

Academic Achievement of University Undergraduates Correlated with their Test Anxiety: A Study Among Medical Students in Public Universities, South-East, Nigeria.

¹Florence Ngozi Ufearo*; ¹Lydia Ijeoma Eleje; ¹Ursula Ifeoma Oparaugo; ²Chibueze Stephen Ufearo; ¹Mary Nneka Nwiko.

¹ Department of Educational Foundations, Faculty of Education, Nnamdi Azikiwe University, Awka

²Department of Human Physiology, College of Health Sciences, Nnamdi Azikiwe University, Awka.

DOI: <https://doi.org/10.51244/IJRSI.2026.1306000292>

Received: 19 June 2026; Accepted: 24 June 2026; Published: 07 July 2026

ABSTRACT

This study was designed to investigate test anxiety and academic achievement among medical students in public universities in Anambra State, South-east Nigeria. Two research questions guided the study. The design of the study was cross-sectional correlation designs. Nine hundred medical students from the two public universities in Anambra State was the population; hence, the method of Yamane, 1976 was used to draw out 400 students as a sample from the population. Test anxiety data were collected from the students, using adapted questionnaire from Spielberger Merit Anxiety Inventory. The sample consists of 200 males and 200 females. Each student's last professional examination average score was collected. The collected data were coded and analyzed, using Pearson Moment Correlation (r) as statistical tool. Correlation analysis revealed that there was positive relationship between student's test anxiety scores and their academic grade scores (GS). Further, Pearson moment correlation test analysis indicated that there was non-significant relationship between test anxiety and academic achievement of medical students. However, when gender was considered, there was negative, but non-significant correlation between test anxiety and academic achievement of male medical students. It was recommended among others that the university authorities should create test anxiety awareness in the university and provide learning environment that promotes tolerable level of test anxiety that will stimulate students to learn well and keep learning.

Keywords: Education, Test anxiety, academic achievement, grade point average, medical students. *For correspondence

INTRODUCTION

Knowledge remains the power of any nation aspiring to greatness. It is as a result of this fact that each country or nation lays much premium on the education of its citizens. Schools are established with the aim of imparting knowledge and skills to those who go through them. Actually education is a fundamental human right to humans irrespective of their sex, race or economic status as it is the key to sustainable socio economic and political development. Obviously in schools: primary, secondary and tertiary levels, great emphasis fall on achievement right from the beginning of formal education. Education plays important role in producing the best quality graduates with high academic achievement who later become great leaders, man-power for the country's economic growth and social development (Newton, 2015) Earnestly students' academic achievement is the foundation of all academic pursuits. Everything happening in the classroom is supposedly tailored to making students excel in their academic lives. Hence, students' academic achievement is the major index by which the effectiveness and success of any educational institution is ascertained. Ugwuanyi et al (2020) opined that academic achievement is the average mark obtained by an individual in his examination which describes the outcome and extent a student has achieved his learning pursuits. Similarly Zheng and Mustapha (2022) referred to academic achievement as the results achieved by students in learning school works. Zheng and Mustapha explained further that academic achievement includes cognitive and non-cognitive outcomes which covers;

knowledge, values, attitudes, skills or appropriate behaviours. Cai and Cai (2019) argued that academic achievement is not only about students' achievement in school but should include all aspects of their knowledge, competence and literacy development. However academic achievement can be referred to as collaborative result where by students, educators and institutions contribute efforts to achieve similar goals which include the degree of students in gaining knowledge and skills the educators teach.

In every educational setting, academic achievement of students is measured using results or scores of test administered to them. Testing; quiz, assignment or examination have been considered as important and powerful tool for decision making in our competitive society, therefore the high value assigned to test in education makes it imperative that evaluation of students all over the world rest on testing which helps to measure the skills the recipient exposed to the education system have acquired over the years. However, it becomes necessary to search out for factors which may interfere with the academic achievement of the students hence test anxiety attracts the interest of the researchers as a factor that may interfere with students during testing and consequently affecting their academic achievement.

