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Research Paper

A Study of Gender Differences in Test Anxiety Among Students Appeared in Board Exams in India

Jageshwar Ray[1]*, Anisha Negi[2]

ABSTRACT

The present study was conducted to assess the gender differences in test anxiety among the students of the India appearing in board exams. Here in this study 101 students from secondary and senior secondary level took participation. Test anxiety scale developed by Nist & Diehl was applied on this sample size. Null hypothesis were used in this study to compare the means of this difference. Comparative research designed were used and t-test was applied for statistical analysis of the raw data and the research findings clearly suggests that both the class 10th and 12th students suffer from exam anxiety, particularly girls reported higher anxiety levels. In this present study t-value is greater than the critical value 3.5469 > 0.0006 with 99 degree of freedom and 0.01 level of significance. Exam anxiety is a critical problem that affects the majority of students appearing in board exams. In particular, Board exams in India have a prominent role in career making and life making that's why students across the northern part of country showed higher test anxiety. Several possible solutions to the problems caused by academic pressure are suggested in this study.

Keywords: *Test anxiety, Board exams, Gender differences, Female issues, Education, career*

As we are moving towards capitalism, we can see the rise of materialistic society. Nowadays, people make friends and associations based on their hierarchical positions in the society. Wealth and status are important components to move up in this hierarchical ladder. Wealth and status can be achieved through two means. One is ascribed that is inheriting by birth, but India as a country is full of middle-class section, so here, the second option rolls in: the need to have a good education, ample of degrees and a successful career to have a satisfactory position in society. That's why parents pressurize their children to go for courses like medicine, engineering, law, charted accountancy etc. To get into these courses students need to score really high in their 12th board exams. In India, there are two board exams -for class 10th (secondary exam) for class 12th (senior secondary or intermediate exam). Advantages and disadvantages of good exam score in 10th board exam are: 1) Getting your preferred streams that is science, commerce and humanities. 2) They also get the motivation to start preparing for exams like NEET, JEE, UPSE, IIT etc. Disadvantage could be 1) Students after scoring well in science opts for science stream and then later regret their choice. 2) They also might not be able to perform as per their own and

[1]School of liberal Arts, Uttaranchal University, Dehradun, India
[2]School of liberal Arts, Uttaranchal University, Dehradun, India
*Corresponding Author

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their parents expectations and sink into various mental issues. 12th board exam scores are also very important for any student because good and high scores are a ticket to good, old and prestigious government universities. Well, it has been a popular belief that a piece of paper cannot decide your future but the education system works contrary to this popular opinion. School marks are considered as one of the most important parameter to get into dream universities. Thus, students need to understand that no matter what, academic plays an important role in career making.(Germeijs et al., 2012)

In a collectivist society, like India, students need to score good not only to get into their dream university but also to prove their worth to their parents, relatives and society. Parents pressurize their child because they want to show their friends and relatives how good their child has scored in the board examination. This constant tension and fear to score high creates test anxiety among students appearing in board exams. (Dawood, 2016)

The objective of this research is to examine the gender differences in the level of exam anxiety among students appearing in board examination at both secondary (10th) and senior secondary (12th) level.

In our study, Exam anxiety refers to the mixture of physical, cognitive symptoms and emotional responses that get in the way of a student's ability to perform well on exams.

Symptoms of Test Anxiety

Anyone suffering from test anxiety can show physical, emotional and behavioral symptoms(Chung & Chen, 2020). Physical symptoms include nausea, shortness of breath, racing heart, diarrhea, etc. Emotional symptoms include stress, fear, helplessness, negative thoughts, black state of mind, racing thoughts etc. Behavioral symptoms include difficulty in concentration, comparing you with others, avoiding test situations etc (Qin et al., 2021).

