



ISSN: 2476-8642 (Print)

ISSN: 2536-6149 (Online)

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Annals of HEALTH RESEARCH

(The Journal of the Medical and Dental Consultants' Association of Nigeria, OOUTH, Sagamu, Nigeria)

Volume 11 | No. 2 | Apr. - Jun., 2025



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**PUBLISHED BY THE MEDICAL
AND DENTAL CONSULTANTS ASSOCIATION
OF NIGERIA, OOUTH, SAGAMU, NIGERIA.**

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ORIGINAL RESEARCH

Academic Achievements of In-School Adolescents with Anxiety in Ilesa, Southwest, Nigeria

Oke Oluwasola J, Ayinde Joseph B

¹Department of Paediatrics and Child Health, Obafemi Awolowo University, Ile Ife, Nigeria

²Department of Paediatrics and Child Health, Wesley Guild Hospital, Ilesa, Nigeria

*Correspondence: Dr OJ Oke, Department of Paediatrics and Child Health, Obafemi Awolowo University, Ile Ife, Nigeria. E-mail: oketimilehin@gmail.com; ORCID - <https://orcid.org/0000-0001-9793-0797>.

Citation: Oke OJ, Ayinde JB. Academic Achievements of In-School Adolescents with Anxiety in Ilesa, Southwest, Nigeria. Ann Health Res 2025;11:164-173. <https://doi.org/10.30442/ahr.1102-06-282>.

Abstract

Background: Anxiety is one of the most common mental illnesses in adolescents that can interfere with cognition and performance.

Objectives: To determine the relationship between anxiety and academic achievement among in-school adolescents.

Methods: Three hundred and two adolescents aged 10-19 years were recruited from twelve secondary schools in Ilesa, Nigeria. The adolescents completed the Generalised Anxiety Disorder Scale (GAD-7) to screen them for anxiety. The continuous assessment (CA) grades were obtained for the 2022/2023 session from school records, and academic performance questionnaires were also used to evaluate their academic performance.

Results: None of the 84 non-anxious adolescents achieved a score of 80-100% on the APQ, while approximately a quarter (25.25%) of the 218 anxious adolescents scored between 80-100%. All 84 anxious adolescents scored between 0% and 79%, while about three-quarters (74.8%) of the 218 adolescents without anxiety scored between 0% and 79%. The Academic achievement of the adolescents with anxiety was significantly different from those without anxiety ($X^2 = 61.972$, $p = 0.001$). None of the 84 adolescents with anxiety had good CA scores, while about a quarter (25.2%) of the 218 adolescents without anxiety had good CA scores. The CA score of adolescents with anxiety was statistically significantly different compared with non-anxious adolescents ($X^2 = 26.016$, $p = 0.001$).

Conclusion: Secondary school adolescents with anxiety had poor academic achievement in the setting studied. Parents, school authorities, and the relevant government agencies should pay more attention to strategising and improving their performance in schools.

Keywords: Academic achievements, Academic Performance Questionnaire, Adolescents, Anxiety, GAD-7.

Introduction

The World Health Organization in 2017 reported that 264 million adolescents had anxiety disorder

globally, and females were more affected than males, with a ratio of 1.8: 1.^[1] Siti *et al.* documented a prevalence of 8.2% in Malaysian adolescent population and also reported a higher

prevalence in females than males. [2] Adolescents are young people aged 10-19 years who are in their formative years. [3] During the adolescent stage, rapid development of morals, values, and attitudes occurs, with a significant influence on their behaviour and psychology. [3] The vulnerability of this developmental period cannot be overstated, as the lifestyles formed or developed during this time can greatly affect the personality in adulthood. [4] Children transition into adulthood during adolescence, developing psychologically and intellectually in this phase to address issues of performance and competence, autonomy, identity, social status, and sexuality. [3] Adolescents are more predisposed to a lot of risks, which can adversely cause anxiety disorders, and if left unmanaged, it can create serious mental health challenges and long-term complications. [4]

Anxiety is one of the common mental illnesses affecting children and adolescents of various ages. It is characterised by fear, worry, and apprehension, with changing physiological parameters (an increase in heart rate, difficulty concentrating, and excessive sweating). [5,6] Anxiety develops from the inability of adolescents to manage their inner and outer feelings. "Inner feelings" include dread, worry, racing thoughts, nervousness, tension, and a sense of impending doom. In contrast, "outer feelings" encompass physical symptoms such as an increased heartbeat, sweating, impaired concentration, trembling, restlessness, and agitation. [5, 6] Adolescents with anxiety have apprehension, sleeplessness/oversleeping, nervousness, tension, and irritability. [6]

Academic achievement refers to the extent to which a student successfully meets the goals and standards of the educational institution. [7] Academic achievement encompasses class participation, grades, test scores, and overall academic performance. [7] Anxiety among school

adolescents has been linked to dwindling cognition and diminished academic achievement in the Czech Republic. [8, 9] Anxiety adversely affects school adolescents' ability, academic achievement and adverse outcomes, as reported by Abdullahi *et al.* in Kebbi State. [10] It was also reported that low academic achievement was associated with anxiety disorder among secondary school adolescents. [11-13] Anxious adolescents in high schools experience declining academic performance and subsequent poor outcomes. [14-16] Leigh *et al.* reported that anxious high school adolescents exhibited lower academic achievements, with significant effects on information retention, concentration, procrastination, avoidance of academic tasks, and overall task performance. [17]

