A Study to Assess the Correlation between Academic Test Anxiety and Self-Esteem among Undergraduate Students

Timi Thomas[1] Gincy Joseph[2] Shynee Paul[3]

[1] Department of Obstetrics and Gynaecological Nursing, Nitte Usha Institute of Nursing Sciences, Nitte (Deemed to be University), Mangalore, Karnataka, India
[2] NUINS Cum ENLS state co-ordinator, JeevaRaksha, Bangalore, Karnataka, India
[3] Department of Obstetrics and Gynaecological Nursing, PVS College of Nursing, Calicut, Kerala, India

Address for correspondence Timi Thomas, Assistant Professor, Department of Obstetrics and Gynaecological Nursing, Nitte Usha Institute of Nursing Sciences, Nitte (Deemed to be University), Mangalore 575018, Karnataka, India (e-mail: timi@nitte.edu.in).

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Abstract

Introduction The time of examination and evaluation is a stressful period where stress is on its highest levels. To some extent, low level of stress can help in motivating the students; however, on the contrary more stress can be discouraging. It will make students exhausted, overwhelmed, and confused. So, the present study focuses on assessing the academic test anxiety and self-esteem among undergraduates. The objectives of the study were: determining the academic test anxiety and self-esteem among students and find out the correlation and association between academic test anxiety and self-esteem.

Materials and Methods A quantitative research approach had been adopted and descriptive correlational survey design was used to identify the academic test anxiety and self-esteem among first year students from selected constituent colleges of NITTE (Deemed to be University) at Paneer campus. The sample consisted of 300 first year undergraduate students. The participants were selected using convenient sampling technique. The data were collected using the sociodemographic pro forma, standardized Westside Test Anxiety Scale and State Self-Esteem Scale. The data were computed using descriptive statistics and inferential statistics like Karl Pearson's correlation coefficient test, Fisher's exact value, and chi-square value.

Result Majority of (79.9%) of the participants were in the age group of 18 to 19 years. The mean age of the participants was 18.56 ± 0.928 with minimum age 17 and maximum age of 21. Regarding entry level percentage of marks (Pre-University Course/ $+2$), 34.7% of participants secured with more than 80% of marks in their entry level examination followed by 38.2% of the participants scoring between 70 and 79% and only 16 (5.6%) participants counted between 45 and 59%. Majority (76%) of the participants were females. The study reveals that 32.3% of the participants experienced moderate level of test anxiety and 17% of the participants experienced severe level of

Keywords
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test anxiety followed by 34.7% participants experiencing mild levels of test anxiety. The mean test anxiety score was 2.97 ± 0.55 which indicates that average participants were showing moderate level of test anxiety. There is a significant medium positive correlation between academic test anxiety and self-esteem (r value $= 0.497$ and $p \leq 0.001$). As the p-value was more than 0.05 ($p = 0.09$, $p = 0.86$), there is no significant association found between previous academic performance with level of academic test anxiety or self-esteem.

Conclusion The study concludes that, students' self-esteem can be enhanced and test anxiety can be reduced by creating an enabling environment for mentoring where they can practice assertiveness skills which will in turn boost their confidence to perform all academic tasks successfully.

Introduction

Test anxiety is a common global issue, and every year it affects the academic performance of millions of students worldwide.[1] Previous research studies report that the prevalence rate among students toward test anxiety is 10 to 30%. In Iran, a prevalence rate of 17.2% has been reported for test anxiety.[2] In the process of development, children and adolescents experience a broad spectrum of anxieties, which are sometimes so dangerous that it can create problems in their academic performance and daily life.[3] In the typical academic environment, entrance examinations and formative and summative examinations represent a potent stressor that can impact a student's performance in school and university. On the other hand, academic self-confidence and self-esteem plays a significant role in students' learning. Students with higher level of academic confidence and self-esteem tend to visualize their success, think soundly, and commit themselves to the challenges at hand and they are proved to be high achievers.[4] Conversely, students with low self-confidence and self-esteem are more likely to focus on how things might dwell in their personal deficiencies. In essence, these individuals tend to focus on the problems of the circumstance rather than the possibilities of success.[5] The 2019 Annual Report of the Centre for Collegiate Mental Health reported that anxiety continues to be the most common problem, diagnosed among students who seek services at university counseling centers.[6] So, the present study focuses on determining the academic test anxiety and self-esteem among undergraduate students.

Methods

Study Design and Participants

A quantitative research approach was adopted in the study. A descriptive correlational survey design was used to identify the academic test anxiety and self-esteem among first year students from selected constituent colleges of NITTE (Deemed to be University) at Paneer campus. The sample size was calculated using the formula of mean difference and standard deviation (SD), with α = level of significance (5%), P = anticipated prevalence (25%), d = relative precision (5%), and the estimated sample size was 300 undergraduate students. The participants were selected using convenient sampling technique. Inclusion criteria for study participants were: (1) students those who have test anxiety, (2) willing to participate, and (3) those that are mentally and physically fit at the time of the study. The data was collected from January 21, 2021 to January 28, 2021.