Anxiety is commonly referred to as psychological state characterized by feelings of tension, worried thoughts and physical changes (American Psychological Association (APA), 2021). Anxiety can also be defined as apprehension, tension, or uneasiness characterized by fear, dread or uncertainty about something, the source of which is largely unknown and unrecognized by the individual (Shakir, 2014). Singh (2015) noted that the word anxiety is derived from the Latin word “anxietas” which commonly connotes an expectancy varying blends of uncertainty, agitation and dread. However, anxiety is a special variety of fear experienced in response to an anticipated threat to self-esteem. Everyone at one time or the other experiences anxiety hence, a moderate level of apprehension of anxiety is beneficial in supporting people and motivating them to be more accountable for the tasks they have to perform during their life time (Shoraji and Mahdavi 2021). Anxiety therefore is a normal reaction to stress that may help individuals to deal with demanding situation by promoting them to cope with it. It only becomes a disorder when it is excessive in which case the body mechanism meant to regulate reaction to stressor has been overshadowed by forces generated by the stressor. It is obvious that people with heightened form of anxiety find it hard to control their worries; their feeling of anxiety is more constant and often affects their daily life (Nancy and Gicholi 2019). Severe level anxiety inhibits individual's mental and physical health and such elevated level of anxiety has negative results on person's social, familial, occupational and educational achievement (Aloka and Odougo, 2018).

Apparently in every educational setting, academic achievement of students is measured using results or scores of test administered to them. However, as stated above anxiety may occur in test taking and when it is at severe level, it may alter the student test. Hence the anxiety is referred to as test anxiety. Mitu and Nandama (2020) defined test anxiety as a physiological condition in which people experience extreme distress and anxiety in testing situation. They posited that test anxiety decreases students ability to show their understanding concerning content of course being assessed, therefore leading to reduced enhancement in test, affecting test marks and total results. Balawan and Kour (2022) addressed test anxiety as aversive emotional experience that motivates individuals to move away or control the source of anxiety marked by subjective feelings of tensions and fear, increased physiological arousal, perceptions of danger/risk, decreased cognitive and behavioral performance, avoidance and escape. It is on this note that test anxiety can be regarded as a form of emotional impairment triggered by evaluation and characterized by behavioural responses.

Emotionally impaired students may show all or some of these signs during tests as poor self-worth, academically emptiness, fear of embarrassment by a teacher, sweating, headaches, fidgeting, nausea, dizziness, abnormal heart beats, associating school achievement with personal worth and inability to have a refreshing sleep due to irrelevant thoughts. The extent to which students manifest any or all of the above characteristics vary as an optimal level of healthy state of mind is necessary for learning and examination. Test anxiety becomes problematic when the level of arousal supersedes optimal level, thus resulting in decline in academic achievement. Apparently, Lina et al (2020) referred to test anxiety into two major dimensions which are worry and emotionality. The worry aspect is concerned with the negative thoughts and concerns that the individual has before, during and after testing situations. These negative thoughts they emphasized, are what inhibit student's ability to concentrate, assimilate, consolidate and decode learning materials, thus leading to poor academic



achievement. The emotionality dimension includes increase in somatic symptoms like cardiac arrest sweating, intestinal discomfort, nervousness, tension and fear emanating from arousal of the autonomic nervous system and responses.

Information from literature highlighted that test anxiety is a big challenge facing undergraduate students in the university. Studying as an undergraduate medical student in a university requires strong commitment and dedication from students. There has been growing attention to psychological issues among medical students and test anxiety has far reaching implications on the academic achievement of students in different discipline including medical courses. A number of investigators such as Ali et al (2016), have elaborated that to gain good academic achievement and maintain healthy state of mind necessary for learning and examination, students must be in good state of mental and physical health. Failure to detect emotional or psychological disorder like test anxiety among medical students leads to increased psychological morbidity throughout their careers as medical experts with unwanted effects on patient care and future professional examinations necessary to improve their expertise in their chosen specialties.