Causes of Test Anxiety

There can be several reasons for a person to suffer from test anxiety including failure, fear of getting low scores or just passing marks, lack of preparation, pressure from parents and society, perfectionism etc. Another reason could be Corona virus pandemic. This pandemic took away lives of many near and dear ones. The whole scenario created a situation of chaos and tension not only in the lives of general population but also students. Students were left with the only option to attend online classes which affected their learning. Within the span of 2 years period, student tendency to attend offline classes and offline exams had also declined (Bączek et al., 2021; Mridul et al., 2021). This research article is significant as this corona virus pandemic had brought a lot of changes in education system. Due to lockdowns, the whole economy was on a shutdown phase and so the education sector was (Yamali & Putri, 2020). Schools and Universities were switched towards the online mode. When things have relaxed a bit and government agreed for offline classes and exams, students were protesting. They protested against offline exams because the classes they attended were online. Sudden offline exams after almost 2 years had created too much pressure and stress on students. Now consider what a student of 10th or 12th standard had been gone through. These two grades are considered to be the most important step in future career paths (Chileshe & Haupt, 2010). So, no doubt they had finding themselves stuck in an anxious cycle. Exams and anxiety go hand in hand. Even if the preparation for the exams is not up to the mark, students get anxious because they wish for excellence. This culture of excellence forces some students to commit suicides even before taking exams because of continuous stress cycle (Teja et al., 2018).

Test anxiety leads to poor performance and failure and can built a tendency to attempt suicide (Yaylaci, 2015). Even if the student has done full preparation, test anxiety can affect their performance. When the results are not up to their expectations, there have been instances where students get mentally disturbed. This can happen because of various factors ranging from own expectations, peer pressure or jealousy. All these contribute to suicidal thoughts and in attempting suicide (Ambhaikar, 2018; "Suicidal Behaviour in Adolescents," 2011).

Board exam gives so much pressure to students in India which make them go through a lot of stress and anxiety.

In our study, Gender difference refers to the differences between male and female, differences in their abilities and in their behavior and roles which are decided by society. The objective of this research was to check the gender differences in the level of exam anxiety.

In a research Williams JE. (1996) conducted a study on 103 class 10^{th} students. This study was done to check 2 components of test anxiety- cognitive and emotional. Research findings suggest that test anxiety was found in students due to poor science performance and particularly girls showed higher anxiety than boys. Also, female participants reported lower worry than emotionality (Williams, 1996).

In another findings of Nasser F., Takashashi T& Benson J. (1997) they investigated the levels of test anxiety among 10^{th} class students using the Arabic version of Sarason's test anxiety scale. The test was done on 226 girls and 195 boys before they were going to give a math test. Results proved that female student shows greater level of test anxiety (Nasser et al., 1997).

Bhansali R and Trivedi K. (2008) conducted a comparison research between males and females to find the academic anxiety among them. The research was done to find out the gender differences in occurrences and strength of Academic Anxiety amongst students. They used Incidental purposive sampling technique. 240 students, 120 males and 120 females from various secondary schools of Jodhpur city were chosen as sample. The Results proved that significant amount of Academic Anxiety prevailed amongst the sample. Female participants showed more occurrences and strength of educational anxiety as compared to male participants (Bhansali & Trivedi, 2008).

We conducted this study to assess these several factors in gender difference. As mentioned above, these research showed higher academic and test anxiety in female participants. Hence, we conducted this research in the Indian region and among the board students to understand the various factors along with Covid-19 and lockdown situations in the current scenario. Do all these results continue in the present time? Or have they changed due to the twenty-first century's social, cultural, political and economic transformation of women? Do cultural, economic and social values play a role in test anxiety? We verified and analysed those all factors in this research.

The purpose of the study was not only to compare the boys and girls in test anxiety but to study and examine all those factors in Indian region that tells what relation is causing these results. Why students face test anxiety and how it can affect someone's mental and educational health we studied in this study.

METHOD

Sample

Sample was drawn from the population. 105 students participated in this study. 40 males and 65 females took the test anxiety test. From class 12th (22) male students and (43) female students took the test and from class 10th (18) male students and (22) female students participated in this study. Sample was drawn from different states and cities such as Uttarakhand, Uttar Pradesh, Delhi, Lucknow, and Haryana. Sample structure of the present study have shown in the figure 1.

