Test Anxiety among Students of Pure Science and Social Science

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Abstract

The purpose of study was to find out the difference in the level of test anxiety among students of pure science and social science. Purposive sampling strategy was used to collect data. Sample size was 200 (100 from social science and 100 from pure science subjects) and data was collected from student of 8th semester, Government College University Lahore. Age range was 21 – 24. The result of this study supported the idea that students of pure science encounters significantly higher level of test anxiety than students of social science. Females face more test anxiety than males. The study will help to explore the degree of test anxiety experienced by students of different subjects and it will help clinical psychologists to develop better treatment to treat test anxiety. Further results have been discussed in the light of Pakistani context.

Keywords: Test Anxiety, Pure science, Social science, sleep duration, CGPA

1. Introduction

Test anxiety is one of the major problems among students and it is also thought to be one of the biggest hurdles in achieving good grades. Whenever students take some test, they encounter some level of anxiety, which decreases their performance. Students of Pure science subjects have to deal more with numerical values than the students of social science subjects. Hence former may suffer from high anxiety than later. The purpose of study was to find out the difference in level of test anxiety among students of pure science and social science.

Anxiety is a state of mood, concerned with future, in which individual prepares itself to deal with forthcoming problems (Barlow, 2000). Broadly speaking, anxiety is a sensation of fused fear and trepidation about upcoming events while there is no particular reason for this fear (Chaplin, 1989). Word anxiety means to annoy or problem, it doesn't matter that any psychological problem is present or not, anxiety makes one to feel agonize, bothered and stressed (Bouras & Holt, 2007). It is a psychosomatic state in which somatic, behavioral, emotional and cognitive factors are involved (Seligman, Walker & Rosenhan, 2001).

Test anxiety is the Psychological condition of brain of a contestant as articulated by the degree of concern, dread, ambiguity, distress and vulnerability shown before taking an exam, during taking an exam or even after an exam (Olatoye and Afuwape, 2003). Test anxiety is a trepidation that comes about when subject comes across exam at any stage in any shape (Spielberger, 1980). Test anxiety is a particular state of affairs related to individual and it has two components: emotion and worriness (Sarason & Sarason, 1990). Furthermore, test anxiety is a precise occurrence in which objective is a quantitative sort of examination and in which matter of concern is a dread of giving poor performance (Chaplin, 1989).

Test anxiety is comprised of three main factors: cognitive, affective and behavioral. Students who suffer with test anxiety due to cognition component are deficient in self confidence (Sarason & Sarason, 1990). In addition, they conceptualize themselves as helpless individual while taking a test (Zeidner, 1998). Students who encounter test anxiety due to affective component suffer somatic reactions for instance increased heart beat, feeling disgusted, recurrent urination, augmented perspiration, icy hands and muscle contraction (Zeidner, 1998). There are also students who suffer test anxiety due to behavioral component. A fraction of students have inadequate study skills and in adequate exam taking skills Zeidner (1998). .

A good number of researches explore different methods to cope with test anxiety and they tell about methods to reduce level of test anxiety (Ergene, 2003).There are four methods to cope with test anxiety, Behavioral approach, Cognitive approach, Cognitive behavioral approach and Skill deficit approach (Beck, Emery & Greenberg, 1996; Jones and Petruzzi, 1995; Kondo & Gifu, 1997)

2. Literature Review

Test anxiety decreases academic performance. There is negative relationship between test anxiety and academic

performance (DordiNejad, 2011). High achievers experience lower levels of test anxiety and low achievers experience high levels of test anxiety (Khalid & Hasan, 2009). There is a significant relationship between increased test anxiety and lower performance (Gaudry & Spielberger, 1971). A fraction of researches also explored that there is no relation in test anxiety and academic performance (Rouxel, 2000).

Students perform poor in public examinations in science subjects (Salim, 2000). When students are suppose to indulge in numerical sort of questions, they encounter test anxiety. In science subjects numerical answers are more likely to be required hence can be a cause of poor performance in public examinations in science subjects. (Dew, Galassi & Galassi, 1984).

