

Perceived Paternal Attitudes Predict Test Anxiety Beyond the Effect of Neuroticism: A Study in the Context of the University Entrance Examination in Turkey

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Background. In Turkey, university education is highly valued, and is considered a key to success and happiness in life. The gatekeeper for a university education is a central entrance exam. The entire process is lengthy, hard, and anxiety-provoking.

Objective. Our study aimed to investigate the factors associated with test anxiety related to the university entrance exam. The effects of the perceived attitudes of the student's mother and father on his or her test anxiety are examined separately, and beyond the effect of other risk factors.

Design. The participants were 102 high school students and recent graduates between the ages of 14 and 19. Data was collected just before a test anxiety workshop, which was designed as part of an open day activity in a private, non-profit university. The workshop featured an interactive presentation about general anxiety, test anxiety, and coping strategies, which was followed by a progressive relaxation exercise.

Results. It was found that having a lower GPA score, being female, and having an increased level of neuroticism, as well as an increased level of perceived paternal acceptance and paternal control, were associated with higher levels of test anxiety.

Conclusion. The university entrance exam preparation period in Turkey is quite stressful for the students and creates an economic strain for their families. Considering that fathers are usually the financial authority figure within the households, paternal attitudes might predominantly affect the test anxiety level experienced by the student. In addition to paternal control, paternal acceptance might also be a source of stress since it, like control, includes "expectations" for the student's success.

Keywords:
test anxiety;
paternal attitudes;
neuroticism;
high school students;
high school graduates;
university entrance exam

Introduction

Being evaluated can be an anxiety-inducing procedure, and tests are one of the most common means of evaluation. According to Spielberger and Vagg (1995), test anxiety is a person's inclination to react to being evaluated with intense worry, mental disorganization, intrusive thoughts, strain, and physiological tension. If a student cannot achieve his or her optimal performance on the exams due to anxiety, and thus gets a low grade, then it can be said that the student suffers from test anxiety (Spielberger & Vagg, 1995).

Test anxiety is said to be prevalent among 20-35% of adults and 40% of children (McDonald, 2001; Zeidner, 1998). Congruently, Arnold (2002) indicated that the level of test anxiety decreases with age; indeed, second grade students score significantly higher in test anxiety when compared to sixth graders. Moreover, according to a current meta-analytic review, test anxiety is more prevalent among middle school students (Von der Embse, Jester, Roy & Post, 2018). In terms of gender, it has been shown that females have higher levels of test anxiety than males (Arnold, 2002; Núñez-Peña, Suárez-Pellicioni, & Bono, 2016; Ely & Jastrowski-Mano, 2019; Danthony, Mascaret, & Cury, 2019). A study conducted among elementary school children concluded that central exams are more anxiety-provoking than classroom testing (Segool, Carlson, Goforth, von der Embse, & Barterian, 2013). In addition to these, test anxiety was found to be a significant negative predictor for life satisfaction, self-esteem, and optimism among Turkish high school students (Çıkırıkçı, Erzen, & Akistanbullu-Yeniçeri, 2019).

The University Entrance Examination in Turkey

Transition to a university can be a stressful occasion. Wilson and Gillies (2005) have stated that lower levels of self-efficacy are associated with higher levels of stress in relation to the transition to university. In Turkey, there is stiff competition for entering the university, which leads to high anxiety among the candidates. After 12 years of primary and secondary education, students have to struggle to attend a university.

Each year, a central university exam is organized by the Measurement, Selection, and Placement Center (ÖSYM). The exam is conducted in two sessions, and only those who surpass the minimum required score in the first session can move on to the second stage of the exam. Millions of students compete to achieve the scores necessary for registering in universities. In 2019, only 904,176 of more than 2.3 million applicants were able to enter a higher education institution, including degree and associate degree programs in both state and private, non-profit universities (ÖSYM, 2019).

The style, duration, content, and even the name of the exam changes almost every year. In such a competitive and chaotic environment, a network of people is involved in helping students qualify to enter the universities. To achieve this aim, private after-school classes and/or private tutoring sessions are designed to prepare the students for this vital exam. This extremely expensive preparation system is carried out in addition to the regular high school structure. Çolak (2009) argued that in Turkey, the university entrance exam is considered the only way of acquiring a profession, and this requires eliminating others and succeeding in the exam. She argued that the system should be transformed into a less anxiety-provoking one.

