Individual And Group Differences In Test Anxiety: Levels Of Study And Gender Wise Comparison

Asma Maryam Ph.D Scholar, Department of Education, PMAS Arid Agriculture University Rawalpindi, Pakistan, Email: asmamaryam552@gmail.com

Dr. Muhammad Arshad Dahar Department of Education, PMAS Arid Agriculture University Rawalpindi, Pakistan, Email: drarshad1969@uaar.edu.pk

 Uzma Batool Ph.D Scholar, Department of Psychology and Education, Foundation University, Islamabad, Pakistan, Email: uzma9874@gmail.com

Riffat Tahira Ph.D Scholar, Northern University, Noshehra, Pakistan, Email: riffattahira1986@hotmail.com

Dr. Amir Zaman Associate Professor, Department of Education, Abdul Wali Khan University, Mardan, Pakistan, Email: amirzaman69@yahoo.com

Abstract

Variation in test anxiety is an important theme to address through a comparative investigation of individual and group differences, particularly at different levels of study and gender wise indication. These differences were investigated by formulating two hypotheses related to levels of study and gender wise differences among students. A sample of 400 students was derived from two strata, college (200) and university (200) through stratified sampling. Westside test anxiety scale (Driscoll, 2007) was used to measure test anxiety and independent t-test was applied to determine the differences in intensity level of test anxiety. The study revealed significant individual and group differences. Overall, for both of the gender, the level of test anxiety is higher in college students than that of university students in their comparison. Moreover, female students have reported higher test anxiety as compared to that of male students in overall and at both levels of the study.

Keywords: Test anxiety, Examination anxiety, Individual differences in test anxiety, Gender differences, levels of study wise differences

Introduction

Individual difference is an imperative universal phenomenon, widely studied under differential psychology, which has its roots in bio-social functioning of human beings. Therefore, every individual think, feel and behave differently in same situation. If, the situation is challenging it demands greater effort to fulfill those challenges and exerts

pressure and stress that consequently results in the provocation of anxiety but the level of anxiety experienced by individuals may be different. Same is in the case of students, according to American Test Anxieties Association, on average 16-20% of students have experienced high test anxiety, while 18% students have faced moderately high test anxiety. However, Driscoll (2007) reported the percentage of 15-35% students that are adversely affected by test anxiety. The most alarming is the PISA report that reported, almost more than one in two students feel test anxiety even they are highly prepared for exams (OECD, 2017). Moreover, it debilitate students' performance around 12 percentile point as compare to low test anxious students (Hembree, 1988). A similar scenario is prevalent in Pakistan where teachers and researchers have observed that students at different levels and fields of study are naturally in continuous stress and anxiety to perform better in exams (Butt, Akram, Gulzar, & Yahya, 2013; Rana & Mahmood, 2010; Zamir & Hina; 2013). But its prevalence at higher secondary and tertiary education is unknown that necessitates to find out at which level its intensity is high by comparing these two levels of education.

Indeed, no one on this planet is exactly alike and not even exactly opposite to each other on their affect, behavior, cognition, desires/motivation (Fua, Revelle, & Ortony, 2010; Revelle, Wilt, & Condon, 2010). Therefore, individual difference perspective underpins how people are different on above mention factors due to their information processing in reactive, routine and reflective processes (Chamorro-Premuzic, Stumm, & Furnham, 2015; Ortony, Norman, & Revelle, 2005). As, most of the psychological principles are related to universal behaviours among human beings across the time and space, that is why individual differences perspective investigates how and why people differ from each other as an individual or group in a particular setting. So, it aims to explore the roots of such differences among human beings in the form of inherited and acquired differences.

In this regard, it is considered that these differences are usually emerged due to biological and ecological stimulations, studied under behavioural genetics called "nature and nurture" effects. Nature includes, the heredity affects on the growth and development patterns that contributes to gender, intelligence and temperament etc. These biological dispositions (intelligence, gender, temperament, etc.) shape personality which contributes to one's uniqueness due to the fact that no one in this universe has exactly the same genetic chemical composition. On the other hand, nurture refers to the environmental influences on individuals, such as the home, school, society and culture. As, even two siblings or twins living under the same conditions (i.e. Home) are not alike due to the influence of non-shared environment, such as, personal experiences, institutional environment, teachers, peer groups and friends that tends the family members to differ rather than to be similar.