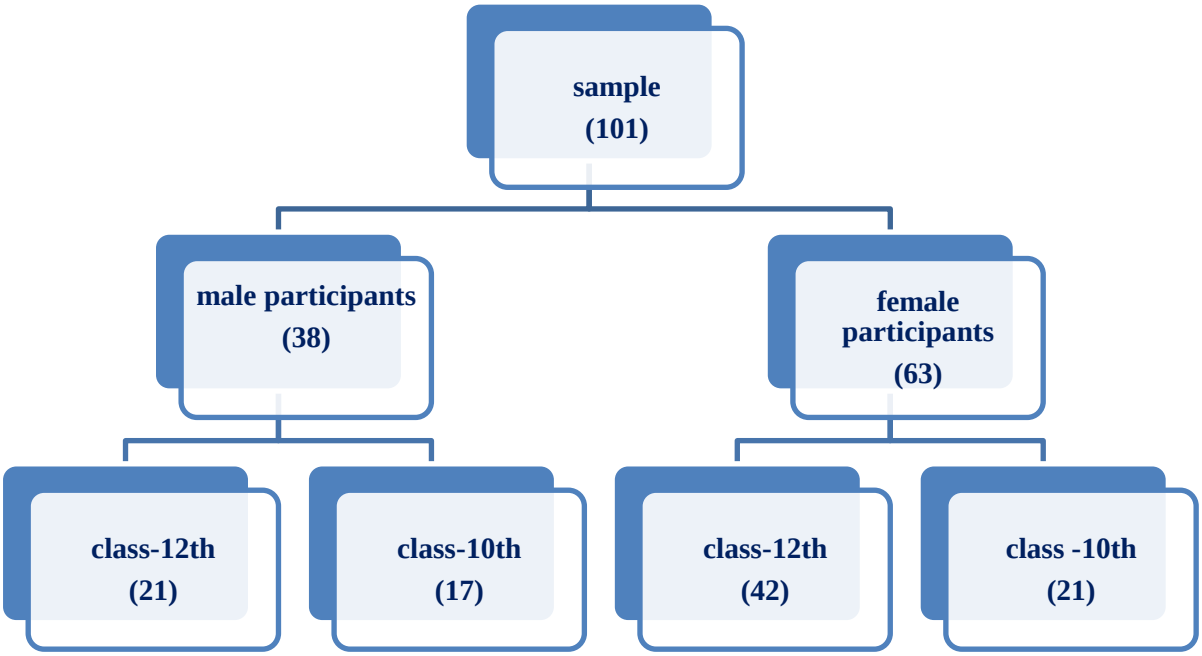

Figure 1- Sample Structure

Measures

Test anxiety questionnaire used in the present study was developed by (Nist & Diehl) in 1990 (Duraku, 2017). It is a short questionnaire for determining if a student has mild or severe cases of test anxiety. It consists of 10 questions and answers of each question were **(5) Always (4) often (3) Sometimes (2) rarely (1) Never**. This is a self-administered test which takes few minutes to complete. Total score can be obtained after adding all the statements. Scores will range from 10-50. If a subject scores between (10- 19), it means low scores and he/she does have test anxiety. If an individual's scores lie between 20- 35, then the tension and anxiety is not harmful. Scores more than 35 shows symptoms of severe anxiety. Some sample items of this test are as follows: I panic before and during a test, etc. The test is both reliable and valid. Reliability in the original study was found to be **.95**. A **Cronbach's** alpha value was found to be **.9** as reported by Ogundokun (2011), indicating that this test has good internal consistency.

