Academic Achievement of Adolescents in Relation to Academic Anxiety, Gender, and Choice of Academic Stream

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ABSTRACT

The present research work was carried out to study the relationship and effect of academic anxiety on the academic achievement of adolescents. A sample of 361 adolescents was taken through purposive sampling technique. A reliable and valid academic anxiety scale standardized by Singh & Gupta (2009) was used for data collection. Mean SD, Correlation and t-test were used for the analysis of the data. Research findings revealed an inverse relationship (negative correlation) between the academic achievement and the academic anxiety of adolescents. Significant differences were found between the academic achievement of high and low academic anxiety groups of adolescents, between high and low academic anxiety groups of males, between high and low academic anxiety groups of females, between high academic anxiety groups of male and female adolescents, between low academic anxiety groups of male and female adolescents, between the academic achievement of high and low academic anxiety groups of social science adolescents. Whereas, no significant difference was found in the academic achievement of high and low academic anxiety groups of science adolescents, between the academic achievement of high academic anxiety groups of science and social science adolescents and between the academic achievement of low academic anxiety groups of science and social science adolescents.
Keywords: Anxiety, academic anxiety, academic achievement, and choice of academic stream.

Introduction

Education gives a fine shape to the personality of individuals. Rousseau rightly said that "plants are developed by cultivation and men by education." Education makes us well mannered and cultured. The Education Commission (1964-66) very aptly emphasised that, "In a world based on science and technology, it is education that determines the level of prosperity, welfare and security of the people." It is a promise today, for better tomorrow. It is responsible for the supply of productive citizens who contribute to the growth of our country. In all the stages of education right from nursery to university education, the senior secondary stage of education is the most important stage, because, this stage provides the base for future education. Progress of any nation depends upon its students' success in other words their academic achievements. Therefore, every nation emphasises students' academic achievements. But the academic achievement of adolescents is negatively affected by several factors and academic anxiety is one of them.

Academic Anxiety

Anxiety means tension, or uneasiness characterised by fear, or uncertainty about something the source of which is largely unknown or unrecognised by the individual. Anxiety is one of the most widely experienced emotion and one of the most essential constructs of all human behaviour. It is a displeasing feeling of uneasiness, nervousness, apprehension, fear, concern or worry (Barlow, 2002). In today's environment, anxiety is a common phenomenon of everyday life. All of us are the victims of anxiety in different ways (Lenka & Kant, 2012). In the present study academic anxiety is a kind of anxiety which is related to the impending danger from the environment of the academic institutions including teacher in certain subjects like Mathematics, English etc. It is a mental feeling of uneasiness or distress in reaction to a school situation that is perceived negatively by the students. Researchers generally agree that academic anxiety is not always bad. An average level of anxiety is useful for the motivation and for more sustainable and prosperous life (Kahan, 2008 in DordiNejad, Hakimi, Ashouri, Dehghani, Zeinali, Daghighi, & Bahrami, 2011; Donnelly, 2009).

Without any anxiety most of us would lack the motivation to do anything in life. Therefore, moderate level of academic anxiety is essential to motivate students to study and may inclined them for better achievement. A high level of anxiety interferes with concentration and affects our memory. In this way high academic anxiety may be one of the obstacles to academic achievement. Therefore it should not be ignored at any cost, if we are really concerned about our students' academic performance. If not tackled properly on time, it can have serious and far reaching negative implications 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). It can block adolescents' school performance in several ways.

Academic achievement

Academic achievement means achievement level of the students. It can be defined as what a student does or achieve at his school. It is a common practice to promote students from a lower class to a higher class on the basis of his academic achievement. It helps in declaring students successful or unsuccessful, choosing students for various courses and selecting students for different jobs. It is the level of learning in a particular area of subject in terms of knowledge, understanding, skill and application usually evaluated by teachers in the form of test scores in their annual examination. C.V. Good (1973) defined it as, "knowledge attained or skills developed in the school subjects, usually designated by test scores or by marks assigned by teachers, or by both." In fact it has become an index of future in today's highly competitive environment.

