz Social Anxiety Scale, BDI: Beck Depression Inventory

Table 3: Family income and course costs

	Family income (TL monthly)	The money spent this year (TL)	The money spent to date (TL)
Mean	1663.68	1671.23	3901.42
Standard deviation	857.36	1111.69	3084.93
Minimum	250.00	200.00	200.00
Maximum	6000.00	15000.00	20000.00

TL: Turkish Lira

these factors would not have the same effect in public school educational environments. The authors concluded that, when the test anxiety is higher, students' academic performance would be lower (17). Cheraghian et al. (18), found that although 86% of the students had some level of test anxiety, no significant relationship existed between test anxiety and academic performance, as cited by Dordi Nejad et al. (17). Similarities and differences in the educational systems are believed to systematically influence test anxiety. Seipp and Schwarzer (19), suggested that Korean students reported one of the highest test anxiety levels, whereas Chinese and Japanese students showed some of the lowest test anxiety levels among the 14 different countries. Lowe and Ang (20), reported that Singapore males scored higher than US males and US females scored higher than Singapore females on the Total Test Anxiety scale and the Emotionality subscale. Singapore males also scored higher than US males on the TAS-E Worry subscale. We had found that test anxiety prevalence was 15.8% for the medical students in Sivas Cumhuriyet University (10). Similar to other studies, test anxiety was significantly higher in girls than boys (2,10). The studies carried out for similar age groups showed that the text anxiety prevalence among students varies between 10.4 and 23.4. The results of the present study are considerably higher than these results. The fact that the university entrance exam significantly affects the career choice of students and that the students attribute great values to this exam may be reason for this.

We found significant correlation between test anxiety scores and depression, trait anxiety scores, social anxiety scores, and ADHD symptoms. To date, researches have emphasized association between test anxiety and anxiety disorders (8,9). Some studies have reported an association between test anxiety and depression (21). As the fear of negative evaluation is the core feature of test anxiety, researchers have speculated that test anxiety is a social anxiety disorder subtype (2,22). Schutz et al. (23) suggested that high test anxiety was associated with low self-esteem. The test-anxious children experienced more negative cognitions and subjective distress when taking a test (24). Furthermore, the fear of negative evaluation was

not limited to an actual test, since these children also suggested identical symptoms when engaged in a second social-evaluative task. Beidel and Turner (24), reported that 60% of the test anxious sample met DSM-III criteria for an anxiety disorder and in terms of the relationship of text anxiety to more complex social-evaluative dysfunctions, more pervasive anxiety conditions, DSM-III anxiety disorders, and the utility of test anxiety as an indicator of the presence of these more social anxiety states. Test anxiety was appreciated in association with social phobia in DSM IV-TR (25).

To our knowledge, there has been only one study (previous study of our group) showing a significant relationship between ADHD and test anxiety. Dan and Raz (26), reported that test anxiety well known to affect success on tests, is correlated with ADHD. Therefore, interventions for ADHD should include components aimed at reducing test anxiety (26). Among the studies evaluating the text anxiety, we have not come across with a research directly gravitated towards ADHD. ADHD has negative effects on the success of education (27-30). Several features of ADHD contribute to poor performance in test situations; inherent difficulties with impulse control, attention capacity, and hyperactivity disrupt the acquisition of basic academic skills (31). State anxiety contributes to predicting both learning and delayed recall in adults with ADHD. Findings suggest that decreased verbal learning and memory in adults with ADHD is due in part to situational anxiety (32). The cause of anxiety about exams may be associated with previous failures in students with ADHD. Therefore, they may perceive themselves to be inadequate in a test condition.

Moreover, researches have shown an association with ADHD and internet dependency and suicide attempts (27,28). Suicide attempts and internet dependency are considered impulsive behaviors. Also, in this study, test anxiety was associated with suicide attempts and internet habits. There may be a relationship between test anxiety and impulsivity. Comorbid disorders such as anxiety and depression are common in individuals with ADHD (29). ADHD may generate a predisposition towards anxiety disorders and test anxiety.

As in this study; if test anxiety especially associated

with ADHD, test anxiety preventing programs should also include assessing/searching ADHD. In addition, students with ADHD should be taught about the methods of reducing the test anxiety.

According to the results of this study, families with large budgets set aside for preparation of their children who are taking the university entrance exam. But we have not found any relationship between the test anxiety and the families' expenditure or expectations. This may indicate that different factors affect the test anxiety.

As a result test anxiety is common among the students who are going to take the university entrance

examination. This study shows that about half of the students who are going to take this exam, especially girls, have test anxiety at a level which requires professional help. Besides attending a private teaching institution, taking additional courses, depression, social anxiety, and ADHD symptoms affect this anxiety independently. Taking additional courses may lead to an expectation and this may increase the text anxiety. Depression, social phobia, other anxiety disorders and ADHD should be screened for students with test anxiety. It may be useful for the test anxiety prevention programs to include screening and treatment of ADHD.

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