Procedure

Students of class 10th and 12th both male and female participants constitute the study population. Sample from the population is being selected and an online method of data collection is used for this research. Convenience sampling method is used for selecting the sample from the population. This sampling technique is being used because it was very easy to perform with very few rules regarding how the sample should be collected. It was cost

effective and less time consuming as any student (10^{th}/12^{th}) who filled the online Google form, were being selected to be the part of the study. Students studying in class 10^{th}/12^{th} were sent the Google form through their family, friends, classmates or relatives and were asked to fill the form and further share it with their friends. School teacher were also contacted and asked for help. Participants consent was taken and their queries were solved via email. Ethical guidelines were followed and confidentiality of the responses were maintained.

Statistical Analysis

Statistical analysis of the present study was calculated using the t-test with two tailed null hypothesis and 0.05 level of significant.

RESULT

Result table-1 display that the female students have higher mean and standard deviation from male students. Females' mean and S.D are 29.54 and 7.71. On the other hand males' mean and S.D are 24.29 and 6.26. The t-value is greater than the critical value 3.5469 > 0.0006 with 99 degree of freedom and 1.480 standard error of difference. So, there is significant difference in exam anxiety between male students and female students appearing in board exams and the null hypothesis is rejected at the significant level of 0.01

Table-1 For the difference between male students and female students

Groups	mean	N	SD	Df	SEd	t-value	Level of Significance
Male students	24.29	38	6.26	99	1.480	3.5469	Result is significant at 0.01
Female students	29.54	63	7.71				

Result table-2 display that the female students of 10^{th} board have higher mean and standard deviation from male students of 10^{th} board. Females mean and S.D are 29.81 and 7.43. On the other hand males mean and S.D are 24.24 and 6.70. The t-value is greater than the P value 2.4014 > 0.0216 with 36 degree of freedom and 2.321 standard error of difference. Therefore, the null hypothesis is rejected at 0.05 level of significance. Hence there is a significant difference in exam anxiety between class 10^{th} male students and class 10^{th} female students.

Table – 2 For the difference between male students and female students of 10^{th} board

GROUPS	M	N	SD	Df	SED	t-value	Level of significance
Male students of 10th	24.24	17	6.70	36	2.321	2.4014	Results are significant at 0.05
Female students of 10th	29.81	21	7.43				

Result table-3 display that the female students of 12^{th} Board have higher mean and standard deviation from male students of 12^{th} Board . Females mean and standard deviation are 29.40 and 7.94. On the other hand males mean and standard deviation are 24.33 and 6.05

respectively. The P-value is smaller than the t- value 2.57 < 0.0125 with 61 degree of freedom and 1.971 standard error of difference. Therefore, the null hypothesis is rejected at 0.05 level of significance. Hence there is a significant difference in exam anxiety between males and females of senior secondary level.

Table-3 For the difference between male students and female students of 12th board

GROUPS	M	N	SD	SED	df	t-value	Level of significance
Male students of 12th	24.33	21	6.05	1.971	61	2.57	statistically significant at 0.05
Female students of 12th	29.40	42	7.94				

DISCUSSION

Before any exam, practically every student has test nervousness but when it comes to board exams, the severity of anxiety and tension can affect the performance outcome. Although a small amount of anxiety is thought to help pupils stay focused and alert, extreme test anxiety has been linked to negative results. Hence, we have examined the gender differences in test anxiety levels among students appearing for board exams across Northern India, using a self-administered 10 item questionnaire developed by Nist & Diehl in 1990.

For this study, three null hypotheses have been made to check the significance of the result. H_1 was that there is no significance difference in test anxiety among males and females. H_2 was that there is significant difference in test anxiety among class 10th male and female students. H_3 was that there is no significant difference in test anxiety between class 12th male and female students. All the hypotheses have been rejected. Thus, the null hypothesis fulfilled its sole purpose of being rejected.

This test was administered on class 10th and class 12th boys and girls. Online method of data collection was used to collect the data and it was seen that female subjects took actively participation in this study as compared to male subjects. More number of responses was from class 12th female participants and male participants in comparison with class 10th students. During this study, it was also observed that it is easy to persuade girls to become research participants while males were seen irresponsible and reluctant to fill the questionnaire.