Generally students in meticulous academic subjects feel more anxiousness than in humanities. Physical science students have highest level of test anxiety when compared with Mathematics, English and other humanities (Evarson, 1993).

There are highly significant gender differences in test anxiety (D'Ailly & Bergering, 1991). Female students have high level of test anxiety than male students. Females suffer more test anxiety than males (di Maria & di Nuovo, 1990). One of the reasons of this gender difference is different social roles and expectations of male and female students (Silvestri, 1986).

Other researches indicate that there is no gender difference in test anxiety (Everson & Millsap, 1991; Mwamwenda, 1993; Payne, Smith & Payne, 1984; Rhone, 1986; Sowa & LaFleur, 1986; Zoller & Ben-Chaim, 1990). Long duration of sleep decreases level of test anxiety and short sleep duration increases level of test anxiety (Hicks, Pellegrini & Hawkins, 1979). Socio-economic status is a strong predictor of test anxiety (Putwain, 2007). Another psychologist claims the opposite; socio-economic status has nothing to do with test anxiety (von der Embse, 2008).

3. Objectives

- To investigate difference of test anxiety in pure science and social science students
- To investigate gender differences in test anxiety
- To investigate effect of study habits (daily study hours, sleep duration) on level of test anxiety
- To investigate effect of sleep on level of test anxiety
- To investigate effect of socio-economic status of students on level of test anxiety

4. Hypotheses

- Students of pure science and social science will differ significantly in term of their level of test anxiety.
- There will be significant gender differences in test anxiety level.
- Study habits like daily study hours and study duration in exams will be strong predictor of test anxiety.
- Sleep duration during exams and normal sleep cycle will be strong predictor of test anxiety.
- Socio-economic status of students will be a predictor of test anxiety.

5. Methodology

5.1 Sample

Sample was selected through purposive sampling technique and was consisted of 100 students of social science (25 from statistics, 25 from English literature, 25 from Psychology, 13 from Arabic and 12 from Persian) and 100 students of pure science (25 from Chemistry, 25 from Physics, 25 from Mathematics and 25 from Biotechnology) of 8th semester of GCU Lahore. The age range of students was between 21-24 years.

5.2 Instrument

Test Anxiety Inventory was used in the research to assess the level of test anxiety in social science and pure science students. Test Anxiety Inventory is used to assess two components of test anxiety: emotionality and worry. It consists of 20 items which are further divided into two subscales by using method of factor analysis. 4 point likert scale is used for scoring. The two subscales include:

A – Worry

B – Emotionality

5.3 Procedure

The data was collected from Government College University Lahore. Questionnaires were distributed to students in classes of social science i.e. Psychology, Islamic Studies, Statistics, Persian and English Literature and in classes of pure science i.e. Physics, Chemistry, Mathematics and Biotechnology. Purposive sampling technique was used for the selection of sample. The students were requested to fill all the items carefully. After collection of data it was statistically analyzed.

6. Empirical Results

Results has presented empirically and graphically using statistical software. Mainly, t-test and regression has applied. Bar Chart has utilized to show results of this study graphically.