In addition, these ecological biospheres more importantly educational and institutional environment acts as a resource for human development and their future growth. Moreover, education itself is considered as major factor which brings

differences among individuals due to their acquired cognition or educational attainment. Therefore, educated and uneducated people act and behave differently in different situations. In a nutshell, these differences can be due to any of the above mentioned factor or may be due to the combination of these factors.

Similarly, anxiety (that is a feeling of apprehension and extreme worry due to any anticipated danger) may be innate, or related to personality (trait anxiety) or may be induced by specific situations (state anxiety) (Zeidner, 1998). Likewise, anxiety among students may be caused by personality traits such as neuroticism, which is positively correlated with test anxiety (Hoferichter & Raufelder, 2015) and may be owing to subjective cognitive appraisal of the situation (Zeidner & Matthews, 2003). Therefore, it is considered as situation-specific-trait anxiety (Pekrun, 2001). Moreover, it is considered that trait anxiety elevates the state anxiety (Spielberger, 1972; Huberty, 2009) and high test anxiety and high negative emotionality debilitate the exam performance (Kumaran & Kadhiravan, 2015). Therefore, distinctions on the tests anxiety are usually made on the basis of commonly agreed component i.e. cognitive worries, affective tension, and physiological arousal (Pekrun, 2001). Furthermore, it is also the held believe that male and female students differ in test anxiety due to cognitive and affective-physiological (emotionality) components.

Moreover, cognitive component that is comprised of preoccupation of negative thoughts such as self-doubts and worries, interfere with the attentional resources of working memory thus results in decrement of concentration on task (Sarason, 1984; Wine, 1980). Decreased attention and negative self-evaluation consequently decreases students' performance (Sarason, 1984) and generally female students have reported greater self-doubts in testing situation (Arch, 1987; Zohar, 1998); such as low self-esteem (Alam, M. M. 2013; Sarı, Bilek, & Çelik, 2018; Zeidner, 1998), self-efficacy and competence believe (Mohammadyari, 2012; Putwain & Daniels, 2010). Likewise, affective component i.e. emotionality is related to observable behavioural and physiological response to anxiety, is also reported high in females as compared to males (Kurt, Balci, & Kose, 2014), that is apparently the major cause of gender differences in anxiety (Zeidner, 1990, Zeidner, 1998).

Almost, similar patterns were found in previous researches conducted in Pakistan, that students exhibit high signs of anxiety during tests and especially in exams at different level of study which is the main cause of their underperformance (Ali & Mohsin, 2013; Nadeem, Ali, Maqbool, & Zaidi, 2012; Rana & Mahmood, 2010). Moreover, female students generally have greater level of anxiety than male students (Farooqi, Ghani, & Spielberger, 2012; Nadeem et al., 2012; Numan & Hasan, 2017). However, differences in the level of test anxiety due to level of study especially at higher secondary and tertiary level were not investigated earlier. Due to these noteworthy patterns in individual differences perspective present study aims to explore, whether the acquired cognition (due to educational attainment) at two different levels of education can contributes to the differences in anxiety levels among students; overall at

both levels, and at each level on the basis of level of study and gender. Present study would like to inform educationist and policy makers regarding current pattern and prevalence of anxiety among Pakistani students at two sectors of education college and university level, as well as provides insight of the phenomenon by providing possible justifications from the literature and actual context along with important implications and limitations of the study to initiate future research.

Hypotheses

The present study aims to explore the levels of study and gender wise differences in test anxiety of Pakistani students. Firstly, study intends to investigate, whether higher studies or degree level reduces test anxiety among students. Therefore, it is hypothesized that there is significant difference between test anxiety of college and university level students, and college level students have higher test anxiety than university students. Secondly, substantial proportion of literature provides evidence of significant difference in test anxiety due to gender (Putwain & Daly, 2014; Eman, Dogar, Khalid, & Haider, 2012). Therefore, present study hypothesize that there is significant difference in test anxiety between male and female students, with higher degree of test anxiety in female students. To test these theoretical hypotheses following objectives were formed.