It is observed that the performance of the high academic anxiety learners is different from low academic anxiety learners. Like Gaudry & Spielberger (1971) concluded that high test anxiety is one of the main factors for low performance of students at university level. Anson, Bernstein, & Hobfoll (1984) found anxiety significantly and negatively correlated with grades obtained by the students. Sharma & Sud (1990) found female students experiencing higher levels of test anxiety than males. Mnicholas & Lewiensohn (1998) indicated that females experienced more anxiety disorders than males. Bryme (2000) suggested that males were less anxious than girls. Hancock (2001) revealed that all students, especially students with high anxiety level, performed poorly and were less motivated to learn. Pomerantz, Altermatt, & Saxon (2002) concluded that girls out performed boys in all subjects but were more prone to internal distress than boys. Bhansali & Trivedi (2008) found girls on the whole had more incidences and intensity of academic anxiety in comparison to boys. Singh & Thukral (2009) reported an inverse relationship between academic achievement and academic anxiety. Singh (2009) found a significant negative correlation between academic achievement and academic anxiety. Rezazadeh & Tavakoli (2009) reported a statistically significant negative correlation between test anxiety and academic achievement and revealed that female students have a higher level of test anxiety in contrast to male students. Vitasari, Wahab, Othman, Herawan, & Sinnadurai (2010) found a significant correlation between high level anxiety and low academic performance. DordiNejad, et al. (2011) have reported that test anxiety has negative effect on students' academic performance. Jain (2012) concluded that academic anxiety is negatively correlated with academic achievement and no significant difference was found between the academic anxiety of boys and girls. Nadeem, Ali, Maqbool, & Zaidi (2012) have reported a negative relationship between anxiety and academic achievement. Udeani (2012) found significant negative correlations between anxiety, and science achievement. Ali, Awan, Batool, & Muhammad (2013) explored the secondary school students' relationship of test anxiety with their achievement in the subject of English. Findings indicated a negative correlation of test anxiety with students' achievement in the subject of English also concluded that female had higher test anxiety than male students. Ali & Mohsin (2013) concluded high test anxiety caused lower achievement scores. Test anxiety had significant but negative relationship with physics, chemistry, biology, and mathematics achievement. Sridevi (2013) reported a negative low correlation between general anxiety and academic achievement.

Several researchers have reported that school students with higher level of anxiety have lower academic performance. For instance (Ali, Awan, Batool, & Muhammad, 2013; Peleg, 2009; Hamzah, 2007; Jing, 2007; Luigi, et al., 2007; McCraty, 2007; Sena, et al., 2007; Cassady Johnson, 2002; Hancock, 2001; Gaudry, & Spielberger, 1971) have reported a negative correlation between academic anxiety and academic performance. The pressure to perform well in the examination or test and time allocated makes academic environment very stressful (Stevenson & Harper, 2006). However, Cheraghian (2008) found out no meaningful relationship between academic anxiety and academic performance.

This is very interesting to note that females are securing better marks in comparison than their male counterparts in almost all the examinations. This cannot be attributed to a single factor, but is the outcome of a number of factors such as intelligence, study habits, creativity, aptitude, interests, socio economic factors etc. Along with these, gender of the students also plays an influencing factor on academic achievement (Karthigeyan, & Nirmala, 2012). A close perusal of literature on the effects of anxiety on the academic achievement of students revealed that academic anxiety hampers the academic achievements of adolescents negatively. There are numerous studies comparing the anxiety of male and female adolescents (Ali, Awan, Batool, & Muhammad, 2013; Basco & Olea, 2013; Devine, Fawcett, Szucs, & Dowker, 2012; Jain, 2012; Karthigeyan, & Nirmala, 2012; Ergene, 2011; Yousefi, Talib, Mansor, Juhari, & Redzuan, 2010; Rezazadeh & Tavakoli, 2009; Singh, 2009; Bhansali & Trivedi, 2008; Pomerantz, Altermatt, & Saxon, 2002; Mnicholas & Lewiensohn, 1998; Sharma & Sud, 1990; Bryme, 2000) and comparing the academic achievement of male and female students (Ahmad, Hussain, & Azeem, 2012; Farooqi, Ghani, & Spielberger, 2012; Jain, 2012; Karthigeyan, & Nirmala, 2012; Dharamvir, Tali, & Goel, 2011; Yousefi, Talib, Mansor, Juhari, & Redzuan, 2010; Begum & Phukan, 2001; Yun, 2001; Kaur & Gill, 1993; Agarwal,1983) and Ching (2011) cited in Karthigeyan, & Nirmala (2012). But despite best efforts, investigators could not find even a single study comparing the academic achievement of male and female, science and social science academic anxiety groups of adolescents. It means there was a research gap, which motivated the investigators to carry out the present research study.