A study conducted in Turkey with applicants to the university entrance exam, which takes place during the senior year of high school, revealed that these students were potential sufferers from depression (Yıldırım, Ergene, & Munir, 2006). Suicidal thoughts and attempts were also found to be high among a similar group of students in a study by Eskin, Ertekin, Dereboy, & Demirkıran (2007). Erzen and Odacı (2016) conducted a study among Turkish senior high school students in which they found that test anxiety is negatively correlated with secure attachment and self-efficacy. It was positively correlated with dismissive and fearful attachment styles. In addition, they found that the onset of anxiety about the university entrance exam occurs very early (Şahin, Günay, & Batı, 2006). This study also revealed that female students and students who did not study regularly felt more anxiety in relation to the exam.

Test Anxiety in Relation to Personality and Parental Attitudes

Personality and parental factors have been given great attention in the literature in relation to test anxiety. Indeed, the association between test anxiety and personality has become a major research topic. For example, Akbari, Bakht, Khaledi, Bajvar, and Hovayzaee (2012) examined the association between the Five Factor personality traits and test anxiety, and found that among personality factors, neuroticism and extraversion significantly and positively correlated with test anxiety. On the other hand, Khosravi and Bgdeli (2008) found that neuroticism and test anxiety correlated positively, but there was no correlation with extraversion.

In terms of this controversy, van de Velde (2015) claimed that “unlike neuroticism, which has a high negative connotation, the meaning of extraversion is not so clear cut” (p. 9). Hoferichter, Raufelder and Eid (2014) stated that high quality student-student relationships were associated with low levels of neuroticism and low levels of test anxiety. In fact, the results of other studies investigating the relationship between extraversion and test anxiety provided contradictory outcomes (Dobson, 2000; Khosravi & Bgdeli, 2008). However, the literature has been consistent about the positive correlation between neuroticism and test anxiety (Akbari et al., 2012; Khosravi & Bgdeli, 2008; van de Velde, 2015).

Parental attitudes towards their children have been another major research area among the studies related to test anxiety, and particular parental behaviors were shown to influence children’s performance in a negative way. For example, the families’ expectations were found to have a positive correlation with the children’s test anxiety levels (Brandmo, Braten, & Schewe, 2019). Moreover, it was claimed that when a child internalizes the parent’s expectations or restraints related to success, the child’s subsequent level of test anxiety increases (Fan & Chen, 2001).

Likewise, some of the findings addressed the association between parental perfectionism and children’s test anxiety (Besharat, 2004). In terms of socially prescribed perfectionism, Sarason (1960) claimed that test anxiety occurs when a student’s performance does not fit into a parent’s unrealistically high expectations. In fact, when the parents’ expectations or criticism levels were high, they could contribute to creating perfectionism in adolescents (Damian, Stoeber, Negru & Băban, 2013) and young adults (Yoon & Lau, 2008).

The levels of parental control, parental support and acceptance, and parental involvement in their child’s academic studies have been among other research areas focusing on the link between parental attitudes and test anxiety. In terms of con-

trol, it has been stated that when the level of parental control is high, a child's test anxiety increases, and his or her academic success decreases (Assor, Kaplan, Kanat-Maymon, & Roth, 2005). Similarly, according to the study conducted by Gherasim and Butnaru (2012), if parental control is strong, then students have higher levels of stress and worry related to academic studies.

On the other hand, parental support and acceptance predicted academic resilience (Bodovski, & Youn, 2010). Not surprisingly, according to a study conducted among eighth graders, the students who lacked family support had higher levels of test anxiety, whereas spending time with family members decreased their level of test anxiety (Durualp & Aral, 2008). In addition, positive parenting was related to lower levels of anxiety among high school students (Li & Prevatt, 2008). In terms of parental involvement in academic studies, the findings suggest that a student's perception of the level of parental "over-involvement" in academic work enhances his or her test anxiety (Shadach & Ganor-Miller, 2013).