Objectives of the study

1. To measure the intensity level of test anxiety of students.
2. To compare the intensity level of test anxiety of student at both levels of study (college and university).
3. To compare the gender-wise intensity level of test anxiety at both level and each level of study (male-female, male-male and female-female).

Method

Population and Participants

Population of the study was test anxious students studying at two different levels of education, colleges (higher secondary) and universities (tertiary). The participants of the study were selected from public colleges and a large university in Pakistan. The total sample of 400 students, 200 college students and 200 university students were selected from two strata on the basis of single attribute that is 'test anxiety' by using stratified random sampling. However, post stratification was also done within the strata that were comprised of two hundred (200) male and two hundred (200) female students and hundred male (100) and hundred female (100) students within each stratum. Equal proportions of students were selected to make generalization more effective.

Instrument

For present study, brief standardized instrument "Westside Test anxiety scale" consisted of ten statements by Driscoll (2007), along with demographic sheet were distribute to participants. The scale measures test anxiety impairment and cognitions of

students and categorize them into six categories on the basis of intensity level. These categories are 1-1.9 "Comfortably low test anxiety", 2.0-2.5 "Normal or average test anxiety", 2.5-2.9 "High normal test anxiety", 3.0-3.4 "Moderately high", 3.5-3.9 "High test anxiety", 4.0-5.0 "Extremely high anxiety".

Procedure and Data analysis

To measure test anxiety mean scores of students on the instrument was carried out which produced raw data. However, to depict difference in test anxiety this raw data were also classified into categories according to the scale. Therefore, data were classified into six categories on the basis of its intensity level. Moreover, to find out the difference in test anxiety due to gender and levels of study t-test was carried out.

Results

Table I Category Wise Differences in Test Anxiety

	level of study						
	College			University			
	Gender		Total	Gender		Total	
Test anxiety	Male	Female		Male	Female		Total
Comfortably low test anxiety	5	10	15	18	8	26	**41**
	2.50%	5.00%	7.50%	9.00%	4.00%	13.00%	10.2%
Normal or average test anxiety	9	8	17	28	22	50	**67**
	4.50%	4.00%	8.50%	14.00%	11.00%	25.00%	16.8%
High normal test anxiety	35	9	44	18	15	33	**77**
	17.50%	4.50%	22.00%	9.00%	7.50%	16.50%	19.2%
Moderately high	22	27	49	30	32	62	**111**
	11.00%	13.50%	24.50%	15.00%	16.00%	31.00%	27.8%
High test anxiety	23	28	51	4	12	16	**67**
	11.50%	14.00%	25.50%	2.00%	6.00%	8.00%	16.8%
Extremely	6	18	24	2	11	13	**37**

high anxiety	3.00%	9.00%	12.00%	1.00%	5.50%	6.50%	9.2%
Mean	3.00	3.22	3.88	2.59	2.99	3.155	**3.52**
SD	.62	.78	1.401	.64	.744	1.403	**1.447**

Table I represents test anxiety scores of students, data is classified into categories to represent the individual difference that shows, Comfortably low test anxiety 41(10.2%), Normal or average test anxiety 67(16.8%), High normal test anxiety 77(19.2%), Moderately high 111(27.8), High test anxiety 67(16.8) and Extremely high anxiety 37(9.2%). Moreover, the major responses fall in moderately high test anxiety that depicts 27.8% of total sample experienced moderately high test anxiety while the mean value shows inclination towards high test anxiety with mean value (M = 3.52) and standard deviation (SD =1. 44739).