Chart no. 1: Gender Differences in Test Anxiety of Pure Science and Social Science Students
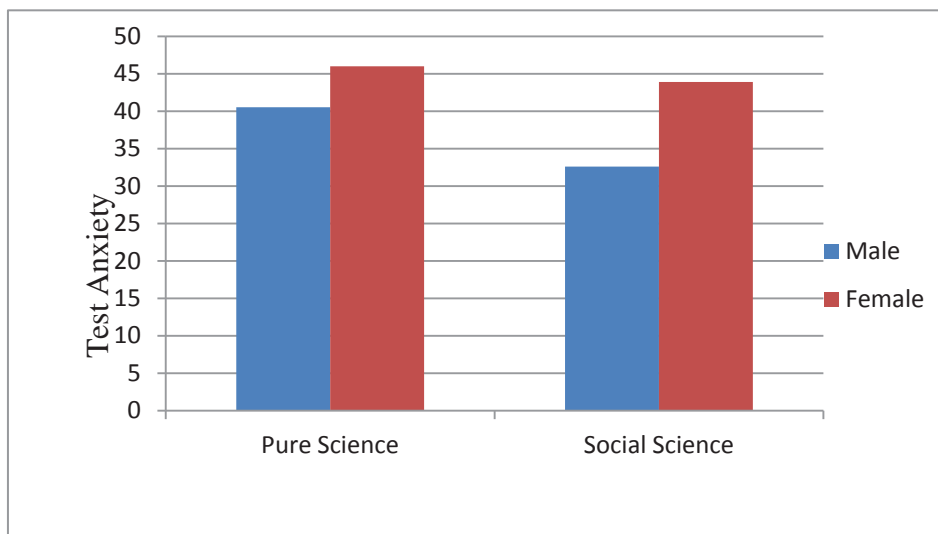

Chart no.1 shows that there is a significant gender differences in the level of test anxiety among social science and pure science students. Females have a higher level of test anxiety than males.

Table no. 1: t-value of Test Anxiety for Social Science and Pure Science Students

Variable	N	M	SD	T
Group				
Pure Science	100	43.37	11.153	
				2.451
Social Science	100	39.54	11.940	

df= 198, p<.05

Table no. 1 shows that there is a significant difference (t=2.366, *p*<.05) in the level of test anxiety among social science and pure science students.

Table no. 2: t-value of test anxiety for male and female students

Variable	N	M	SD	T
Group				
male	56	35.57	11.403	
				-4.900
female	144	43.74	10.260	

df= 198, p<.05

Table 3.2 shows that there is a significant gender difference (t=-4.866, *p*<.05) in the level of test anxiety.

Table no. 3: Correlation Matrices for the Demographic Information

	Test Anxiety
CGPA	-.011**
Daily Study Hours	.052
Study Hours During Exams	-.024
Casual Sleep Duration	-.078
Sleep Duration During Exams	-1.79**
Socio-economic Status	-0.65

$** p < .001$

Table no. 3 indicates that there is a significant negative correlation between Test Anxiety and CGPA. There is no significant relation of daily study hours, study hours during exams, casual sleep duration and socio-economic status with test anxiety. Sleep duration during exams has a significant negative relationship with test anxiety.

Table no. 4: Regression for student's test anxiety level and CGPA

ANOVA^b

	df	Mean Sq.	F	Sig.
Regression	1	1128.689	9.402	0.002^a
Residual	198	120.045		
Total	199			

    a.   Predictors: (constant), CGPA
    b.   Dependent variable, Test Anxiety

Table no. 4 shows that CGPA is a strong predictor ($p<.05$) of test anxiety.

Table no. 5: Regression for student's test anxiety level and sleep duration during exams

ANOVA^b

	df	Mean Sq.	F	Sig.
Regression	1	1061.001	8.813	0.003^a
Residual	198	120.387		
Total	199			

    a.   Predictors: (constant), sleep duration during exams
    b.   Dependent variable test anxiety

Table no. 5 shows that sleep duration during exams is a strong predictor ($p<.05$) of test anxiety.

7. Discussions

The present study aimed to explore differences of test anxiety in social science and pure science students. Moreover, relation of test anxiety with different demographic information was also found. Results indicated that there was significant difference of test anxiety in social science and pure science students. Results also revealed some gender differences in test anxiety. It is also concluded that high achievers encounter less test anxiety and low achievers suffers more test anxiety. Correlation showed that there was no relation of test anxiety and study habits. Sleep duration is found to be a strong predictor of test anxiety.

First objective was to compare anxiety level of pure science and social science students. The result of independent t-test showed that there is a significant difference among students of social science and pure science

students. Pure science students experience higher level of test anxiety than students of social science. It is more likely that in pure science, students deal more with numerical sort of tests than in social science and this can be one of the reasons of this high level of test anxiety. As Rouxel revealed that it is not degree of preparation for the test but category of subject which accounts for different levels of test anxiety (Rouxel, 2000).