Variables
1. Dependent variable: Academic achievement
2. Independent variables: (a) Academic anxiety, (b) Gender, and (c) Choice of Academic Stream

Objectives: The present research study intended to meet the following objectives:
1. To study the relationship between the academic achievement and the academic anxiety of adolescents.
2. To compare the academic achievement of high and low academic anxiety groups of adolescents.
3. To compare the academic achievement of high and low academic anxiety groups of male adolescents.
4. To compare the academic achievement of high and low academic anxiety groups of female adolescents.
5. To compare the academic achievement of high academic anxiety groups of male and female adolescents.
6. To compare the academic achievement of low academic anxiety groups of male and female adolescents.
7. To compare the academic achievement of high and low academic anxiety groups of science adolescents.
8. To compare the academic achievement of high and low academic anxiety groups of social science adolescents.
9. To compare the academic achievement of high academic anxiety groups of science and social science adolescents.
10. To compare the academic achievement of low academic anxiety groups of science and social science adolescents.

Hypotheses: The following hypotheses were formulated null form in tune with the above stated objectives:

Ho1)There is no significant relationship between the academic achievement and academic anxiety of adolescents.

Ho2) There is no significant difference in the academic achievement of high and low academic anxiety groups of adolescents.

Ho3) There is no significant difference in the academic achievement of high and low academic anxiety groups of male adolescents.

Ho4) There is no significant difference in the academic achievement of high and low academic anxiety groups of female adolescents.

Ho5) There is no significant difference in the academic achievement of high academic anxiety groups of male and female adolescents.

Ho6) There is no significant difference in the academic achievement of low academic anxiety groups of male and female adolescents.

Ho7) There is no significant difference in the academic achievement of high and low academic anxiety groups of science adolescents.

Ho8) There is no significant difference in the academic achievement of high and low academic anxiety groups of social science adolescents.

Ho9) There is no significant difference in the academic achievement of high academic anxiety groups of science and social science adolescents.

Ho10) There is no significant difference in the academic achievement of low academic anxiety groups of science and social science adolescents.

Methods and Materials

Design: Survey design was used to carry out the present work. A questionnaire and a PDSA were used to collect data.

Sample: Sample consisted of 352 adolescents from senior secondary schools. The purposive sampling technique was used to select the sample from District Aligarh of Uttar Pradesh, India.

Research Tools: For data collection, Academic Anxiety Scale for Children (AASC) by Singh & Gupta (2009) was used to measure the academic anxiety of adolescents. Each item is scored as either +1 or 0. The maximum possible score of the test is 20. Adolescents scoring less than 10 were considered as students of low academic anxiety group and scoring higher than 10 were as students belonging to high academic anxiety group. Marks obtained by the adolescents in their previous class were taken as an index of their level of academic achievement. To collect demographic information, a Personal Data Sheet for Adolescents (PDSA) was developed by the investigators which comprised of information regarding adolescents' gender (male or female), choice of Academic stream (science or social science) and achievement scores (Achievement scores were also verified by the office record of the Controller of Examinations of sampled schools).

Data Collection: The investigators personally administered the Academic Anxiety Scale for Children (AASC) on 500 adolescents in senior secondary school of District Aligarh. Filled questionnaires were collected. Partially filled were discarded. Finally investigators could get data from 361 respondents.