A study conducted among Chinese adolescents compared mothers' and fathers' warmth and academic pressure on test anxiety. Academic pressure imposed by fathers had stronger effects than mothers' behavior on test anxiety (Quach, Epstein, Riley, Falconier, & Fang, 2015). Four facets of test anxiety (worry, emotionality, interference, and lack of confidence) were examined among German adolescents. It was found that for girls, perceived maternal pressure was positively associated with emotionality and interference; on the other hand, for boys, perceived paternal pressure and support were positively associated with interference and worry (Ringeisen & Raufelder, 2015).

The Current Study

In Turkey, becoming a university student is a culturally valued accomplishment, and qualifying for university entrance involves a lengthy and painful process. University graduation is perceived to be the prerequisite for a reputable job and higher social status. Therefore, this pressure leads to high levels of test anxiety among students. The issue of test anxiety among university entrance exam applicants in Turkey has highly practical implications for public-health-related outcomes.

The present study aimed to investigate the factors associated with test anxiety related to the university entrance exam. Although the university entrance exam is a highly significant topic in Turkey, parental effects on test anxiety have not been specifically investigated. The authors hypothesized that parental attitudes significantly predict test anxiety even after the effects of neuroticism, which has an established positive association with test anxiety, were controlled for. Specifically, control by either parent was expected to be positively associated with test anxiety, whereas acceptance by either the mother or father was expected to be negatively associated. Since gender and GPA are also expected to be associated with test anxiety, their effects were statistically controlled for in the preliminary steps of the analysis.

Therefore, the main aim of this present study was to examine the effects of the mothers and fathers' attitudes separately on the test anxiety of their children, beyond the effect of other risk factors. The rationale for this hypothesis was based on Turkey's cultural context in terms of autonomy and relatedness within the framework of Kağıtçıbaşı (1996). She pointed out that Turkish culture has individualistic and collectivistic aspects that influence both parenting and teaching practices.

Method

Participants

One hundred and two participants (77 females and 25 males) between the ages of 14 and 19 ($M = 16.67$, $SD = 1.26$) constituted the sample for the study. Among the participants, 95.1% were high school students (grades 9 to 12) and 4.9% had graduated from high school within the past 12 months and were preparing to take the next university entrance exam for the second time. Their current GPA scores (or those at the time of graduation) ranged from 57 to 98 on a scale of 100 ($M = 85.07$, $SD = 9.92$). A total of 4.9% of the participants did not report their GPA score.

Instruments

The following instruments were distributed to the participants in a counter balanced manner.

Test Anxiety Inventory (TAI): The TAI was developed by Spielberger (1980), and its Turkish standardization was completed by Öner (1990). The inventory consists of two subscales (worry and emotionality) and has 20 items in total. It is 5-point Likert-style scale ranging from “1 = never” to “5 = always.” The Turkish form of the inventory has adequate psychometric properties and test-retest reliability ($r = .70-.90$ for both subscales and total score). The internal consistency coefficient for the total score was .46, and it was .43 for both subscales. The total score of test anxiety was used in the analysis of the current study, and the internal consistency was calculated as $a = .94$.

Measure of Child Rearing Styles (MCRS): The MCRS was developed by Sümer and Güngör (1999) with a Turkish sample in order to assess perceived parenting styles. The scale aims to assess two main parenting dimensions (acceptance/involvement and strict control/supervision) via 22 items. It is 4-point Likert-style scale ranging from “1 = totally incorrect” to “5 = totally correct.” The internal consistency coefficient for the perceived parental acceptance by both mother and father was .94, whereas those for the perceived strict control/supervision of mother and father were .80 and .70, respectively. In the present study, participants rated the perceived parenting styles for both parents separately. The internal consistencies for perceived strict control/supervision by mother and father were .85 and .83, whereas those for acceptance by mother and father were .90 and .91, respectively.

Basic Personality Traits Inventory (BPTI): The BPTI is a 45-item inventory developed in Turkish culture to assess six dimensions of personality based on the Big Five personality model: 1) openness to experience; 2) conscientiousness; 3) extraversion; 4) agreeableness; 5) neuroticism; and 6) negative valence (Gençöz & Öncül, 2012). It is a Likert-style scale with 5 points ranging from “1 = does not apply to me” to “5 = definitely applies to me.” The scale’s internal consistency coefficients range between .71 and .89. However, in the current study, the internal consistencies of the five scales ranged from .73 to .85, except for the sixth, *i.e.*, the negative valence subscale, for which Cronbach’s alpha was found to be .49. Thus the negative valence factor was excluded from the analysis due to its low reliability coefficient. Therefore, the original five personality traits were used in the current analysis.