Another study conducted by Everson and his fellows in 1993 provides more empirical support for the claim and supports the findings of current research that the students from science back ground suffer more due to test anxiety than students from humanities back ground. They compared levels of test anxiety in students of English, mathematics, physical science and social science. Test anxiety scores and perceptions of subject matter difficulty correlated, independently of the particular subject and the test demands. Analysis of covariance indicated that physical sciences elicited the highest levels of self reported evaluative anxiety, after controlling for perceptions of difficulty and test demands (Everson, Tobias, Hartman, & Gourgey, 1993).

Second objective was to find out gender differences in test anxiety. The result of independent t-test showed that there is a significant difference in test anxiety among male and female students. Though my sample was not uniform in term of gender (female= 149, male=51), because in GCU they have less ratio of males than females, but results revealed highly significant gender differences in test anxiety. Females suffer more test anxiety than males. Silvestri found an interesting logic for this low level of test anxiety in females. He says that society demands different roles from males and females. And it is the expectations of society from females which cause high level of anxiety in them (Silvestri, 1986).

Finding of di Maria and di Nuovo also supports the results. They conducted a research, gender differences in social and test anxiety, and found that females suffer more test anxiety than male students and they also correlated emotion and worry component with gender and concluded that emotion component is responsible for high level of test anxiety in female students (di Maria & di Nuovo, 1990). Added to this, there are number of other researches which indicate that females have significantly high level of test anxiety (Everson & Millsap, 1991; Turner, 1985; Williams, 1994).

Third hypothesis says that Study habits like daily study hours and study duration in exams will be a strong predictor of test anxiety. Bruice C. Matier, by using Alpert-Hyber Anxiety Test (+AAT) found out that students with effective study habits encounter low levels of test anxiety and students with un-effective study habits suffer with high levels of test anxiety (Bruice *et al*, 1972). The results of Bivariate Correlation showed that there is no relation of study habits and test anxiety. It does not matter for test anxiety that whether a student studies with a regular schedule the whole year or studies all 12 hours during exams. Test anxiety has nothing to do with study schedule of a student.

Most of the previous researches do not support this finding. Majority of them claims that study habits have a significant effect on level of test anxiety. Donna and Timothy gave so importance to study habits that they categorized test anxious students on the basis of their study habits (Mealey & Host, 1992). One of the reasons of these contradictory results might be a significantly different study culture of GCU Lahore. As data was only collected from GCU students of BSc Honors 4th year, and here in GCU students go through a testing situation around the clock. Especially in 4th year students are supposed to conduct a research and submit a thesis along with their course work. Of course quizzes, assignments and different reports comprised of practical work of weeks are always here. So it is assumed that the whole year, round the clock students are in testing situation, hence having no particular effect of exams.

Fourth hypothesis says that sleep duration during exams and normal sleep cycle would be predictor of test anxiety. The results of Bivariate Correlation showed that there is a significant relation of test anxiety and sleep duration during exams and there is no significant relation of test anxiety and normal sleep cycle. No matter one sleeps 6 hours a day or 12 hours a day in casual routine. But during exams, it matters. One with less sleep during examination will suffer with high level of test anxiety and one with more sleep will encounter with low level of test anxiety. Previous researches support this claim. Hicks and his fellows researched test anxiety of long and short sleeping college students and found that short sleeping college students were more test anxious than long sleeping college students. However their research was not specified to sleep duration during exams or in casual routine (Hicks et al., 1979).

Fifth hypothesis says that socio-economic status of students will be a predictor of test anxiety. The results of Bivariate Correlation showed that there was no significant relation of socio-economic status and test anxiety. It does not matter in terms of levels of test anxiety that a student belongs to higher socio-economic class, middle socio-economic class or low socio-economic class. Some of the recent researches support this finding.