The purpose of the present study was to investigate the relationship between sex differences and test anxiety. From the researches done in the past it is seen that girls show more test anxiety as compared to boys but that does not mean that males do not experience exam anxiety. The study done by **Mary RA., et al.** on class 10th and 12th males and females to check their test anxiety levels using Westside test anxiety scale. It was evident from the research findings that students appearing for board exams had increased level of test anxiety with boys having higher exam anxiety. It was also observed that class 12th participants reported more exam anxiety as compared to class 10th students (Ann Mary et al., 2014).

Some ways to treat exam anxiety are: - To study at the same place where you are going to give exam. It is a technique which is helpful in remembering whatever you have learnt. Relaxation techniques and breathing exercises are other ways to calm your anxiety (Hill & Wigfield, 1984). Performing these techniques right before the exam will help you stay calm

and focused. Getting plenty of sleep as it is directly associated with academic performance. But if a student is suffering from severe anxiety and is unable to treat it on their own, it is advisable to seek professional help. They will help you work through your thoughts, feelings, emotions and behaviours that are the reason behind anxiety or the factors that worsen test anxiety (Aihie & Igbineweka, 2018; Orso et al., 2020; Prinz et al., 2019).

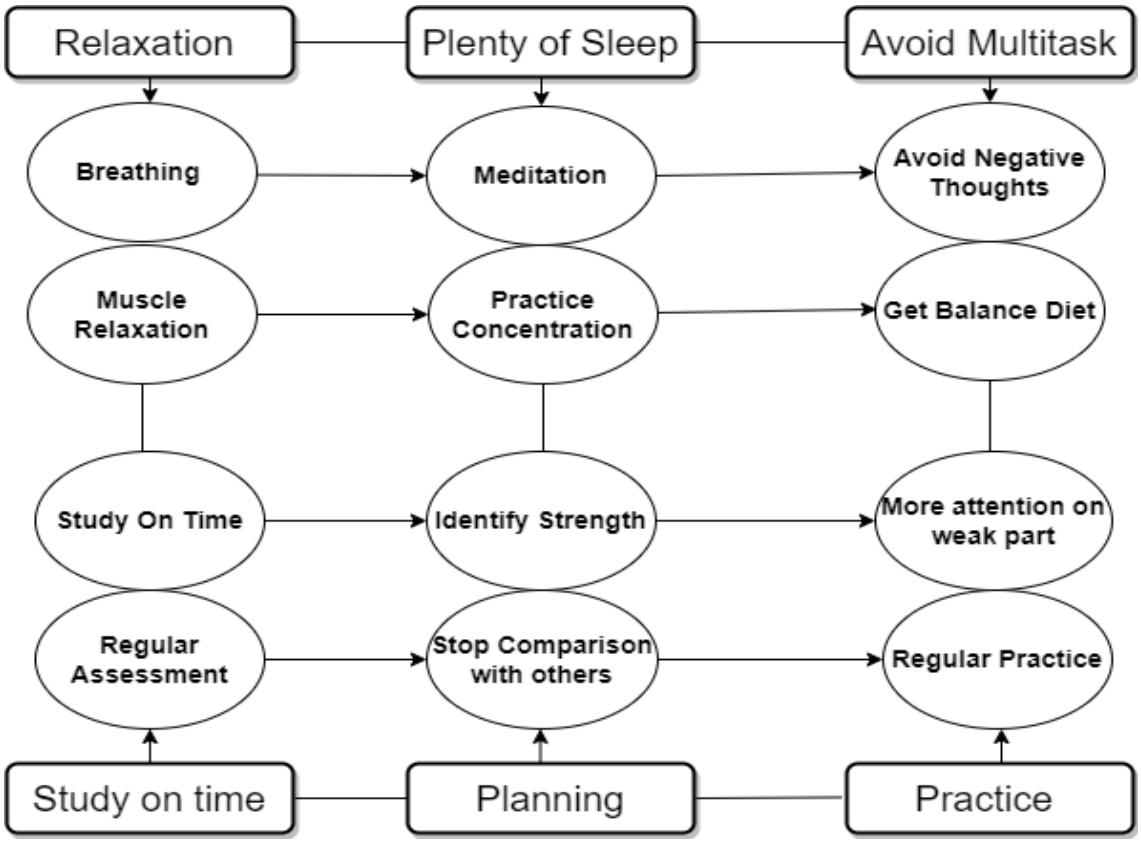

Fig- 2 Model for Reduction in Test Anxiety

The findings of the Result Table 1 suggest that there is significant difference in test anxiety between males and females appearing for board exams. It can be seen that overall females showed higher exam anxiety. Total number of females who took the exam anxiety test was 63 and males were 38. Female participants reported higher mean 29.54 and male participants showed 24.29 mean. Therefore, it is clear that the t-value is greater than the critical value and the null hypothesis is rejected at the 0.01 level of significance which means that it is extremely statistically significant with 99 % chances of it being true.

Higher exam anxiety among female participants is also supported by other studies.
In a study investigated student test anxiety related to gender and class grades. The sample comprised of twelve hundred and seventy students studying in sixth, seventh and eighth grade. The Sarason Test Anxiety questionnaire was used for measuring participant's responses. According to the research findings, it was concluded that occurrence of test anxiety are most common in females in comparison with males (Zaheri et al., 2012). This research finding is consistent with the result of our 1st hypothesis.

The findings of the result table 2 suggest that class 10th female students suffer from high level of anxiety as compared to class 10th males. It can be seen from the result table that female students' mean was higher than male students. Total number of females who

participated in this study was 21 and males were 17. As it is clear from the result table that males mean were 24.24 and females mean were 29.81 which is greater than males, a significant difference can be seen in their means and standard deviations. Thus the t- value is greater than the critical value and the null hypothesis which was made, is rejected at the 0.05 level of significance which means that the result is statistically significant with 95% chances of it being true.