Medical students are not tested only on their proficiency in answering multiple choice questions and constructing essays but they must also prove their ability to attend to medical situations in real life. Their clinical examinations feature multiple examiners, oral questions and test on management of real life medical cases. Such long intense experiences place a lot of mental strain on the students before, during and even after the exams are completed. Apparently, one must be suspicious of test anxiety and how much effect it may pose on academic achievement of this class of students under study. Therefore, the consequences of test anxiety and its attacks and their relationship with academic achievement deserve serious attention among this class of students (Kumar et al. 2014; Bedany and Gabriel, 2015). Education is fundamental human right of every individual, irrespective of age, gender, race, nationality, religion or social groups. There exist differences in cognitive motivational functioning of males and females. Studies revealed that females show better performance in attitude, motivation, time management, self-testing strategies and literature while males using concentration, information processing and by selecting main idea strategies get high scores in some areas or some causes like science or mathematics (Aliatif et al, 2021). In last few decades, the number of female students has increased progressively. Among academics, gender issues are of high concern worldwide. In most of studies, gender is a research question. One of the most topical issues in the current deliberation all over the world has been that of gender differences and academic achievement among students in schools. Hence, it is crucial to know and to understand that gender may be among the factors responsible for determining, predicting or causing variance in academic achievement. Oladipo and Ogbotosho (2015) reported pervasive differences in the school achievement of males and females with males having lower scores on all standardized tests; being uniformly rated as performing less well in the areas of reading, written expression, mathematics and spelling, and at age 18, having lower success rates in school certificate examinations, higher rates of reading delay and more often leaving school without qualifications. They emphasized more that the consistently poorer academic achievement of males is due to the fact that males are cognitively less able than females.

Most studies on test anxiety were conducted in foreign countries. There is scarcity of research on relating test anxiety to higher institution students in Nigeria. Indeed such local empirical evidence is not available in Anambra state, south-east Nigeria. There is need therefore to provide empirical evidence on test anxiety and academic achievement among tertiary institutions in Anambra state.

Statement of the problem

Students' academic achievement is a major factor by which the effectiveness and success of any educational system can be asserted. In any educational setting, the academic achievement of the students determines their growth from one level of training to another until they graduate. In fact, academic achievement is the most basic and indispensable goal of any educational institution. Indeed, high quality academic achievement is expected from students especially in universities where students are developed into their specific professions or careers. In Nigeria, it is on record that there is decline in academic achievement of students in secondary schools and universities. Specifically, literature noted that there were cases of rise in students' unrest, dropping out of schools, passing out with low grades, poor in leadership skills, unclear deaths and poor in project writing and



others, among university undergraduates. While acceptable amount of test anxiety is required for students to do well in academics, it is pertinent to know that an elevated level of test anxiety has negative consequences on students' academic achievement. Test anxiety leads to inability to concentrate and process reading materials, thus leading to underachievement among higher institution's students. Some of the incidents of examination malpractice, repeating courses of study and withdrawing from academic programmes in higher institutions may be ascribed to the damaging effects of test anxiety. Some of these students indulge on hard drugs and alcohol which is unhealthy approaches, in managing themselves. However, it becomes of paramount importance for intervention by way of research.

Most studies on test anxiety were conducted in foreign countries. There is paucity of research on relating test anxieties to higher institutions students' academic achievement in public universities in Anambra state. Besides, gender differential in test anxiety and academic achievement have been investigated by many researchers. The conflicting results in those studies indicate that more studies from different environmental settings are needed to throw more light in these areas. In view of the above, this study sought to provide answers to; what is the relationship between students test anxiety and academic achievement of medicine and surgery students in public universities in Anambra state? Is there gender differential in the relationship between test anxiety and academic achievement of the students. Empirical evidence in these areas will aid the institutions authority, lecturers, parents and government to make appropriate decisions with a view to helping students manage or eradicate test anxiety.

Purpose of the study

Specifically, the purpose of the study was to;

1. Examine the relationship between students' test anxiety and academic achievement of medicine and surgery students in public universities in Anambra State.
2. Determine whether there is significant difference between the relationship of male and female test anxiety and their academic achievement.

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance:

Ho 1. There is no significant relationship between students' test anxiety and academic achievement of medicine and surgery students in public universities in Anambra state.

Ho 2. There is no significant difference between the relationship of both male and female students' test anxiety and their academic achievement.

METHOD

Research design:

The study employed a cross-sectional correlational design. It is correlational for the fact that students' test anxiety was correlated with their professional examination scores.

Population of the study:

The population of the study comprised 900 medical students in public universities in Anambra state.

Sample: In this study, 400 sample size was drawn using determination of a known population according to the method of Yamane, 1976 (In: Alemu & Feyssa, 2020). The formula for the sampling method is as follows: $n = \frac{N}{1 + N(e)^2}$. The sample consisted of 200 male and 200 female medical students.