Statistical Techniques Used: Data were analysed using, Mean, SD, product moment correlation and t-test.

Analysis, Interpretation, and Discussion of Results: Statistical Package for Social Science (SPSS) Version 16 was used for the analysis of data. Hypothesis wise analysis is as follows:

In order to test the Ho1, Pearson product moment correlation was applied.

Table No. 1 showing the relationship (correlation coefficient) of academic achievement and the academic anxiety:

Variables	N	df	r
Academic achievement	361	359	-.117*
Academic anxiety	361		

*Correlation is significant at .05 level

An inspection of Table 1 reveals that the Product moment correlation between the academic achievement and the academic anxiety is significant at .05 level. This means there is a significant relationship between the academic achievement and the academic anxiety. Therefore, Ho1 is rejected. Negative correlation indicates that as the level of academic anxiety increases, academic achievement decreases and vice-versa. This finding is consistent with the findings of earlier researchers. For instance (Ali, & Mohsin, 2013; Vankar, 2013; Farooqi, Ghani, & Spielberger, 2012; Safree, Yasin, & Dzulkifli, 2011; Yousefi, Talib, Mansor, Juhari, & Redzuan, 2010; Singh, 2009; Kassim, Hanafi, & Hancock, 2008; Keoghi, Bond, French, Richards, & Davis, 2004) have reported significant negative relationships between test anxiety and academic performance.

In order to test the Ho2, t-test was applied.

Table No. 2 showing the comparison of the academic achievement of high and low academic anxiety groups of adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group	169	237.65	46.43	350	-2.747*
Academic achievement of low academic anxiety group	183	250.81	43.46		

*Significant at .05 level

A close examination of Table 2 shows that the 't' value -2.747 is statistically significant at .05 level. This means there is a significant difference in the academic achievement of high and low academic anxiety groups. Therefore, Ho2 is rejected. Higher mean score of academic achievement of low academic anxiety group than the academic achievement of high academic anxiety group indicate that the academic achievement of low academic anxiety group is better than the academic achievement of high academic anxiety group. This finding is in consonance with the findings of several researchers. For instance (Ali, Awan, Batool, & Muhammad, 2013; Ali, 2012; Nicholson, 2010; Peleg, 2009; Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, & McCann, 2005; Kaya, 2004, Mcdonald, 2001, Hong, 1999; Hembree, 1988) have reported that highly academic anxious students had low academic achievement and low academic anxious students had higher achievement. But the present finding is inconsistent with the finding of Vogel, & Collins (2002 as cited in Farooqi, Ghani, & Spielberger, 2012, p.39) who concluded that the students with high test anxiety as well as those students with low test anxiety showed lower academic performance. Moreover, those students with moderate levels of test anxiety performed better.

In order to test the Ho3, t-test was applied.

Table No. 3 showing the comparison of the academic achievement of high and low academic anxiety group of male adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group of males	68	227.75	47.55	173	-2.315*
Academic achievement of low academic anxiety group of males	107	244.52	44.98		

*Significant at .05 level

A close perusal of Table 3 shows that the 't' value -2.315 is statistically significant at .05 level. This means there is a significant difference in the academic achievement of high and low academic anxiety groups of male. Therefore, Ho3 is rejected. Higher mean score of academic achievement of low academic anxiety group of male than the academic achievement of high academic anxiety group of male adolescents indicate that the academic achievement of low academic anxiety group of male adolescents is better than the academic achievement of high academic anxiety group of male adolescents.

In order to test the Ho4, t-test was applied.

Table No. 4 showing the comparison of the academic achievement of high and low academic anxiety group of female adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group of females	101	245.84	43.50	275	-2.304*
Academic achievement of low academic anxiety group of females	176	260.47	39.48		

*Significant at .05 level

Table 4 clearly shows that the 't' value -2.304 is statistically significant at .05 level. This means there is a significant difference in the academic achievement of high and low academic anxiety groups of female adolescents. Therefore, Ho4 is rejected. Higher mean score of academic achievement of low academic anxiety group than the academic achievement of high academic anxiety group indicate that the academic achievement of low academic anxiety group of female adolescents is better than the academic achievement of high academic anxiety group of female adolescents. This finding is corroborated by the findings of Ali, Awan, Batool, & Muhammad (2013) who reported that higher anxiety females had higher academic achievement.