In a study, on three hundred students from class 10th to explore the exam anxiety and academic performance. It was found that cognitive factors play a more important role in test anxiety than emotional factors (Alemu & Feyssa, 2020). A negative relation between exam anxiety and academic achievement was also found with female students reporting higher exam anxiety than male participants. Our study findings are consistent with this research (Lee, 2017) . Hence, it is seen that students' performance and achievement can be affected by exam anxiety but it can managed by providing training to students so that they can cope and deal with causal factors of test anxiety (Albert H.C Tsang, 2000).

It is clear from the 3rd result table that from class 12th also, female participants reported higher anxiety levels as compared to their male counterparts. 42 girls and 22 boys participated in this study. Again, females mean was more than the mean of males. The mean was calculated using the t-test. Mean of females were 29.40 and males were 24.33. A significant difference between the values can be seen. Also, the t-test value was found to be greater than the critical value which indicated, at a significance level of 0.05, the third null hypothesis is also rejected. Stating the fact that there are chances of our result to be 95% true.

In a study (Eman et al., 2012) the objective was to calculate and compare the relation between exam anxiety and stress between males and females. Hundred university students took participation in this study before their end semester exams. The result findings suggest that female participants reported higher exam anxiety as compared to males and female participants. Our results are consistent with this research.

In Indian society, exam anxiety can be seen in girls due to several reasons, one could be the need to score well otherwise their parents will marry them off at a young age. If a family has two, three or more children, their priority becomes to educate the male child and send him off to a good college. Girls are only allowed to education if their scores are really good. When girls get married at young age, they do not get enough time to prepare for their exams, thus lack of preparation causes test anxiety (Zhdanov et al., 2020). There are many cases where girls get harassed by their male teachers. But they cannot report harassment and abuse because of the fear that their teacher will fail them. There are not only girls but also boys who suffer from test anxiety. In India, boys have to perform well because the future and living of the family depends upon male child. In poor families, boys have to do part time jobs as well as manage their studies, when they are not able to perform well they get stressed and tensed which leads to anxiety. Still, males are considered as the bread winner of the family so the ultimate pressure to earn well and support the family lies on the shoulder of the boys in the family. From various perspectives we see that test anxiety can affect both the male and female in some extent. Hence test anxiety affect academic performance of both the male and female students (Alam, 2013).

