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Impact of gender and academic achievement on educational anxiety

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Abstract
Educational anxiety refers to the feeling of nervousness, worry, or stress that students experience related to their academic responsibilities and performance. It is a kind of anxiety related to the learning institution, learning environment, ineffective study habits, or from the examination. The present study aims to investigate educational anxiety among adolescents. A sample of 200 adolescents, comprised of 100 males and 100 females, were selected using stratified random sampling. Data was randomly drawn from the three districts of Kumaon region of Uttarakhand by using the Educational Anxiety Inventory developed by Sood and Anand (2012). For statistical analysis two-way ANOVA was used. The results revealed significant differences at .05 level among the groups concerning Academic Anxiety, Test Anxiety, and Educational Anxiety. Additionally, a significant difference was found between male and female adolescents in terms of Test Anxiety. Furthermore, there was a significant interaction effect found between gender and academic achievement on levels of Academic Anxiety, Test Anxiety and Educational Anxiety.

Keywords: Adolescents, educational anxiety, gender and academic achievement

Introduction
Adolescence represents a period of growth, discoveries, and the cultivation of resilience. They undergo a transitional stage of development from childhood to adulthood, typically ranging from 10 to 19 years. Adolescents experience a multitude of physical, emotional, and cognitive changes. According to Erikson (1968), adolescence is a critical period for identity formation, where individuals explore different roles and integrate them to form a cohesive sense of self [1]. They may also grapple with issues of self-esteem, independence, and the exploration of their own beliefs and values. Furthermore, adolescents often encounter societal expectations and pressures from various sources, such as parents, peers, schools, and the media. As they transition through pivotal developmental stages, adolescents encounter diverse academic challenges and opportunities. In present era adolescents are under tremendous pressure to excel academically. Understanding the dynamics of adolescence is essential for fostering an environment where adolescents can thrive academically and holistically. This preparation equips them for the complexities of adulthood and future pursuits.

Academic achievement, a critical aspect during this phase, introduces its own set of challenges. Crow & Crow (1969) have defined academic achievement as the "extent to which a learner is profiting from instructions in a given area of learning i.e., achievement is reflected by the extent to which skill or knowledge has been imparted to him" [2]. Moreover, it plays a pivotal role in nurturing personal growth and self-confidence, as students overcome challenges, set and achieve goals in academic settings. The academic achievement of students can be influenced by numerous factors, among which academic anxiety stands out as a significant contributor to potential reductions in performance. Adolescents face academic anxiety due grappling with the pressure to perform well in exams, meet expectations from authority figures, and secure their future paths through education. While a certain level of stress and anxiety can be a healthy motivator for peak performance, it also has the potential to escalate quickly if not managed appropriately.

The pressure to excel academically can drive students to push their limits, set ambitious goals, and strive for excellence.

This healthy stress can enhance focus, productivity, and achievement. However, when stress and anxiety exceed manageable levels or are prolonged, they can have detrimental effects on students' well-being and academic outcomes. If it is not properly addressed it can have serious and long- lasting consequences such as causing a student to procrastinate, perform poorly in school work, and withdraw from socializing with peers or from other situations (Mattoo & Nabi, 2012) [3]. Gaudry & Spielberger (1971) discussed that high test anxiety is considered as one of the main factors for low performance of students at the university level [4]. Singh & Thukral (2009) have also reported an inverse relationship between academic achievement and academic anxiety [5]. However, Cheraghian *et al*. (2008) found no meaningful relationship between academic anxiety and academic performance [6].

Apart from the impact on academic achievements of adolescents, academic anxiety has significant emotional effects also. High anxiety levels can lead to feelings of inadequacy, low self- esteem, and depression. Putwain *et al* (2021) studied the possibility of test anxiety increasing emotional disorders in adolescents and found that test anxiety has a deep relationship with increasing emotional disorders (anxiety and depression) [7]. Some studies also revealed that students who experience academic anxiety often have negative self-perceptions and a fear of failure. This can undermine their confidence and willingness to engage in academic activities, as well as emotional responses can trigger a negative feedback loop, where increased anxiety leads to poorer performance (Hembree, 1988; Beilock & Ramirez, 2011) [8, 9]. Chen *et al* (2023) conducted a study to assess the prevalence of test anxiety and its associated factors among adolescents. In the results, the prevalence of test anxiety was found to be 46.7%. Also, gender, age, frequency of feeling lonely, marital status of parents, family functioning, emotional abuse, physical abuse, sexual abuse, academic performance level, relations with classmates, school pranks, internet addiction and exam fear found to be positively related to test anxiety [10].