In order to test the Ho5, t-test was applied.

Table No. 5 showing the comparison of the academic achievement of high academic anxiety group of male and female adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group of males	69	227.75	47.20	168	-2.572*
Academic achievement of high academic anxiety group of females	101	245.84	43.50		

*Significant at .05 level

Table 5 shows that the 't' value -2.572 is statistically significant at .05 level. This means there is a significant difference in the academic achievement of high academic anxiety groups of males and females. Therefore, Ho5 is rejected. Higher mean score of academic achievement of high academic anxiety group of females than the academic achievement of high academic anxiety group of males indicate that the academic achievement of high academic anxiety group of female adolescents is better than the academic achievement of high academic anxiety group of male adolescents.

In order to test the Ho6, t-test was applied.

Table No. 6 showing the comparison of the academic achievement of low academic anxiety groups of male and female adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of low academic anxiety group of males	107	244.52	44.98	181	-2.485*
Academic achievement of low academic anxiety group of females	76	260.47	39.48		

*Significant at .05 level

Table 6 shows that the 't' value -2.485 is statistically significant at .05 level. This means there is a significant difference in the academic achievement of low academic anxiety groups of male and female adolescents. Therefore, Ho6 is rejected. Higher mean score of academic achievement of low academic anxiety group of females than the academic achievement of low academic anxiety group of males indicate that the academic achievement of low academic anxiety group of female adolescents is better than the academic achievement of low academic anxiety group of male adolescents.

In order to test the Ho7, t-test was applied.

Table No. 7 showing the comparison of the academic achievement of high and low academic anxiety groups of science adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group of science	73	240.18	43.18	188	-1.117*
Academic achievement of low academic anxiety group of science	115	247.71	46.26		

*Not significant at .05 level

A glance at Table 7 shows that the 't' value -1.117 is statistically not significant at .05 level. This means there is no significant difference in the academic achievement of high and low academic anxiety groups of science adolescents.Therefore, Ho7 is accepted.

In order to test the Ho8, t-test was applied.

Table No. 8 showing the comparison of the academic achievement of high and low academic anxiety groups of social science adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group of social science	96	237.35	48.05	162	-3.251*
Academic achievement of low academic anxiety group of social science	68	261.10	43.15		

*Significant at .05 level

Table 8 shows that the 't' value -3.251 is statistically significant at .05 level. This means there is a significant difference in the academic achievement of high and low academic anxiety groups of social science adolescents. Therefore, Ho8 is rejected. Higher mean score of academic achievement of low academic anxiety group of social science adolescents than the academic achievement of high academic anxiety group of social science adolescents indicate that the academic achievement of low academic anxiety group of social science adolescents is better than the academic achievement of high academic anxiety group of social science adolescents.

In order to test the Ho9, t-test was applied.

Table No. 9 showing the comparison of the academic achievement of high academic anxiety groups of science and social science adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of high academic anxiety group of science	73	240.18	43.18		
Academic achievement of high academic anxiety group of social science	96	237.35	48.05	167	.395*

*Not Significant at .05 level

A glance at Table 9 exhibits that the 't' value -.395 is statistically not significant at .05 level. This means there is no significant difference in the academic achievement of high academic anxiety groups of science and social science adolescents. Therefore, Ho9 is accepted.

In order to test the Ho10, t-test was applied.

Table No. 10 Showing the comparison of the academic achievement of low academic anxiety groups of science and social sciences adolescents:

Basis	N	Mean	SD	df	t-value
Academic achievement of low academic anxiety group of science	115	247.71	46.26		
Academic achievement of low academic anxiety group of social science	68	261.10	43.15	181	-1.939*

*Not Significant at .05 level

Table 10 reveals that the 't' value -1.939 is statistically not significant at .05 level. This means there is no significant difference in the academic achievement of low academic anxiety groups of science and social science adolescents. Therefore, Ho10 is accepted.