Table II

Overall Level of Study Wise Difference in Test Anxiety of Students

Level of study	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
College	200	3.1185	.71790	F	Sig.	t	df	Sig.
University	200	2.7940	.72115	.021	.884	4.510	398	.000

Table II shows that Levene's test for variance that is found to be insignificant because P > 0.05. So, by equal variance assumed results reflected that on average college students have higher level of test anxiety (M = 3.11, SD = .717) as compared to university students (M = 2.79, SD = .721). Moreover, the difference is found significant at t (398) = 4.510, p < .05. Therefore, it can be reported that there is significant difference in the test anxiety levels of college and university level students and college students experienced higher levels of test anxiety than university students.

Table III

Overall Gender Difference in Test Anxiety Of College and University Level Students

Gender	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
Male	200	2.8030	.66528	F	Sig.	t	df	Sig.

Table III

Overall Gender Difference in Test Anxiety Of College and University Level Students

Gender	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
Male	200	2.8030	.66528	F	Sig.	t	df	Sig.
Female	200	3.1095	.77366	2.607	.107	-4.248	398	.000

Table III shows that Levene's test for variance is not found to be significant because P>0.05 so equal variance is assumed. Results reflected that on average female students have higher test anxiety (M = 3.1095, SD = .77366) as compared to male students (M = 2.8030, SD = .66528). Moreover, the difference is found significant t (398) = -4.248, p < .05. Therefore, it can be reported that there is a significant difference in the test anxiety of male and female students and female students have higher level of test anxiety than male students.

Table IV

Gender Wise Difference in Test Anxiety of College Level Students

Gender	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
Male	100	3.0090	.62540	F	Sig.	t	df	Sig.
Female	100	3.2280	.78780	2.607	.107	-4.248	198	.000

Table IV shows within strata examination of test anxiety among college level students. By using equal variance assumed due insignificant Levene's p >.05 results revealed that, on average female students have higher test anxiety (M = 3.2280, SD = .78780) as compared to male students (M = 3.0090, SD = .62540). Moreover, the difference is found significant t (198) = -4.248, p < .05. Therefore, it can be reported that there is a significant difference in the test anxiety of male and female students studying at college level and female students have higher level of test anxiety than male students.

Table V

Gender Wise Difference in Test Anxiety of University Level Students

Gender	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
				F	Sig.	t	df	Sig.
Male	100	2.5970	.64251					
Female	100	2.9910	.74442	.470	.494	-4.007	198	.000

Table V shows the within strata test of test anxiety among university level students Levene's test is found insignificant p > .05 so by using equal variance assumed results revealed that, on average female students have higher test anxiety (M = 2.9910, SD = .74442) as compared to male students (M = 2.5970, SD = .64251). Moreover, the difference is found significant t (198) = -4.007, p < .05. Therefore, it can be reported that there is a significant difference in the test anxiety of male and female students studying at university level and female students have higher level of test anxiety than male students.

Table VI

Levels of Study Wise Difference in Test Anxiety of Male Students

level of study	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
				F	Sig.	t	df	Sig.
College	100	3.0090	.62540					
University	100	2.5970	.64251	.021	.884	4.510	198	.000

Table VI shows examination of test anxiety among male students of both strata shows that Levene's test is insignificant because p > .05. So, by considering equal variance assumed results reflected that on average college students have higher level of test anxiety (M = 3.0090, SD = .62540) as compared to university students (M = 2.5970, SD = .64251). Moreover, the difference is found significant at t (198) = 4.510, p < .05. Therefore, it can be reported that there is significant difference in the test anxiety levels of male students studying at college and university level moreover college students experienced higher levels of test anxiety than university students.

Table VII

Levels of Study Wise Difference in Test Anxiety of Female Students

level of study	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
College	100	3.2280	.78780	F	Sig.	T	df	Sig.
University	100	2.9910	.74442	.497	.482	2.187	198	.030

Table VII shows examination of test anxiety among female students of both strata shows that Levene's test is insignificant because p > .05. So, by considering equal variance assumed results reflected that on average college level female students have higher level of test anxiety (M = 3.2280, SD = .78780) as compared to university level female students (M = 2.9910, SD = .74442). Moreover, the difference is found significant at t (198) = 2.187, p < .05. Therefore, it can be reported that there is significant difference in the test anxiety levels of female students studying at college and university level moreover female students studying at college level experienced higher levels of test anxiety than university students.

