

Effect of gender, school performance and school type on test anxiety among Iranian adolescents

M Mousavi^{*1,2}, H Haghshenas², MJ Alishahi²

¹Department of Psychiatry, Ruzbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran,

²Department of Psychiatry, Hafez Hospital, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Abstract

Background: The level of anxiety might affect information processing in various ways, and reduce people's performance particularly the adolescents. The present study was designed to investigate the relationship between levels of test anxiety and school performance of a group of adolescents. 536 second grade high school students served as the subjects of this study.

Methods: Two questionnaires were used to collect the data including the student status, relevant information about the family and school performance. The Spielberger's Test Anxiety Inventory was also utilized to measure the level of test anxiety.

Results: The results revealed a significant and negative correlation between test anxiety scores and Grade Point Average (GPA) of the students. Female students showed a higher level of anxiety in contrast to male students and school type (private, public and school for gifted students) affected the level of test anxiety.

Conclusion: We showed the importance of school type on the level of test anxiety. The lowest level of anxiety was seen among gifted children who generally better adjusted themselves than their peers of average or below average intelligence.

Keywords: Gender; School performance; School type; Test anxiety; Iran

Introduction

Emotional reactions typically accompany situations where our performance is being measured or assessed. If at any phase of an assessment we feel unprepared and unsure of our effectiveness or feel we have not performed to our best, we may suffer from the feelings of discomfort, disillusion, distress or depression. In contrast, believing that we are well prepared and able to perform well on an evaluation will account for more positive emotions including self-confidence, excitement, exhilaration and pride. Test anxiety is primarily a concern over negative evaluation, being most closely associated with diagnostic

and statistical Manual-IV-TR (DSM IV-TR) classification of "social phobia". Social phobia is characterized by "a marked and persistent fear of social or performance situations in which embarrassment may occur".¹ Test anxiety is a situation specific trait and any accompanying changes in information processing will only occur when test-anxious participants are placed in test-anxiety-provoking situations.² On the other hand, there are some emotions (e.g. anxiety, fear) which are of the anticipatory type, such as considering events being more important to our goals and causing more practice and involvement. Students who reported being highly anxious tended to rush to judgment about the test based on their preliminary reading of the first few questions whereas students who reported being low in test anxiety tended to defer judgment about the test until they got better idea of what the test was all about.³ Fear of exam is widespread and appears to become more prevalent, possi-

*Correspondence: Masoumeh Mousavi, MD, Department of Psychiatry, Ruzbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran Tel: +98-711-6270571, e-mail: M_mousavi110@yahoo.com
Received: December 18, 2006 Accepted: May 19, 2007

bly due to the increasing frequency of testing and importance placed on testing within educational systems.⁴ In a series of investigations,⁵⁻⁸ it is suggested that test anxiety have two major components, worry and emotionality. The worry component has been defined as cognitive concern over performance, e.g. cognitive concern over consequences of failing, evaluation of one's ability relative to others, and negative task expectations. However, the emotional component refers to the self-perceived autonomic arousal aspect of anxiety involving psychological awareness, e.g. heart racing, upset stomach, and concomitant feeling states of nervousness.

Negative self-evaluative cognition is probably a core characteristic of test anxious children.^{9,10} Test anxiety is also associated significantly with lack of self-confidence, inability to solve problems along with a relative absence of control over the problem.¹¹ A number of factors as age, gender, parental and/or societal expectations (real or perceived), and the nature and content of the topic being tested are expected to correlate with test anxiety and a broad range of topics have been investigated in an effort to understand the source of the components of test anxiety. High test anxiety is associated with the students' environment. For example, a significant difference has been observed between the influences of urban/rural upbringing,¹² familiar/unfamiliar adult proctor,¹³ and time limitation,¹⁴ on test anxiety.