Based on the related review of literature our objectives were: to find out the significance difference among the four groups formed on the basis of gender and academic achievement, to find out the significance difference between male and female, and high achiever and low achiever adolescents, and lastly, to find out the interaction effect of gender and academic achievement for the level of academic anxiety, test anxiety and educational anxiety.

Hypotheses

1. There would be significant difference among the four groups formed on the basis of Gender and Academic Achievement on the level of Academic Anxiety, Test Anxiety and Educational Anxiety among Adolescents.
2. There would be significant difference between Male and Female adolescents on the level of Academic Anxiety, Test Anxiety and Educational Anxiety.
3. There would be significant difference between High Achiever and Low Achiever adolescents on the level of Academic Anxiety, Test Anxiety and Educational Anxiety.
4. Gender and Academic Achievement would interact significantly for the level of Academic Anxiety, Test Anxiety and Educational Anxiety.

Methods

Sample

In this study, a sample of 200 adolescents was selected using a multi-stage stratified random sampling method. At the first stage, three districts from the Kumaon Region of Uttarakhand were randomly chosen. At the second stage, three schools from rural area within these selected districts were randomly selected. And lastly, at the third stage, a total of 200 students aged 15 to 17 years were randomly selected from these schools. The sample comprised 100 males (50 high achievers and 50 low achievers) and 100 females (50 high achievers and 50 low achievers), as determined by the Personal Data Schedule.

Tools: The following instruments were used for data collection

1. **Personal Data Schedule:** Name, gender, age, socioeconomic status and previous last 2 years academic result of the subject were included.
2. **Educational Anxiety Inventory:** This inventory has been constructed by Sood and Anand (2012) for measuring educational anxiety of adolescents [11]. There are 42 statements in this schedule, which are related to two dimensions of Educational Anxiety. Those dimensions are as follows- Academic Anxiety and Test Anxiety. The test-retest reliability is .73. Its internal consistency is .69 for the first dimension of the scale academic anxiety and .78 for the second-dimension of the scale test anxiety. The validity of its first-dimension academic anxiety is .68 and for the second-dimension test anxiety is 71.

Procedure

At the first stage, schools were randomly selected. Subsequently, adolescents were selected based on the criteria outlined in the Personal Data Schedule administered by the researcher. This schedule recorded informations such as name, gender, age, and academic scores, ensuring the selection of participants who met the study's specific inclusion criteria. In this study, researcher used quartile deviation to categorize student performance into groups of high and low achievers. By calculating the first (Q1) and third (Q3) quartiles of the score distribution, researcher identified low achievers as those scoring below Q1 and high achievers as those exceeding Q3. For the statistical analysis, Analysis of Variance (ANOVA) and Post hoc test (critical difference) were employed to determine significant differences among the variables.

Results

The present study was conducted with a sample of 200 adolescents aged 15 to 17 years. It comprised 100 males (50 high achievers and 50 low achievers) and 100 females (50 high achievers and 50 low achievers). The findings of the study are as follows:

After the observation of table l, shows that there was a significant difference found among the groups formed on the basis of gender and academic achievement. It is also clear from table-2 that the group A_2 B_1, and A_2B_2, group A_1B_2 and A_2B_2 differ significantly on the variable academic anxiety. Thus, related hypothesis was partially accepted. Table-1 denotes the main effect of the factors, gender and academic achievement were found to differ non-significantly, thus related hypotheses were rejected. It also

shows from table-1 that the interaction for gender and academic achievement interact significantly on the variable academic anxiety, thus related hypothesis was accepted.