Data Collection Instruments

The data were collected using the sociodemographic pro forma, standardized Westside Test Anxiety Scale and State Self-Esteem Scale. Demographic pro forma of the student consists of age in years, gender, religion, entry level percentage of marks (Pre-University Course [PUC]/+2), type of family, number of siblings, father's and mother's education, and father's and mother's occupation. The academic test anxiety scale is a standardized tool, and it is a 5-point scale consisting of 10 statements and rating is done in sequence from always true (5), usually true (4), sometimes true (3), seldom true (2), and never true (1). The academic test anxiety tool is categorized as follows: 1.0 to 2.4 (Normal), 2.5 to 2.9 (Mild), 3.0 to 3.4 (Moderate), 3.5 to 3.9 (Severe), and 4.0 to 5.0 (Extremely high anxiety). Similarly, the State Self-Esteem Scale is also a standardized tool, and it consists of 20-item scale that measures a participant's self-esteem at a given point in time. The 20 items are subdivided into 3 components of self-esteem: (1) performance self-esteem, social self-esteem, and appearance self-esteem. All items are answered using a 5-point scale (1 = not at all, 2 = a little bit, 3 = somewhat, 4 = very much, 5 = extremely). Items 2, 4, 5, 7, 8, 10, 13, 15, 16, 17, 18, 19, and 20 are reverse-scored. The reliability of the Westside Test Anxiety Scale and State Self-Esteem Scale was done, and the internal consistency was measured with Cronbach's alpha using SPSS statistics 23 version and it was found to be 0.953 and 0.79, respectively. Pretesting of the tool was done to identify problems with the data collection instruments and to find possible solutions. Pretesting was performed on November 15, 2020 to identify the inadequacies of the data collection instruments and to make due modifications as required. The investigator conducted the pilot study after obtaining permission from the Principal, Nitte Usha Institute of Nursing Sciences (NUINS), from January 18, 2021 to January 19, 2021 with 10 nursing

students. The pilot study helped the investigator to identify the inadequacies of the plan and made the due modifications as required. The investigator introduced herself and explained the purpose of the study and consent was obtained from the undergraduate students prior to the administration of data collection instruments.

Data Collection Procedure

Before the data collection, an informed consent and participant information sheet was administered to the participants to assure confidentiality of data among the participants. Informed consent, participant information sheet, and the data collection instruments were administered together in the Google form. Permission for carrying out the main study was obtained from the concerned authorities of constituent colleges like: NUINS, Nitte Gulabi Shetty Memorial Institute of Pharmaceutical Sciences (NGSMIPS), and Nitte University Centre for Science Education and Research (NUCSER). The investigator conducted the main study from January 21, 2021 to January 28, 2021. The data analysis was done using SPSS 20.

Result

Baseline Information

The majority (230; 79.9%) of the participants were in the age group of 18 to 19 years. The mean age of the participants was 18.56 ± 0.928 with minimum age 17 and maximum age of 21. Regarding entry level percentage of marks (PUC/+2), 34.7% participants secured with more than 80% of marks in their entry level examination followed by 38.2% of the participants scoring between 70 and 79%. Only 16 (5.6%) participants counted between 45 and 59% and majority (76%) of the participants were females. With regards to type of family, 64.2% of participants were from nuclear family and more than half of the participants had one sibling. With reference to parents' education, < 10% of the participants' parents had only Masters education. The common occupation (50%) of the participants' parents was farming and 59% of the participants' mothers were housewife (►**Tables 1** and **2**).

The classification of the academic test anxiety score and level of self-esteem were analyzed by using descriptive statistics such as frequency, percentage mean, and SD.

The notable fact from the above table is that, 32.3% of the participants experienced moderate level of test anxiety and 17% of the participants experienced severe level of test anxiety followed by 34.7% participants experiencing mild levels of test anxiety.

In self-esteem scale, the subcomponent on performance self-esteem items the participants were with mean ± SD of 23.38 ± 4.04 and the minimum and maximum score was 9 and 35, respectively. The study participants scored a mean of 24 (±SD 4.04) with minimum 11 and maximum 35 scores. The table also shows that, in the subcomponent on appearance self-esteem items the participants were with mean ± SD of 20.03 ± 3.1 with minimum 10 and maximum 28 scores. The total self-esteem score among the study participants were with mean ± SD of 67.41 ± 8.55 and minimum and maximum scores were 32 and 92, respectively (►**Table 3**).