Some studies have shown that scores on test anxiety increase with age.^{12,15} However, not all studies have reported the link between test anxiety and age.^{16,17} Highly anxious boys performed poorly under time pressure compared to their less anxious peers.¹⁴ Pupils of lower socio-economic status and other ethnic backgrounds are vulnerable to distress, especially test anxiety.^{18,19} Gifted children generally adjust themselves better than their peers of average or below average intelligence.²⁰ Fear of the test may disrupt preparation and cause sufficient distress during the test so that the performance might be impaired. Test anxiety adversely affects test preparation, test performance or both.^{3,21,22} Some children had even committed suicide because of examination stress.² The purpose of this study was to examine the relationship between the school type and gender with test anxiety and also to examine the influence of worry and emotional components of test anxiety on school performance of Iranian second grade, high school students. We hypothesized that there would be significant effects on school performance.

Materials and Methods

The original data were collected from among 536 students randomly selected from 16 schools. After evaluation, 100 subjects were excluded from the study due to deficiencies and mistakes and replaced with the same number of new ones. The final data consisted of an equal number (268) of male and female subjects. Owing to missing answers, the subgroups are slightly smaller for some variables. Out of 374 (73%) of students from public schools, 206 were male and 168 were female. Of 84 (16.4%) of students from private schools, 25 were male and 59 were female and of 54 (10.5%) from school for gifted students, 26 were male and 29 were female. For specification of gifted students, they had to take an entrance exam including knowledge and intelligent tests. Test anxiety was assessed through a translated version of Test Anxiety Inventory (TAI) by Spielberger (1980).⁸ This questionnaire contains 20 items, and the subjects are instructed to respond according to how they generally feel by reporting the frequency with which they have experienced. The responses to the items of test anxiety questionnaire comprise the 4 point scales including 1) almost never; 2) sometimes; 3) often; 4) almost always. The mean score for the 20 items (TAI total score) was determined. Eight items belonged to worry (W) and 12 items to emotion (E) subscales. This test does not have any diagnostic cut-off point and the results should be interpreted through comparison. The reliability coefficient of the test was measured via test-retest method on a sample of 52 male and female Iranian students. The analysis of the data revealed a reliability coefficient of 0.89 ($p=0.01$).

A questionnaire was used to obtain demographic information such as name, age, grade point average and school type (private, public or school for gifted children).

In order to verify the validity of the data collected from the students, a t-test comparison between the actual grade point average (reported by the schools) and the ones given by the students was performed ($n=96$). The actual mean score was 16.61 and the mean score given by the students was 17.04. The difference was statistically insignificant ($t=0.68$, $p=0.319$).

Results

Table 1 shows the mean of the total test anxiety (TTA) scores, the mean of the emotional component of test anxiety (ECTA) scores and the mean of the

Table 1: Means and Standard Deviations of Test Anxiety scores in relation to subtypes of Test Anxiety and gender

Type of test anxiety	Gender	N	M	SD	t	P Value
Emotional test anxiety	Girls	268	22.97	7.33	5.34	<0.001
	Boys	268	19.74	5.64		
Cognitive test Anxiety	Girls	268	20.25	6.81	5.34	0.001
	Boys	268	18.44	5.16		
Total test anxiety	Girls	268	43.21	13.3	5.34	<0.001
	Boys	268	38.29	10.15		

worry component of test anxiety (WCTA) scores, presented separately by gender. Gender revealed a significant effect on the level of ECTA ($t=5.39$, $p<0.001$). Female students had significantly higher ECTA scores than males (mean: 22.97, SD: 7.33 vs. mean: 19.74, SD: 5.64). Girls also had higher WCTA scores than boys (20.25 vs. 18.44). Comparison of the mean scores showed that gender had a significant effect on the worry component of test anxiety ($t=5.39$, $p<0.001$). Female students had higher TTA scores ($m=43.21$) than male ones ($m=38.29$). TTA scores were significantly higher among female students than the males ($t=5.34$, $p<0.001$).