Research instruments:

Test anxiety scale adapted from anxiety inventory by Spielberger (1977) and students' professional examination scores were used as instruments for collection of data. The questionnaire had two sections: Section (A) comprised of demographic information while section (B) consisted of 20 items in which respondents were to respond in terms of Almost Never, Sometimes, Often and Almost Always as regards their test anxiety status. The test anxiety scale was presented to 20 year four medicine and surgery students at Enugu State University for the purpose of reliability of the instrument. Cronbach's coefficient alpha was applied, which yielded a reliability coefficient (r) of 0.848. The second instrument was the academic record of the students that contained the professional examination average scores.

Data collection:

The test anxiety inventory was administered with the help of research assistant (course reps.) to 400 medical students from the public universities in Anambra State. The researchers informed the research assistants to write down the names and registration numbers of the students that received the questionnaire. The names and registration numbers helped the research assistants to collect back all the four hundred questionnaires after completion.

Data analysis:

The collected data were coded and analyzed using Pearson Moment Correlation Coefficient (r) as the statistical tool. The statistical tool was used to answer research questions and to test for hypotheses at 0.05 level of significance.

RESULTS

Table 1: The relationship between test anxiety and academic achievement of medical students in public universities in Anambra State.

		Test Anxiety	Academic Achievement
Test Anxiety	Pearson Correlation	1	.018
	Sig. (2-tailed)		.714
	N	400	400
Academic Achievement	Pearson Correlation	.018	1
	Sig. (2-tailed)	.714	
	N	400	400

** r (.018) = Positive relationship.

Table 1 showed the data, where in the r value of Pearson Product Moment Correlation Coefficient between test anxiety and academic achievement among medical students in public universities in Anambra state was .018 and the P-value was .714 at 0.05 level of confidence. Thus, the stated null hypothesis that there is no significant relationship between test anxiety and academic achievement is not rejected. As shown in fig. 1, test anxiety has positive and statistical non significant relationship with academic achievement among medical students in public universities in Anambra State.