Table 1 Frequency (*f*) and percentage (%) distribution of demographic variables of participants

Demographic characteristics ($n = 300$)	*f*	%
Age in years		
< 18	26	8.7
18–19	236	78.7
20–21	38	12.6
Gender		
Male	75	25.0
Female	225	75.0
Religion		
Hindu	84	28
Christian	135	45
Muslim	43	14.3
Any other	38	12.7
Entry level percentage of marks (PUC/+2)		
45–59%	16	5.3
60–69%	62	20.8
70–79%	116	38.6
> 80% and above	106	35.3
Type of family		
Nuclear family	185	61.6
Joint family	102	34
Extended family	13	4.4
Number of siblings		
Nil	39	13
One	147	49
Two	85	28.4
< Two	29	9.6
Father's education		
SSLC	42	14
PUC	78	26
Diploma	62	20.6
Graduate	90	30
Master's	28	9.3
Mother's education		
SSLC	35	11.6
PUC	76	25.3
Diploma	73	24.3
Graduate	101	33.6
Master's	15	5
Father's occupation		
Professional	42	14
Semiprofessional	96	32
Clerical/Shop owner/Farmer	123	41
Skilled worker	39	13

(*Continued*)

Table 1 (*Continued*)

Demographic characteristics ($n = 300$)	*f*	%
Mother's occupation		
Professional	53	17.6
Semiprofessional	65	21.6
Clerical/Shop owner/HW	182	60.6

Abbreviations: HW, housewife; PUC, Pre-University Course; SSLC, Secondary School Leaving Certificate.

Table 2 Distribution of academic test anxiety score and level of self-esteem among undergraduate students

Academic test anxiety score ($n = 300$)	*f*	%		
Normal (1–2.4)	42	14		
Mild (2.5–2.9)	112	37.3		
Moderate (3–3.4)	97	32.3		
Severe (3.5–3.9)	40	13.8		
Extremely high anxiety (4–5)	09	3		
Components of self-esteem ($n = 300$)				
Subcomponent	**Mean**	**SD**	**Min**	**Max**
Performance self-esteem	23.38	4.04	9	35
Social self-esteem	24	4.04	11	35
Appearance self esteem	20.03	3.1	10	28
Total self-esteem core	67.41	8.55	32	92

Abbreviation: SD, standard deviation.

Table 3 Correlation between academic test anxiety and self-esteem among undergraduate students

Variables	Mean	SD	*r* value	*t* value
Academic test anxiety	2.97	0.55	0.497	0.000 (< 0.001)
Self-esteem	67.41	8.55		

Abbreviation: SD, standard deviation.

The normality of the data was computed using one-sample Kolmogorov– Smirnov test and the *p*-values were found > 0.05, hence to analyze the correlation between academic test anxiety and self-esteem the researcher decided to use Karl Pearson's correlation coefficient test.

►**Table 4** indicates that there is a significant medium positive correlation between academic test anxiety and self-esteem (r value $= 0.497$ and $p \leq 0.001$). Hence, the research hypothesis H1 is accepted at 5% level of significance (►**Table 5**).

Discussion

University and college students live in a social context that expects efficiency, productivity, competitiveness, and individual accomplishments and that measures and provides grades/awards for their achievements.[7] Since stress and anxiety can negatively affect the graduate's quality of life in terms of physical and mental health, the investigators were determined to assess the academic test anxiety and self-esteem level among undergraduate students. The present study is strongly supported by a study conducted by Al Khatib on exam anxiety among nursing students at Al-Ahliyya Amman University[8] in Jordan in the year 2019. The demographic details of the study show that the majority (64%) of the study participants was between the age group of 18 and 21 years and 59% of the participants are females. Another study conducted by Vaz et al[9] reveals that the majority (90.3%) of the participants were females and the mean age of the group was 20. The present study was supported by another study conducted by Gouda et al[10], which shows that the mean age of the participant in the study was 20.18 ± 1.6 and majority of them are females.

The study reveals that 32.3% of the participants experienced moderate level of test anxiety and 17% of the participants experienced severe level of test anxiety followed by 34.7% participants experiencing mild levels of test anxiety. The mean test anxiety score was 2.97 ± 0.55 which indicates that average participants were showing moderate level of test anxiety. Mary et al[11] found that 77.2% of the students experienced a mild level and 19.6% experienced a moderate level of anxiety. A study conducted by Tsegay et al[12] on prevalence and determinants of test anxiety among medical students in Addis Ababa, Ethiopia, revealed that 41% of students experienced moderate levels of anxiety. Putwain[13] reported that 54% of U.K. university students reached the subthreshold for test anxiety. Another study conducted among pharmacy students reveals that 30% had mild anxiety, 56% had moderate anxiety, and 14% had a high degree of test anxiety. The present study findings are inconsistent with the study conducted by Dodson[14] among nursing students to