Discussion

The present study depicts that on average 16.8% students of study's sample studying at higher secondary and tertiary level have high test anxiety while about 27.8% students have moderately high test anxiety that is alarming. Further, the study proceeds with two study hypotheses to test; first hypothesis of the study was accepted due to the significant results of t-tests. The present study revealed that there is significant difference in the test anxiety due to levels of study, the result is in line with the previous international studies conducted on different levels of education that revealed significant little difference in the levels of test anxiety (Aydin, 2017; Chapell et al., 2005), due to the fact that older subjects show less signs of worry and anxiety than younger subjects as they mature (Aydin, 2017; Dordi Nejad et al., 2011). While, contradictory with some that had reported no significant difference (Bodas, Ollendick, & Sovani, 2008; Kumari & Jain, 2014; Rezazadeh & Tavakoli, 2009). However, in present study it was found that college student have higher level of test anxiety than university level. Therefore, this phenomenon needs greater consideration to be discussed.

The probable justification for such results may be the difference in high-stake testing situation at these levels. Additionally, parents and teachers also create do-or-die situation for student to achieve better grades which provoke worry and anxiety (Putwain, Woods, & Symes, 2010) because, exams are considered as gateway for higher education (Bodas et al., 2008). In fact, higher secondary level in Pakistan is a time in which students have to enter in specific discipline to choose future career and exams are conducted by external bodies i.e. BISEs. Moreover, attaining utmost marks ensure the entrance into quality reputed university and better career prospects (Bodas et al.,

2008). While, at university level students have already entered in their desired disciplines and institutes. Furthermore in Pakistan, colleges and universities follow two different types of assessment systems, annual and semester. Colleges follow annual system and exams are held by the BISEs once a year in which whole course is included and assessment is based on one set of final exams. Therefore, such yearly based system put great burden on students to perform well in the single set of exams (Yousaf & Hashim, 2012).

In contrast, semester system is considered as better system of examination that allows students greater autonomy to learn in more effective way (Fardows, Nayer, Nayer, & Yousuf, 2016; Mehmood, Abdullah, Zaman, & Ali, 2014). Moreover, at university level assessment is carried out on the basis of quizzes, assignments and presentations and exams twice a semester. That may be another important factor of low level of anxiety among university students because familiarity (Dordi Nejad et al., 2011; Gardiner & Howlett, 2016) and frequency (Moravec, Štěpánek, & Valenta, 2015) of the test taking is an effective technique to reduce anxiety. If, the anxious person exposed to anxiety inducing object number of times they will automatically desensitized with the anxiety inducing object such is the case with test anxious subject (Bloom & Segal, 1977; Garlington & Cotler, 1968).

While, other probable justification for lower test anxiety among university students may be their acquired cognition of more effective test taking skills because students with effective study skills experience less anxiety in test taking situations (Numan & Hasan, 2017). Moreover, skill deficit model also advocates that test anxious students lack either study or test taking skill (Tobias, 1985). Furthermore, high level of maturity, experience and stress coping strategies may also be resulted in the acquired differences among university students.

Further, on the basis of results the second hypothesis of the study was accepted because, results on the gender difference was found significant and in line with various national (Eman et al., 2012; Numan & Hasan, 2017) and international studies (Núñez-Peña, Suárez-Pellicioni, & Bono, 2016; Sung, Chao, & Tseng, 2016; Gürses, Kaya, Doğar, Günes, & Yolcu, 2010; Kurt et al., 2014). Whereas, contrary with few studies that had reported no significant gender differences in test anxiety (Cassady & Johnson, 2002; Chukwuorji & Nwonyi, 2015; Fiore, 2003). Moreover, level of study wise comparisons also revealed the fact that at both study levels (college and university) female students have reported greater anxiety than males. Moreover, it is also interesting to know that female students studying at college level exhibit higher level of test anxiety than female students of university level. The probable justification for such results from the literature may be due to the reason that being anxious is a feministic characteristic (Mohammadyari, 2012; Deaux, 1977) and females are neurotic by nature (Schmitt, Realo, Voracek, & Allik, 2008). Various studies revealed that females usually have higher levels of emotionality (Kurt et al., 2014, Zeidner, 1998; Zeidner, 1990) and worry than males (Hosseini & Khazali, 2013). But difference in the reports of levels of anxiety may