The correlation between test anxiety scores and GPA (grade point average) was inverse and significant [TTA ($r=-0.17$, $p<0.001$), ECTA ($r=-0.12$, $p=0.005$), WCTA ($r=-0.026$, $p<0.001$)]. WCTA had the most effect on GPA. Therefore, test anxiety was negatively associated with academic performance among students. The single factor of analysis of variance showed that school type had a significant effect on test anxiety. The correlation between school type and TTA, WCTA and ECTA was significant (TTA: $f=10.71$, $p<0.001$, WCTA: $f=14.92$, $p<0.001$, ECTA: $f=7.07$, $p=0.001$). Duncan test for comparing school types showed that the level of test anxiety was less among gifted students (33.88) than that of the students of public (41.51) and private schools (42.06).

Discussion

Our findings are similar to that of other reports in the literature,^{8,18,19,23,24} showing that the anxiety level of girls is invariably higher than that of the boys. However, this difference is not seen in some investigations.²⁵ A possible explanation is that males are more defensive about admitting anxiety because it might be seen as threatening to their masculinity; they are trained to cope with anxiety by denying it or by finding ways to overcome it. Females are encour-

aged to admit to anxiety, which is perceived as a feminine trait.

Students who reported many intrusive thoughts (general and more interfering thoughts during a stressful situation) had lower school achievement; they also scored high on test-anxiety. Worrying thoughts over their expectations of poor performance and social comparison seem to underlie the association with performance. Students usually report they "knew it well" before the exam, but the information just escaped once they got the test. The present data suggest that test anxiety had a negative effect on performance. As we expected, the worry component of test anxiety was related more strongly to the academic achievement than the emotionality component. The negative relationship between test anxiety and school performance has also been found in many studies.^{4,5,26} Spielberger showed that WCTA scores correlated more negatively with GPA than with any other test anxiety measures for both males and females, whereas ECTA scores did not correlate with grades for either gender.⁸ This finding is inconsistent with that of a number of studies which have found that test anxiety is not related to achievement.^{16,24,26,27} Individuals with higher knowledge seemed not be influenced by test anxiety.^{28,29} It was shown that in the naturalistic setting, anxiety is more clearly an effect than a cause of poor performance.³⁰

The present data denote the importance of school type on the level of test anxiety. The lowest level of anxiety was seen among gifted children who generally better adjust themselves than their peers of average or below average intelligence. This can be attributed to the fact that clever students generally possess emotional resilience and mental flexibility to think positively. Such characteristics enable them to assess situations quickly and accurately, choose appropriate actions, and react accordingly.²⁰ There are also several limitations to this study. First, although the difficulty level of the exams varied in different schools, the academic performance of the students was evalu-

ated and compared based on their GPA scores. Second, there are some influential variables which can

affect test anxiety but they were not included or controlled in this study.