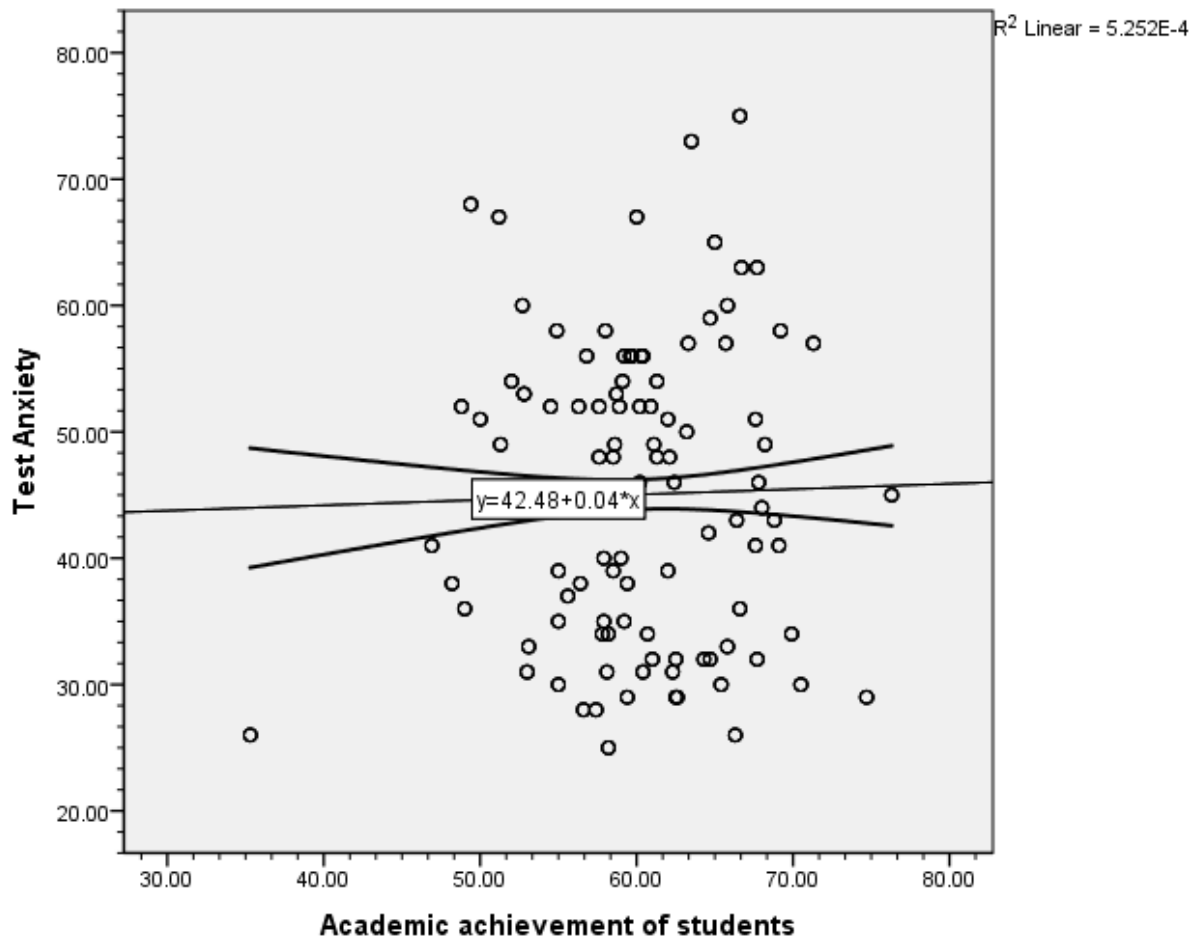


Fig. 1: Scatter plot of the relationship between test anxiety and academic achievements of medical students in public universities in Anambra State.

Table 2: The relationship between test anxiety and academic achievement of male and female medical students in public universities in Anambra State.

2a: Male students:

		Test Anxiety	Academic Achievement
Test Anxiety	Pearson Correlation	1	-.008*
	Sig. (2-tailed)		.907
	N	200	200
Academic Achievement	Pearson Correlation	-.008*	1
	Sig. (2-tailed)	.907	
	N	200	200

* r (-.008) = Negative relationship.