Procedure

Approval was obtained from the university's ethics board. The prospective participants were the applicants for the central university examination, who were invited to the campus for an open day event. For the students whose ages were lower than 18 years, parental approvals were sought. They attended presentations about the academic programs, campus life, and real-time classes of their choice.

In addition to those presentations, the applicants had the option of attending a three-hour long workshop on test anxiety; that was the group which ultimately constituted the sample for the current study. The fact that only volunteers attended that workshop on test anxiety, indicates that they might have had some sort of anxiety relative to the university entrance exam. Participants in the workshop were invited to participate in "research which aims to investigate the causes of test anxiety." In the first part of the workshop, informed consent forms were provided, and the questionnaire packages were administered to the participants just before the seminar. In the second part, an interactive seminar about general anxiety, test anxiety, and coping strategies was led by the second author, followed by a progressive relaxation exercise administered by the third author.

Results

In order to investigate test anxiety, we conducted a series of analyses. Initially, Pearson Correlation analyses were undertaken to examine the zero-order associations of the predictor variables with the levels of test anxiety (criterion variable). We counted correlations greater than .30 as moderate, and those greater than .60 as high (Dancey & Reidy, 2007); the results revealed mostly low to moderate correlations among the variables.

Among personality traits, test anxiety was found to be positively correlated with neuroticism ($r = .48, p < .01$) and negatively correlated with extraversion ($r = -.23, p < .05$). Among perceived parenting attitudes, test anxiety was positively correlated with paternal control ($r = .26, p < .01$) and maternal control ($r = .24, p < .05$). Finally, test anxiety was positively associated with a low GPA ($r = .43, p < .01$).

A hierarchical multiple regression analysis (via the stepwise method) was conducted to examine the predictive values of the perceived parental attitudes, beyond the effect of personality traits and the other risk factors on test anxiety (see *Table 1* for the results). Prior to the analysis, the variables were assessed for multicollinearity by examining the variance inflation factor (VIF); no predictor was found to be affected by multicollinearity.

Within the hierarchical regression analysis, the ordering of the sets of predictors was determined in line with the proposed hypotheses. The variables were entered via the stepwise method into the equation in three steps: first, age, gender, and GPA (control variables); second, the six basic personality traits (*i.e.*, openness, conscientiousness, extraversion, agreeableness, neuroticism, and negative valence); and third, four perceived parental attitudes (*i.e.*, paternal control, paternal acceptance, maternal control, and maternal acceptance). The stepwise method revealed the significant predictors in each step within the regression analysis. (see *Table 2*).

Table 1

Descriptive statistics for the measures

	Range (Min.-Max.)	Mean	Standard deviation
<i>Test Anxiety</i>	1.20–4.90	2.82	.88
<i>Personality Traits</i>			
Extraversion	1.25–5.00	3.78	.79
Conscientiousness	1.25–5.00	3.50	.84
Agreeableness	2.75–5.00	4.36	.51
Neuroticism	1.33–4.89	2.99	.78
Openness	1.50–5.00	3.85	.65
<i>Parental Attitudes</i>			
Mother Acceptance	1.27–4.00	3.14	.63
Mother Control	1.27–3.91	2.38	.57
Father Acceptance	1.09–4.00	2.88	.67
Father Control	1.00–4.00	2.22	.54

Table 2

Hierarchical regression results for variables predicting test anxiety

Criterion Variable	Test Anxiety					
	F _{change}	df	T (within set)	β	pr	R ²
<i>Set of Predictors</i>						
<i>Control variables</i>						
GPA	12.27**	95	-3.5**	-.34	-.34	.11
Gender	10.73**	94	3.28**	.32	.32	.21
<i>Personality Traits</i>						
Neuroticism	25.35**	93	5.04**	.43	.46	.38
<i>Parental Attitudes</i>						
Paternal Control	8.03*	92	2.83*	.23	.28	.43
Paternal Acceptance	7.98*	91	2.82*	.23	.28	.47