be due the worry component because female usually overestimate their fear or worry (Cassady & Johnson, 2002) and relate their exam performance with their self-worth. As, various studies revealed that female students considered exams as a threat to their self-esteem (Alam, 2013; Sarı et al., 2018; Zeidner, 1998) and usually have low perceived self-efficacy (Arch, 1987; Robins, 1986).

Another reason for such results may be the difference in the interpretations of anxiety between genders, the evidence on the experience of exams anxiety can be seen in studies that are conducted at children that depict small variance in their interpretation and self-report in test anxiety (Aydin, 2017; Rhine & Spaner, 1983). But various socio-cultural practices in all over the world including Pakistan allow females to be more expressive and communicative to exhibit their emotions while males to suppress their emotions and represent themselves as brave due to the threat to their masculinity (Di Maria & Di Nuovo, 1990). Such results depict that both genders may experience test anxiety at same levels but the difference may be due to their social role and desirability biases in culture to admit and face the anxiety. So, such difference in gender wise comparisons needs to be investigated along with the socio-cultural factors of the country.

Conclusion, Implications and limitations

For the present study two study hypotheses were generated. First, there is significant difference between test anxiety of college and university level students, and college level students have higher test anxiety than university students that was accepted and it was concluded that, levels of study significantly contribute to test anxiety and students at higher level of study have experience less levels of test anxiety. Second, there is significant difference in test anxiety between male and female students, with higher degree of test anxiety among female students that was also accepted therefore, it is concluded that female students have higher levels of test anxiety than male students. Therefore, it is concluded that test anxiety is a universal phenomenon, with higher levels of test anxiety among female students on each level of study and lower level of test anxiety at higher degree levels. Moreover, it is concluded that test anxiety is relatively stable phenomenon across gender and nations.

Important implications of the study subjected are; first of all present study was conducted to compare two sectors of education that are comparatively different due to high stake testing, college (higher secondary) and university level, that were given less attention in previous literature. As, most of the previous studies were usually compare same sector of education such as within school years students (primary and middle/elementary level students; Aydin, 2017 and middle and high; Bodas et al., 2008), school and college (secondary and higher secondary level; Bagana, Raciu, & Lupu, 2011), and university level students (freshman, sophomores, juniors and seniors (Rezazadeh & Tavakoli, 2009) or graduate and post-graduate (Chapell et al., 2005). Secondly, in Pakistan these two sectors have drastic differences in terms of high-stake testing, academic environment and assessment systems that give more value to

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research by investigating and comparing the test anxiety differences in these sectors. Moreover, 73% students of present study reported test anxiety level above the cutoff score of the scale given by the author of the scale and can be benefited with anxiety reducing interventions. In addition, the results of the study revealed that college level students have greater test anxiety than university level students in overall and gender wise comparison that needs to seek attention of government, policy makers and educationists to pay more attention to college level students and initiate remedial interventions. However, the study depicts the same internationally evident pattern in gender difference that means test anxiety among female in Pakistani context is a stable phenomenon and female students need greater attention.

Whereas, major limitation of the study is the inability of researchers to control the variability in the academic environment of both sectors that is in fact an important aspect of individual differences in anxiety and performance. As, in Pakistan at college level, male and female students have separate institutions to study and their academic environment is different from each other while at tertiary level most of the universities offer coeducation. Therefore, intensity of test anxiety and factors that cause test anxiety among students can be different for each sector. So, factors related to academic environment of each sector need to be explored separately, to offer different interventions for each sector with due consideration to female students. Though, for future research it can be possible to handle these issues by including semi government and private colleges that offer coeducation to attain uniformity in data.

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