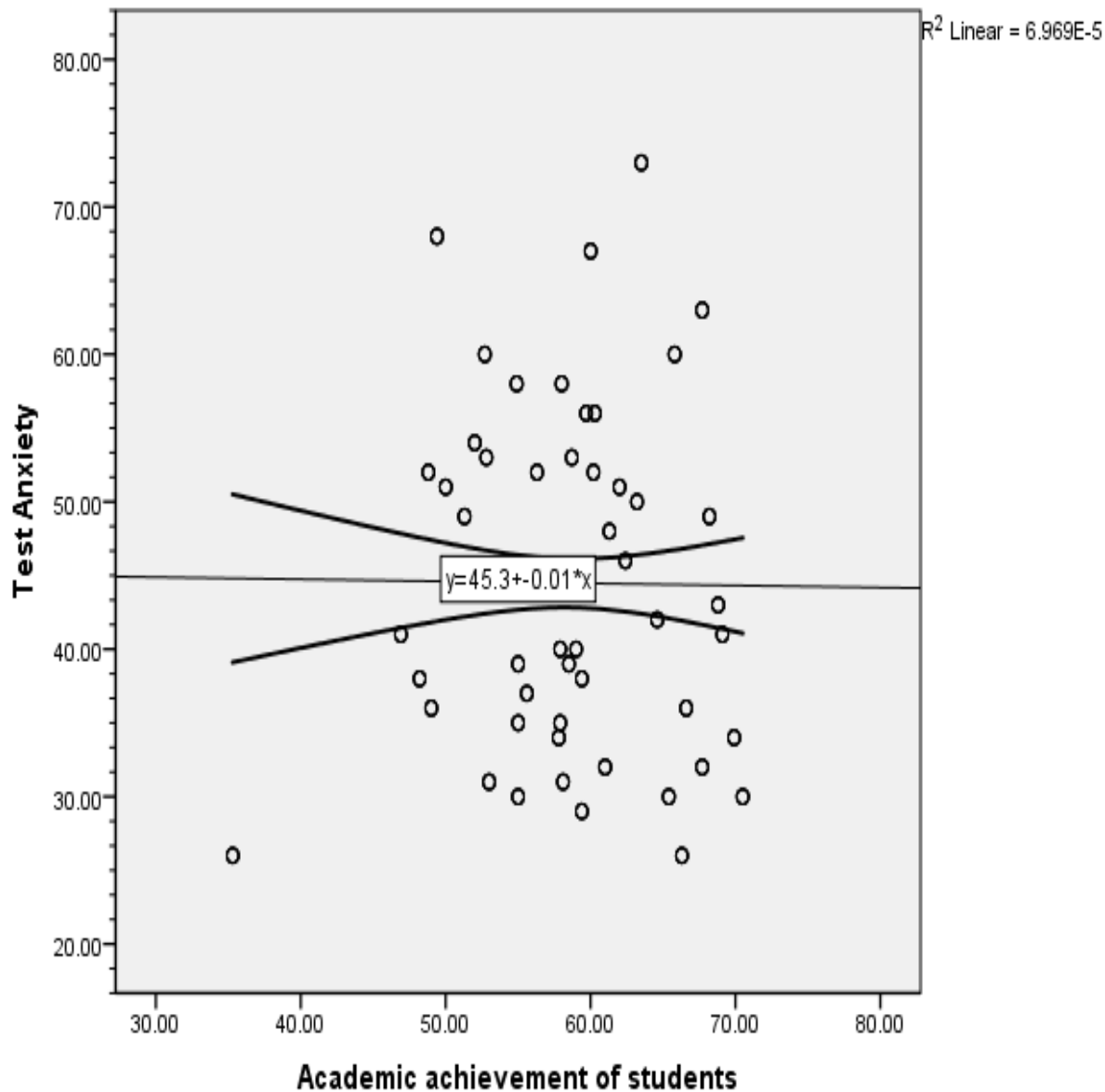


Fig. 2: Scatter plot of the relationship between test anxiety and academic achievements of male medical students in public universities in Anambra State.

2b: Female students:

		Test Anxiety	Academic Achievement
Test Anxiety	Pearson Correlation	1	.037*
	Sig. (2-tailed)		.607
	N	200	200
Academic Achievement	Pearson Correlation	.037*	1
	Sig. (2-tailed)	.607	
	N	200	200

* r (.037) = Positive relationship.