Findings of the study

1. An inverse relationship (negative correlation) was found between the academic achievement and academic anxiety of adolescents. More specifically, as the level of academic anxiety increases, academic achievement decreases and vice-versa.
2. A significant difference was found in the academic achievement of high academic anxiety group and low academic anxiety group of adolescents. More clearly, the academic achievement of low academic anxiety group is better than the academic achievement of high academic anxiety group of adolescents.
3. A significant difference was found in the academic achievement of high and low academic anxiety groups of male adolescents. More specifically, the academic achievement of low academic anxiety group of male adolescents is better than the academic achievement of high academic anxiety group of male adolescents.
4. A significant difference was found in the academic achievement of high and low academic anxiety groups of female adolescents. The academic achievements of high academic anxiety group indicate that the academic achievement of low academic anxiety group of female adolescents is better than the academic achievement of high academic anxiety group of female adolescents.
5. A significant difference was found in the academic achievement of high academic anxiety groups of male and female adolescents. The academic achievement of high academic anxiety group of female adolescents is better than the academic achievement of high academic anxiety group of male adolescents.
6. A significant difference was found in the academic achievement of low academic anxiety groups of male and female adolescents. The academic achievement of low academic anxiety group of female adolescents is better than the academic achievement of low academic anxiety group of male adolescents.
7. No significant difference was found in the academic achievement of high and low academic anxiety groups of science adolescents.
8. A significant difference was found in the academic achievement of high and low academic anxiety groups of social science adolescents. The academic achievement of low academic anxiety group of social science adolescents is better than the academic achievement of high academic anxiety group of social science adolescents.
9. No significant difference was found in the academic achievement of high academic anxiety groups of science and social science adolescents.

10. No significant difference was found in the academic achievement of low academic anxiety groups of science and social science adolescents.

Conclusion

To motivate students for achieving high standards in their education moderate level of academic anxiety is essential. High academic anxiety can block their performance in several ways. It may results into a low achievement. Therefore, academic anxiety should not be ignored because it decreases adolescents' learning capabilities and hinders excellent academic performance. This research had found a significant relationship between academic anxiety and academic achievement among adolescents in Aligarh District of U.P., India. Therefore, school and family institutions must assist students in managing their academic anxiety through counselling, relaxation and behavioural techniques. Selected preventive activities can be undertaken at senior secondary schools on targeted adolescents with academic problems. Specialised intervention tailored to needy adolescents is suggested in order to improve their academic achievements.

Educational Implications

The findings of this research study have implications for teachers and professionals in addressing the academic anxiety of the adolescents. High academic anxiety is responsible for low academic achievement. Therefore, various measures must be applied by the teachers to reduce and manage academic anxiety among adolescents; these can be as simple as inculcation of confidence among the learners, teaching them best strategies for examination preparations, training regarding seeking social support, training of relaxation, using humour etc. Teachers should create a stress free environment that allows adolescents to concentrate on the test rather than being distracted by academic anxiety. The adolescents with higher academic anxiety must be identified and treated in order to improve their academic achievement and for timely and effective gender specific counselling and therapeutic interventions for adolescents. The academic achievement of high academic anxiety group of female is better than the academic achievement of high academic anxiety group of male adolescents. Also, the academic achievement of low academic anxiety group of social science is better than the academic achievement of high academic anxiety group of social science adolescents. So the male adolescents in the schools need to be motivated more than female adolescents to achieve better performance. This gap can be bridged by the school authorities and teachers by providing special training to the male adolescents in schools. Measures should be adopted by the teachers and administrators such as special/ remedial coaching classes, training and making use of different methods to enhance the academic achievement of the male adolescents.

Suggestions for Further Research

This research study was conducted on the adolescents of senior secondary schools. It is suggested that the same research may be conducted from primary level up to secondary and as well as at university level. In future research, qualitative research methods may also be included to check the validity of quantitative research methods. For the enhancement of the validity, this research may also be expanded in the whole country.

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