Table 4 reveals that the groups formed on the basis of gender and academic achievement found to differ significantly on the level of test anxiety. Table-5 and table-6 shows the group A_1B_1 and A_2B_1, group A_1B_2 and A_2B_2, group A_1B_1 and A_1B_2 and group A_2B_1 and A_2B_2 differ significantly. Thus, related hypothesis was partially accepted. It shows from table-4 that group formed on the basis of gender found to differ significantly. So, related hypothesis was accepted. Table-5 also shows that female students have significantly more test anxiety level in comparison to male students in low achiever group. Table-4 also shows the group formed on the basis of academic achievement found to differ non-significantly on the level of test anxiety. Therefore, related hypothesis was rejected. Table 4 also illustrates the interaction of gender and academic achievement interact significantly for test anxiety, so related hypothesis was accepted.

After the observation of table 7, it is noticed that a significant difference was found among the groups formed on the basis of gender and academic achievement on the level of educational anxiety. Table 8 and table 9 shows all groups differ significantly with each other. Thus, related hypothesis was accepted. It is clear from table 7, the main effect of the factors gender and academic achievement were found to be differ non-significantly on the level of educational anxiety. So, related hypotheses was rejected. Additionally, table 7 also denoted the interaction of gender and academic achievement to be found significant for educational anxiety, here related hypothesis was accepted.

Table 1: ANOVA on Academic Anxiety

Source of Variance	DF	SS	MS	F-Ratio	Sig. value at .05 Level
Among group	3	1327.540	442.513	2.750	Sig.
A	1	56.180	56.180	.349	N.S
B	1	1.280	1.280	.008	N.S
A*B	1	1270.080	1270.080	7.892	Sig.
Error	196	31544.040	160.939		

Table 2: Mean of Four Groups on Academic Anxiety

Gender Academic Achievement	Male (A1)	Female (A2)	Total Mean
High Achiever (B1)	67.02	63.04	65.03
Low Achiever (B2)	62.14	68.24	65.19
Total Mean	64.58	65.64	--

Table 3: Critical difference at 5% level on Academic Anxiety

Group	N	S.Ed.	Critical Difference
A, B	50	2.53	5.08

Table 4: ANOVA on Test Anxiety

Source of Variance	DF	SS	MS	F-Ratio	Sig. value at .05 Level
Among group	3	14140.655	4713.552	26.398	Sig.
A	1	804.005	804.005	4.503	Sig.
B	1	68.445	68.445	.383	N.S
A*B	1	13268.205	13268.205	74.307	Sig.
Error	196	34997.540	178.559		

Table 5: Mean of Four Groups on Test Anxiety

Gender Academic Achievement	Male (A1)	Female (A2)	Total Mean
High Achiever (B1)	75.32	63.04	69.18
Low Achiever (B2)	57.86	78.16	68.01
Total Mean	66.59	70.60	--

Table 6: Critical difference at 5% level on Test Anxiety

Group	N	S.Ed.	Critical Difference
A, B	50	2.67	5.36

Table 7: ANOVA on Educational Anxiety

Source of Variance	DF	SS	MS	F-Ratio	Sig. value at .05 Level
Among group	3	22439.895	7479.965	15.561	Sig.
A	1	937.445	937.445	1.950	N.S
B	1	305.045	305.045	.635	N.S
A*B	1	21197.405	21197.405	27.132	Sig.
Error	196	94212.980	480.678		

Table 8: Mean of Four Groups on Educational Anxiety

Gender / Academic Achievement	Male (A1)	Female (A2)	Total Mean
High Achiever (B1)	142.34	126.08	134.21
Low Achiever (B2)	119.28	144.20	131.74
Total Mean	130.81	135.14	--

Table 9: Critical difference at 5% level on Educational Anxiety

Group	N	S.Ed.	Critical Difference
A, B	50	4.38	8.80

Discussion

The present study finding revealed that academic anxiety was found to be higher in low achiever females than low achiever males. The possible reason for this could be that societal expectations and gender norms often place a significant emphasis on academic success for females, which can contribute to higher levels of anxiety when they perceive themselves as not meeting these expectations. This pressure may be less pronounced for males, who might face different societal expectations.