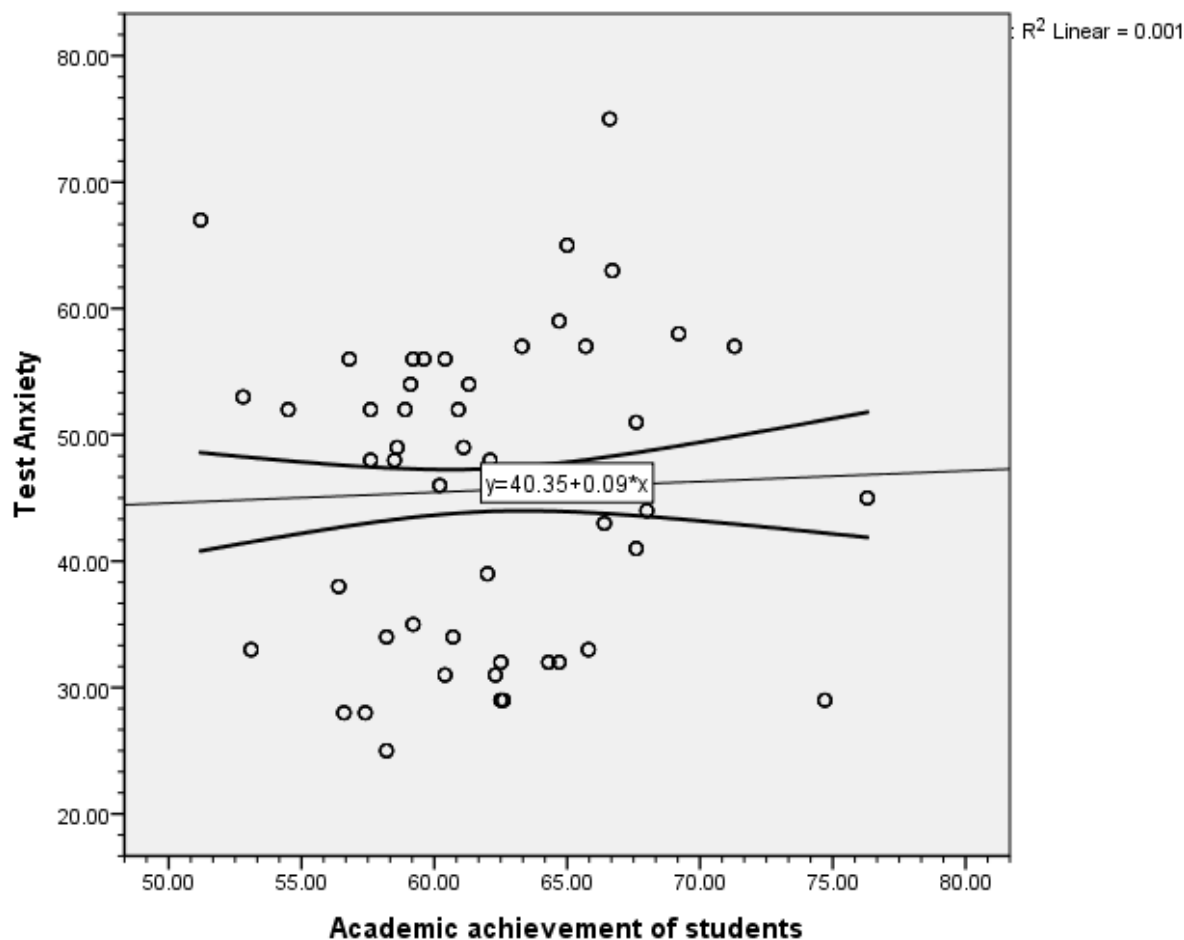


Fig. 3: Scatter plot of the relationship between test anxiety and academic achievements of female medical students in public universities in Anambra State.

It was clear from the Pearson Moment Correlation coefficient (Table 2A and 2B) that gender influenced the relationship between test anxiety and academic achievement of medical students in public universities in Anambra State. The r -value showed -0.008 and P -value = 0.907 for male indicating a statistical non-significant negative relationship between test anxiety and academic achievement of male medical students in public universities in Anambra State. The scatter plot made it clearer in fig. 2. However, among females the r -value was $.037$ and P -value was $.607$ at 0.05 level of confidence and the scatter plot of the relationship is shown in fig. 3. Thus, the stated null hypothesis that there is no significant relationship between test anxiety and academic achievement among male and female medical students in the public universities in Anambra State was upheld; therefore there is no significant relationship between test anxiety and academic achievement of male and female medical students in public universities in Anambra State.

DISCUSSION

The finding of the study revealed that medical students in public universities in Anambra State agreed that there was positive non-significant relationship between test anxiety and academic achievement. Actually, test anxiety recorded among medical students in the study did not show reduction in their academic achievement. This may be as a result of mild apprehension of test anxiety by the students which aligned with the finding of Okobia and Oji (2021) who explained that mild apprehension of anxiety deemed healthy; Hence with mild level of anxiety, student is highly alert, attentive, learning and cognition are at best for student to achieve greatly. Moreover the students may be grouped as individuals who scored on low end of neuroticism considering The Big Five personality theory of Fiske, 1949 who asserted that individuals who score on the low end of neuroticism are more likely to feel confident, sure of themselves and adventurous. They may also be brave, unencumbered by worry or self-doubt therefore will not have reduction in their academic achievement due to test anxiety.



Generally in the study, test anxiety had positive relationship with academic achievement but when gender was considered as seen in table 2 (A&B) test anxiety had negative relationship with male academic achievement and positive relationship with female test anxiety. The above statement pointed out that gender had influence on the relationship between test anxiety and academic achievement of medical students in Anambra State South east Nigeria. One may conclude that the male students were not prepared for their examination and so were not having solid grip with the content of the upcoming test thereby became worried because they knew they would probably do poorly in the test and generated high test anxiety that influenced their academic achievement. Female students who may have been expected to show negative relationship between their test anxiety and academic achievement in confirmation that they are the weaker sex and more emotional but the reverse was the case. The positive correlation of the female test anxiety and academic achievement was in consonance with the study of Shooraji and Malidavi, (2021) who explained that female students were more accountable for the task they had to perform while in school resulting in increase in their academic achievement.

Implications

In this study, it was found out that test anxiety had positive non-significant relationship with academic achievement of medical students. Further gender was considered and test anxiety among the male students had a negative relationship with their academic achievement as a result of it, the male students' academic achievement reduced. Invariably the low academic achievement will attract withdrawal of students from the medical school. Therefore, the researchers recommended that school authorities and professionals should be addressing test anxiety issues of students in higher education so that timely and effective counseling and therapeutic interventions can be introduced in medical colleges and universities.

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