Nathaniel Paul von der Embse explored that there is no relation of Social Economic Status (SES) with test

anxiety (von der Embse, 2008). However a plethora of researches are contradictory to this finding. Putwain found socio-economic status as a strong predictor of test anxiety in a large sample of students drawn from UK (Putwain, 2007). This contradiction might be due to non-uniformity of this research sample (higher socio economic class = 48, middle socio economic class = 137, low socio economic class = 15). It seems that sample was not representative in case of economic class. One of the reasons of this non-uniformity of sample might be a special class of our society which seeks admission in GCU Lahore. Most of the students are from higher class or middle class and less students are from lower class.

Last hypothesis says that there will be a significant correlation among test anxiety and low achievers and high achievers. The results of Bivariate Correlation showed that there is a significant relation of test anxiety and high achievers and low achievers. A good number of recent researches support my findings. Ruhi Khalid and Syeda Salma Hassan found that high achievers experience lower levels of test anxiety and low achievers experience high levels of test anxiety (Ruhi Khalid & Salma Hassan, 2009). Gaudry and Spielberger also came out with the same results. They say that there is a correlation between low performance and high level of test anxiety. There seems to be a correlation between increased test anxiety and lower performance (Gaudry & Spielberger, 1971). Mwamwenda's findings also support these results. He carried out his research on students of South African University. He concluded that there is no significant effect of preparation of a test on level of anxiety of an individual. Performance of highly anxious students was poor and less anxious students show good performance (Mwamwenda, 1994). Hurren has also investigated the same. He says that individuals who score high on test anxiety scales, scores low on examinations and vice versa (Hurren, 2006).

However, there are also some contradictory findings as well. Rouxel explored that test anxiety has no significant effect on level of achievement of a student. (Rouxel, 2000). Another research claims that there is a weak relation of test anxiety and students' grades (Horwitz, 1986).

Keeping in view all these complex and controversial findings of different researchers and psychologists, we need more exploration in the field of test anxiety. We need to know actual cause of test anxiety and the contribution of other factors like gender, age and other study habits in it, so that we may help students to cope their test anxiety.

8. Conclusion

It is concluded that Test anxiety is one of the major problems among students and it is also thought to be one of the biggest hurdles in achieving good grades. Test anxiety is the focus of many researchers, who worked a lot in this field. The results of this study discussed that students of pure science and social science differ significantly in term of their level of test anxiety. There are significant gender differences in test anxiety level. Moreover, Study habits like daily study hours and study duration in exams have no relation with test anxiety. Sleep duration during exams and normal sleep cycle have a significant relation with test anxiety. Lastly, Socio-economic status of students has no relationship with of test anxiety.

9. Limitations

Some limitations did not permit the investigation of many aspects that could be of great value.

- The sample size was comparatively small (N = 200). Size of sample for some subjects was too small to be representative like for Islamic Studies n = 13 and for Persian n = 12. Reason for this small size was less number of students in these subjects.
- The sample was restricted to the students of GCU only. So it is not possible to generalize these findings. The data may be collected from the whole country for the sake of generalize the results.
- As all data is from GCU Lahore, and only a specific socio-economic class is able to seek admission in GCU Lahore. Most of the students belong to higher class and middle class. Results may differ if we conduct this test on lower socio-economic class.
- A reason for no significant result in study habits and test anxiety may be culture of GCU Lahore. Here students have to study whole year on regular basis due to semester system and due to assessment of students after regular intervals.

10. Suggestions

- An increment in sample size will be helpful to rule out many limitations.
- Collection of data from different universities and colleges will help to generalize the findings.

11. Implications

- Study suggests that pure science is one of the root causes of test anxiety. Students can be facilitated by altering the test pattern from highly numerical and technical to descriptive and subjective.
- Females have high test anxiety than males. Research indicated that they can help themselves by keeping themselves emotionally stable.
- Sleep duration in exams is a strong predictor of test anxiety. Hence students can help themselves by increasing their sleep duration in exams.
- Low achievement level is another cause of test anxiety. Students can be helped by lowering the pressure of low achievement.

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