Note: *df* = degree of freedom. * $p < .01$, ** $p < .001$

The analysis regressing the test anxiety measure revealed (see *Table 1*) significant associations of the control variables with test anxiety in the first step. Accordingly, GPA ($\beta = -.34$, $t [95] = -3.5$, $p < .001$) explained 11% of the variance ($F_{\text{change}} [1, 95] = 12.26$, $p < .001$), and gender ($\beta = .32$, $t [94] = 3.28$, $p < .001$) increased the explained variance to 21% ($F_{\text{change}} [1, 94] = 10.73$, $p < .001$).

In the second step, neuroticism was significantly associated with test anxiety ($\beta = .43$, $t [93] = 5.04$, $p < .001$), and it increased the explained variance to 38%, ($F_{\text{change}} [1, 93] = 25.35$, $p < .001$).

In the third and last step, paternal control ($\beta = .23$, $t [92] = 2.83$, $p < .01$) revealed a significant association with test anxiety, which increased the explained variance to 43% ($F_{\text{change}} [1, 92] = 8.03$, $p < .01$). Paternal acceptance ($\beta = .23$, $t [91] = 2.82$, $p < .01$) was also significantly associated with test anxiety, and it increased the variance to 47%, ($F_{\text{change}} [1, 91] = 7.98$, $p < .01$).

Although the zero-order correlation of paternal acceptance with test anxiety was not significant, the regression coefficient was found to be significant in the relevant multiple regression model. Horst (1941) defined this statistical case as the *suppression effect* (as cited in Watson, Clark, Chmielewski, & Kotov, 2013).

To determine the suppressor variables in the model, a series of multiple regression analyses was conducted, by omitting the predictors one at a time, and then examining the changes in the beta coefficients. Accordingly, the inclusion of paternal control and paternal acceptance together in the model results in classic suppression and improves the predictive power of both predictors on test anxiety (see also Watson et al., 2013). Zero-order correlations among these variables were also examined and showed that paternal acceptance was not significantly correlated with paternal control ($r = -.19$, $p > .05$) and test anxiety ($r = .12$, $p > .05$). Maternal control and acceptance were not significant predictors and thus were excluded in the final model.

To sum up: Five factors had significant associations with test anxiety. They were GPA, gender, neuroticism, paternal acceptance, and paternal control. According to these results, having a lower GPA score, being female, showing an increased level of neuroticism, and reporting an increased level of perceived paternal acceptance, as well as perceived paternal control, were associated with higher levels of test anxiety.

Discussion

University education is highly valued in Turkey, and the central testing procedure is lengthy, difficult, and anxiety provoking. This study was conducted to explore the factors (*i.e.*, demographics, GPA, personality characteristics, and perceived parental attitudes) related to test anxiety. The results revealed that having a lower GPA score, being female, showing an increased level of neuroticism, as well as increased levels of paternal control and paternal acceptance, were associated with higher levels of test anxiety. Therefore, the control variables and personality factors revealed the expected results, in line with the literature (Akbari et al., 2012; Arnold, 2002; Assor et al., 2005; van de Velde, 2015).

In discussing parental attitudes, the literature suggests that parental control has a positive association with test anxiety, whereas parental acceptance has a negative one (Assor et al., 2005; Bodovski, & Youn, 2010; Gherasim, & Butnaru, 2012). Therefore, the results of the present study were in line with previous findings and supported the presented hypothesis based on perceived control by fathers (paternal control). They indicated that the more control the adolescents perceived from their fathers, the more anxiety they experienced relative to the university entrance exam.

But a positive relationship was also unexpectedly found between test anxiety and paternal acceptance. According to the results of a recent study conducted with Turkish university entrance exam applicants, test anxiety is significantly associated with attachment styles and maternal variables such as mothers' anxiety levels (Yılmaz-Aydın, 2018).