Table 4 Association between levels of test anxiety with academic grade received in the previous entry level examination

Entry level percentage of marks (PUC/+2)	Level of test anxiety					Fisher's exact value	*p*-Value
	Normal	Mild	Moderate	Severe	Extremely severe		
45–59%	4	4	6	1	1	18.87	0.09
60–69%	6	26	23	5	2		
70–79%	1	5	10	24	40		
> 80% and above	15	31	26	24	4		

Abbreviation: PUC, Pre-University Course.
Note: As the *p*-value was more than 0.05 ($p = 0.09$) there is no significant association found between previous academic performance with level of academic test anxiety. Hence, the null hypothesis is accepted at 0.05 level of significance (►**Table 5**).

Table 5 Association between levels of self-esteem with academic grade received in the previous entry level examination

Entry level percentage of marks (PUC/+2)	Level of self-esteem		Chi-square value	*p*-Value
	High level of self-esteem	Low level of self-esteem		
45–59%	10	6	0.78	0.86
60–69%	62	27		
70–79%	110	51		
> 80% and above	100	48		

Abbreviation: PUC, Pre-University Course.
Note: As the *p*-value was more than 0.05 ($p = 0.86$) there is no significant association found between previous academic performance with level of self-esteem. Hence, the null hypothesis is accepted at 0.05 level of significance.

explore the relationship between test anxiety level and academic achievement. The study findings reported that students with low test anxiety were only 3.8% and severe test anxiety 33.1%. Moderate test anxiety was observed among 63.1% of students. The study findings are consistent with the findings of the study conducted by Al Khatib,[8] which shows that 54% of the study participants had medium (76–104) levels of exam anxiety.

The study reveals that there is a significant medium positive correlation between academic test anxiety and self-esteem (r value $= 0.497$ and $p \leq 0.001$). Hence, the research hypothesis H1 is accepted at 5% level of significance. The relation between self-esteem and anxiety has only rarely been studied (Mustafa et al[15]). Self-esteem might serve as a protective factor, as a moderator, mediator, or simply a result of emotional well-being or difficulties. Overall, the available research suggests that high self-esteem may have positive consequences for the well-being and success of the individual and that low self-esteem may be a risk factor for negative outcomes. Another study conducted by Shahidi[16] on the effectiveness of mindfulness-based stress reduction (MBSR) on emotion regulation and test anxiety in female high school students shows that the MBSR program has had continuous significant effects on test anxiety ($F = 70.74$, $p = 0.000$). It has also had significant effects on emotion regulation ($F = 70.74$, $p = 0.000$). However, on the self-blame subscale ($F = 2.335$, $p = 0.126$) the MBSR program was not significant.[16]

The study findings reveals that as the *p*-value was more than 0.05 ($p = 0.09$, $p = 0.86$) there is no significant association found between previous academic performance with level of academic test anxiety or self-esteem. Hence, the null hypothesis is accepted at 0.05 level of significance. No comparative studies were found.

Conclusion

The examination anxiety level might interfere with everyday functioning like studies, daily activities, and social life among students. Anxiety is a major predictor of academic performance and various studies have demonstrated that it has a detrimental effect. Students with higher level of anxiety will achieve a lower academic performance and greater anxiety is associated with poorer academic achievement. To some extent, low level of stress can help in motivating the students; however, on the contrary more stress can be discouraging. Exam anxiety will make students exhausted, overwhelmed, and confused. Students who reported high levels of stress during examinations were less satisfied with their life factors that contribute to poor self-esteem as well self-confidence. To improve emotion regulation and thus test anxiety and self-confidence the practice of mindfulness meditation have its positive effects on developing a conscious and nonjudgmental attitude, which can in turn improve one's self-control, self-regulation, and self-monitoring on their behaviors and guide them toward recovery. Hence, educational institutions should offer stress interventions/psychological interventions or mind-body therapies such as MBSR, meditation, or yoga therapy in school to improve student's quality of life and ensure their physical and psychological health at the pivotal age of adolescence.

Ethical Considerations

The present study fits into the principles defined in the Declaration of Helsinki (World Medical Association, 2013). The study was reviewed and approved by the Institutional Ethics Committee of the Nitte Usha Institute of Nursing Sciences, NITTE (Deemed to be University) and the Reference number was: NUINS/CON/NU/IEC/2020–21/995.

Authors' Contributions

T.T., G.J., and S.P. conceptualized the study, contributed to protocol development, data collection, and final writing of the report. G.J. performed the data analysis and final editing of the report. The pilot study and the main study were supervised, and the final draft of the article was finalized for publication.

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Conflict of Interest

The authors have extensively contributed to the research study, from the origin of the study to data collection and writing the report. Thus, there is no conflict of interest.

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