The following steps are suggested based on the study's results:

- Parents of the adolescents should be educated about mental health and academic stress and given tips on how to assist their children's resilience and coping skills.
- Adolescents should get training at school on how to handle stress and anxiety.
- They can use some music relaxation before examination to avoid academic stress.

Test anxiety can be reduced by following these tips-
1) Make sure you are prepared. 2) Try to avoid negative thoughts. 3) Get enough sleep. 4) Take deep breath. 5) Avoid perfectionist trap. 6) Do not discuss answers just before the exam. 7) Do not overburden yourself. 8) Study with full concentration even if you are studying less. 9) Don't multitask. 10) Revise what you have prepared, do not start preparing new topics at the last moment (Galal et al., 2021; Krispenz et al., 2019; Rajiah & Saravanan, 2014; Rose & Lomas, 2020) .

Study limitation

An important shortcoming of this research is the size of the sample taken from the population and also the population was only limited to the northern India. It is suggested that a pilot study should be done before and after the board exam to get more accurate result regarding the test anxiety. The current study was done only on two variables. For more authentic observation and findings, socioeconomic status, culture, family conditions, etc. should also be taken into account. As the data was collected using the online mode, it is possible that participants filled the questionnaire without taking it seriously.

CONCLUSION

This study was done in order to examine the gender differences in exam anxiety levels among students appearing for board exams. According to the research findings, it is clearly evident that both class 10^{th} and 12^{th} students suffer from exam anxiety, particularly girls reported higher anxiety levels. 101 students from secondary and senior secondary level took participation in this study. Total number of females and males from both the classes were (63) and (38). (21) Females from class 10^{th} and (42) females from class 12^{th} took the test anxiety test on the other hand (17) males from class 10^{th} and (21) males from class 12^{th} took the test. It is clear from the data that more number of girl participation is seen in this study while boy's responses were in less number.

A self-administered test developed by Nist and Diehl in 1990 was used in this research to find the test anxiety levels in students. It was short questionnaire consisting of 10 items for examining if a student suffers from mild or severe level of exam anxiety.

The response to each statement is- 5(always), 4(often), 3(sometimes), 2(rarely), 1 (never). Scores ranged from 10-50 where (10-19) indicated low anxiety which is actually considered as good for students as it keeps the blood flowing and helps the student concentrate. Scores between (20-35) indicates moderate anxiety and scores above 35 indicates extreme anxiety which is unhealthy for any student. Out of 101 students, 19 students reported severe anxiety levels where more number of girls showed higher anxiety levels than boys. It was also found that more number of class 12^{th} girls scored above 35 as compared to class 10^{th} girls. On the other hand more number of boys from class 10^{th} scored above 35 than class 12^{th} boys. We made 3 null hypotheses to see if there is gender difference in test anxiety levels. Our 1^{st} hypothesis was rejected with 99% level of confidence interval. 2^{nd} hypothesis was rejected with 95% level of confidence interval and 3^{rd} hypothesis was also rejected at 95% level of

confidence interval. Thus, it is clearly evident from the results that there is a significant difference in test anxiety between males and females. Overall, females reported higher exam anxiety than males. Both from class 10^{th} and 12^{th} female anxiety levels were slightly higher than males. There can be several reasons behind women suffering from more test anxiety than men as it is seen that females are more competitive and wants to prove her worth to the society and the world. Students can deal with test anxiety by making proper study plans, habit of studying, using time management techniques, getting enough sleep and using breathing and relaxation techniques.

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Conflict of Interest

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