Surprisingly, that was not the case in our study. Indeed, no significant association was observed in relation to maternal variables in the regression model, either for control or acceptance. This difference in the findings may be a result of the divergence of the focal points, because the previous research did not integrate the variables associated with fathers, only focusing on state-trait anxiety levels of mothers. This divergence in the findings suggests the need for discussion in relation to the sociocultural and economic norms of Turkish society.

The university entrance exam preparation period creates an economic burden for families in Turkey (Tansel & Bircan, 2004). This process involves private afterschool preparation classes and extensive private tutoring. These classes and tutoring, as well as purchasing printed material, are indeed expensive. Although times are changing, the father is still the financial authority figure within Turkish culture, even though he may not be the only breadwinner or the head of the household (Kaya, 2014; Şimsek & Öner, 2015; Sunar & Okman-Fişek, 2005). Adolescents who acknowledge and appreciate the economic burden on their fathers imposed by their education, can thus perceive their father's acceptance (*i.e.*, approval and support) as a source of stress.

This can also explain the suppressor effect observed in the regression model when the paternal attitude variables are included together. Paternal control and acceptance variables might share a common factor such as "induced expectations," when examined in association with performance/success related variables such as test anxiety. Therefore, paternal acceptance, inherently a positive factor, might be perceived negatively by an adolescent. Parental acceptance can refer to psychological pressure to succeed and meet the expectations of the financial source (the father), which in turn leads to increased levels of test anxiety. Indeed, during the discussions between the researchers and the participants at the seminar sessions, the students reported their anxiety about putting an economic burden on their families, and the possibility of disappointing their parents by not being able to meet their expectations.

Conclusion

The results of the present study revealed that the explained variance accounted for by these predictors (*i.e.*, GPA, gender, neuroticism, paternal control, and paternal acceptance) was substantially high (47%), indicating the crucial contribution of these risk factors to test anxiety. Therefore, further implications of this study can be discussed within clinical application settings, particularly for similar cultural contexts and systems. Ergene (2003) stated that more research is necessary regarding the test-day anxiety reduction programs for primary, secondary, and high school students. In line with that suggestion, the results of the current study revealed that test anxiety intervention programs must involve the students and their parents to-

gether; in particular, fathers' collaboration should be emphasized. Furthermore, addressing a student's emotional stability, and improving his or her academic performance with the involvement of available education resources, can also help to decrease test anxiety.

Although the system relating to the university entrance exam in Turkey changes frequently, it seems unlikely that it will ever eliminate the pressure on the students and their families. Needless to say, the schools and the afterschool preparation agencies function within the same hectic environment. All the public and private schools in Turkey, as well as the above-mentioned agencies, integrate counsellors and psychologists into their systems. However, their work is mainly focused on issues relating to academic achievement, such as teaching tactics to improve scores, or concentration and time management. Therefore, the work relating to test anxiety is fairly limited.

Although the systems vary, university entrance procedures are critical in most countries. This study could therefore contribute to the test anxiety phenomenon relating to the university entrance exam not only at the national level but also internationally.

The results of this study indicated that the concept of test anxiety is not only related to the testing procedures but is also associated with perceived family relations. Bearing this in mind, school psychologists should focus on the students' perceptions in individual sessions. Involving the parents in this counselling system could also be beneficial. The school system might take these findings into consideration to design and implement test anxiety interventions at the individual and familial levels. Offering short-term intervention sessions within high schools might be a solution. Providing alternative pathways for university entrance rather than a central exam might help reduce the test anxiety among applicants. Obviously, this approach might require more global attention.

Limitations

This study had interesting outcomes, but they should be discussed within its strengths and limitations. The participants were recruited through an invitation to a test anxiety workshop held by the psychology department of a university. Thus, they already had concerns about test anxiety, and although they were not diagnosed, many of them reported already having some physical symptoms of anxiety. Therefore, this group can be considered as more of a subclinical group rather than a normal section of the society, which might provide more information about the nature of the test anxiety

Additionally, the sample was relatively small, with the number of females triple that of males. The mean GPA of the participants was also relatively higher than any average high school student ($M = 85.07$), indicating that the present sample of students represented high achievers with high expectations and anxiety. Although the sample was not normally distributed and homogeneous on these variables, these variables were statistically controlled for in the preliminary steps of the present analysis, and their predictor values were not part of the main hypothesis of the present study.

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