References

- 1 Sadock BJ, Sadock VA. Anxiety disorders. In: Synopsis of Psychiatry (pp.609).9th. Edition Lippincott William and Wilkins. 2003.
- 2 Keogh E, French CC. Test anxiety, evaluative stress, and susceptibility to distraction from threat. *Eur J Personality* 2001;**15**:123-41.
- 3 Schutz PA, Davis HA. Emotions and self-regulation during test taking. *Educational Psychol* 2000;**35**:24-257.
- 4 McDonald AS. The prevalence and effects of test anxiety in school children. *Educational Psychol* 2001;**21**: 89-101.
- 5 Comunian AL. Anxiety, cognitive interference, and school performance of Italian children. *Psychological Reports* 1993;**73**:747-54.
- 6 Gjesme T. Worry and emotionality components of test anxiety in relation to situational and personality determinants. *Psychological Reports* 1983;**52**:267-80.
- 7 Liebert RM, Morris LW. Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports* 1967;**20**:975-8.
- 8 Spielberger CD, Gonzalez HP, Taylor CJ, et al. Examination stress and test anxiety. In C.D. Spielberger, & I.G. Sarason (Eds.), *Stress and anxiety*, Vol. 5. Washington, DC: Hemisphere/Wiley. 1980.
- 9 Prins PJM, Hanewald GJFP. Self-statements of test-anxious children: Thought-listing and questionnaire approaches. *J Consult Clin Psychol* 1997;**65**:440-7.
- 10 Smith RJ, Arnkoff DB, Wright TL. Test anxiety and academic competence: A comparison of alternative models. *J Counsel Psychol* 1990; **37**:313-21.
- 11 Many MA, Many WA. The relationship between self-esteem and anxiety in grades four through eight. *Educational Psychological Measurement* 1975;**35**:1017-21.
- 12 Akande A. Influence of urban-rural upbringing on Nigerian students' test anxiety. *Psychological Reports* 1990;**67**:1261-2.
- 13 Derosa AP, Patalano F. Effects of familiar proctor on fifth and sixth grade students' test anxiety. *Psychological Reports* 1991;**68**:103-13.
- 14 Plass JA, Hill KT. Children's achievement strategies and test performance: The role of time pressure, evaluation anxiety, and sex. *Developmental Psychol* 1986;**22**:31-6.
- 15 Hodge GM, McCormick J, Elliott R. Examination-induced distress in a public examination at the completion of secondary schooling. *Br J Educational Psychol* 1997;**67**:185-97.
- 16 Call G, Beer J, Beer J. General and test anxiety, shyness, and grade point average of elementary school children of divorced and nondivorced parents. *Psychological Reports* 1994;**74**:512-4.
- 17 Mwamwenda TS. Age and test anxiety among African university students. *Perceptual Motor Skills* 1993;**76**:594.
- 18 Mehrabizadeh M, Aboulghasemi A, Najjarian B, et al. The prevalence of test anxiety and the relation between it and self-efficacy and locus of control. *Ahwaz J Psychol* 2000; **1**:55-72. (In Persian)
- 19 Zeidner M, SAfir MP. Sex, ethnic, and social differences in test anxiety among Israeli adolescents. *J Gen Psychol* 1989;**150**:175-85.
- 20 Beer J. Depression, general anxiety, test anxiety, and rigidity of gifted junior high school children. *Psychological Reports* 1991;**69**:1128-30.
- 21 Cassady JC. The impact of cognitive test anxiety on test comprehension and recall in the absence of external evaluative pressure. *Appl Cognit Psychol* 2004;**18**:311-25.
- 22 Powell DH. Behavioral treatment of debilitating test anxiety among medical students. *JCLP* 2004;**60**: 853-65.
- 23 Best JB, Stanford CA. Gender, grade point average, and test anxiety. *Psychological Reports* 1983;**52**: 892-4.
- 24 Mehregan F, Najjarian B, Ahmadi A. The relation between test anxiety and performance among Ahvaz university students. *Ferdowsi J Psychol* 2001;**2**:7-24. (In persian)
- 25 Mwamwenda TS. Gender differences in test anxiety among South African University students. *Perceptual Motor Skills* 1993;**76**:554.
- 26 Mwamwenda TS. Test Anxiety and academic achievement among South African University students. *Psychological Reports* 1994;**75**: 1593-1594.
- 27 Zimer JW, Hocevar DJ. Effects of massed versus distributed practice of test taking on achievement and test anxiety. *Psychological Reports* 1994;**74**:915-9.
- 28 Covington MV, Omelich CL. I knew it cold before the exam: A test of the anxiety – blockage hypothesis. *J Educational Psychol* 1987;**79**:393-400.
- 29 Minnaert AE. Individual differences in test comprehension as a function of test anxiety and prior knowledge. *Psychological Reports* 1999;**84**:167-77.
- 30 Ikeda M, Iwanaga M, Seiwa H. Test anxiety and working memory system. *Perceptual Motor Skills* 1996; **82**:1223-31.