The further findings show that difference between male and female was found to be non-significant on the level of academic anxiety. Shifts in societal and educational norms might be leading to more equal experiences of academic stress and anxiety among genders. If traditional gender roles are less pronounced or if there is increased awareness of and support for both genders, this could reduce differences in academic anxiety. Mahato and Jagir (2012) studied academic anxiety on adolescents and found that gender has no effect on academic anxiety, which directly supports the finding of the present study [12]. Furthermore, no significant difference was found between high achiever and low achiever adolescents in terms of academic anxiety. The possible reason for this could be that high achievers might experience high levels of pressure to maintain their performance, which could lead to significant anxiety. Conversely, low achievers might face anxiety due to fear of failure or perceived inadequacy. Singh (2013) studied graduate students and found that academic anxiety was significantly higher among the high achievers, which indirectly contradicts the present study results [13].

The interaction between gender and academic achievement was found to be significant for academic anxiety. Gender and academic achievement were not affecting academic anxiety equally, but affecting it differently.

It is evident from current analysis that the test anxiety was found to be significantly higher in low achiever female than male. Furthermore, there was significant difference found between male and female on the level of test anxiety. Current results are consistent with the findings of Pena and Losada (2013), who also reported higher levels of test anxiety in female than male [14]. The possible reason for this could be that females may be more likely to internalize academic failure and have higher self-criticism. This tendency to view academic setbacks as personal failures can contribute to increased level of test anxiety. Moreover, there was no significant difference found on the level of test anxiety between high achiever and low achiever adolescents. The possible reason for this could be that High achievers might face anxiety related to maintaining their status and meeting high expectations, while low achievers might experience anxiety due to fear of failure or concerns about their academic performance. If the intensity of these pressures is similar, it could result in non-significant differences in anxiety levels. Khalid and Hasan (2009) studied undergraduate students and found that high achievers female experience more test anxiety as compared to high achiever male whereas low achiever male experienced more test anxiety than female, which indirectly contradicts this study [15].

Table 4 shows that there was a significant interaction between gender and academic achievement for test anxiety, i.e., gender and academic achievement were not affecting test anxiety equally, but differently.

It is evident from the observation of Table 8 that educational anxiety was found to be higher in low achiever females than in low achiever males. The possible reason for this could be that females may experience greater fear of judgment from peers, teachers, or family members about their academic abilities. This fear can contribute to higher levels of educational anxiety as they worry more about others' perceptions.

Table 7 indicating that no significant difference was found between male and female for the level of educational anxiety. The possible reason for this could be that in the modern educational system, both male and female are facing equal academic pressure. Whether for exam preparation, pressure of grades or worries about the future, all these factors can affect both equally. The current findings in Table 7 align with Kumar's (2013) comparative study, which also found no significant gender differences in educational anxiety among middle school students.[16] Additionally, there was no significant difference found between high achiever and low achiever adolescents in terms of educational anxiety. The possible reason for this, is that educational anxiety may arise in high achieving adolescents due to the pressure to meet their expectations and standards and to maintain those achievements and educational anxiety may arise in low achieving adolescents due to the pressure of not being able to meet their educational goals and improve their status. Shakir (2014) conducted a study among senior secondary students and found a significant difference between the academic anxiety of high and low achiever adolescents, which directly contradicts this study [17]. It is seen from Table 7 that there was significant interaction has been found between gender and academic achievement for educational anxiety. Gender and academic achievement were not affecting educational anxiety equally but differently.

Conclusion

1. Significant differences were found among the four groups on the levels of Academic Anxiety, Test Anxiety and Educational Anxiety.
2. A significant difference was found between male and female adolescents in the level of Test Anxiety.

3. No significant difference was found between high achievers and low achievers in the levels of Academic Anxiety, Test Anxiety and Educational Anxiety.
4. A significant interaction effect was found between gender and academic achievement for the levels of Academic Anxiety, Test Anxiety and Educational Anxiety.

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