In anxiety, academic learning that is mainly affected are attention, information processing, memory retrieval, and executive functioning. The ability to recall, focus, process new information, learn material and make strategic plans during learning is remarkably impaired. [18] Brown *et al.* explained that anxiety has a direct correlation with academic achievement using the Academic Performance Inventory (API) and Emotional Anxiety Inventory (EAI) tools among adolescents at the University of Parakou. [9] Anxious high school adolescents have previously held exaggerated expectations from society and institutions, triggering their excitatory physiological state (characterised by an upsurge in heart rate, difficulty concentrating, and excessive sweating) and worsening their academic performance. [19, 20] It was also reported that those anxious adolescents had significantly dwindling academic achievement, especially reading ability. [19] Societal stress and pressures can trigger anxiety and subsequently affect the overall academic achievement of adolescents. [21] School adolescents also manifest poor academic achievement when pressured by societal expectations and their demanding tasks. [22] Anxious adolescents have absentmindedness,

cognitive interference, distraction, poor concentration and attention deficit with subsequent negative overall academic achievement. [23] Dickson *et al.* reported that anxiety led to stress, worry, and fear, impairment of the adolescents' ability to retain information, concentrate, and achieve well academically. [12] Anxiety may remarkably affect cognition, initiative and learning due to a troubled mind and lack of concentration from antecedent life challenges. [24] The unpalatable approach from teachers, peers, and high parental expectations impair the learning and cognition of anxious adolescents adversely. [25] Adversity in life issues and setbacks usually worsen the cognition of anxious adolescents. [26]

A high premium is placed on academic achievement; hence, individuals strive to obtain excellent results. When performance is at stake, they become anxious. [27] Indeed, there is a two-way relationship between anxiety and school performance: poor school performance triggers anxiety, and anxiety also precipitates poor school performance. [28] Anxious students often lack focus on learning and teaching and have disorganised thoughts and a clouded mind. [29] Also, unpalatable feedback from social and cognitive issues causes low self-esteem, anxiety and academic failure. [30] Adolescents with anxiety lack confidence, fail to do tasks, develop fatigue and result in dwindling academic achievement. [31]

There is a dearth of studies that have examined the relationship between anxiety and academic achievement in Nigeria. This study explored the effect of anxiety on academic attainment of school adolescents to gain insights into their challenges and develop strategies to help them. This study may help to optimise interventions, management, and support for the affected adolescents.

Methods

Study setting

The study was conducted among secondary school adolescents aged 10–19 years in Ilesa East, LGA, Osun State, Nigeria. Ilesa is a town in the southwestern part of Nigeria, with two local government areas: Ilesa East and Ilesa West. Ilesa East LGA has thirteen wards and a geographical area of 110 km. The predominant occupation in Ilesa is Agriculture, which encompasses the production of cash crops (such as cocoa, kola nuts, and cotton) and subsistence farming, including the cultivation of vegetables and grains.

Ethical consideration

Ethical approval was obtained from the Ethics Committee of the Public Health Institute, Obafemi Awolowo University Ile-Ife, with protocol number IPH/OAU/12/1022. The Zonal Inspector of Education, Principals, and teachers in the schools also gave permission to conduct the study. Informed consent and assent were obtained as appropriate.

Inclusion criteria

All apparently healthy adolescents, aged 10 -19 years.

Exclusion criteria

Adolescents whose age could not be determined and those who were new to the class during the assessment period were also exempted.

These respondents were chosen using the multistage sampling method. The Generalised Anxiety Disorder Scale (GAD-7) was utilised to screen the respondents with anxiety, according to DSM V. [32] The Academic Performance Questionnaire (APQ) [33] and the continuous assessment scores in school were used to assess the academic achievements of the respondents. A continuous assessment score of less than 50% was designated as a low CA score, scores of 50-69% were classified as average CA scores, and scores of 70% and above were considered good scores.

The socio-demographic characteristics of the anxious adolescents and the non-anxious adolescents were determined. [34] The research was conducted among adolescents who had stayed in the class for equal to or more than six months (first two terms of the session) to enable accurate evaluation.

Multistage Random Sampling

A purposive sampling procedure was adopted. Ilesa was purposively selected as the study site due to its convenience. A preliminary visitation was made to the chosen schools after obtaining permission from the Zonal Inspector of Education. The selection method was a multistage sampling method. The Secondary schools in Ilesa East LGA were used as the sampling frame.

Stage 1: One of the 2 LGA in Ilesa was selected using simple random sampling, and Ilesa East LGA was subsequently selected with the technique mentioned above.

Stage 2: A list of all 72 secondary schools was compiled, and each was assigned a unique number. Twelve Schools were selected from the 72 schools using a simple random sampling method by ballot. The rationale for choosing 12 schools was to have a proportionate representation. The number of adolescents found in twelve selected secondary schools was 1010, comprising 630 JSS students and 380 SSS students.

Stage 3: Proportionate sampling was used to select 302 adolescents from the 12 schools. Students were chosen from JSS1 to SSS3 based on their proportion to the school's enrolment size. The total number of selected adolescents in public and private schools was 170 and 132, respectively, out of 1010 students from 12 selected schools.

Stage 4: One arm of each class from JSS1-SSS3 of each selected school was selected by balloting using simple random sampling. A table of random numbers was used to choose from each class in the school register. Absentees and

those outside the age bracket were excluded and replaced by others from the class register.

Data collection

Academic Performance Questionnaire

The Academic Performance Questionnaire (APQ), a 10-item assessment tool, was used to evaluate students' classroom academic abilities [33] and has been validated and previously used in Nigeria to assess academic achievement. [33] It assesses comprehension, reading ability, the ability to complete homework and assignments, mathematics, storytelling, writing skills, and essay writing skills compared to other classmates. It is categorised on a Likert scale of 1-5 (0%-59%, 60%-69%, 70%-79%, 80%-89%, and 90%-100%). A score of 5 is the best, while a score of 1 is the worst. The teachers assessed the students' achievement after they had undergone two weeks of training on how to use the APQ. Questionnaires were filled out by the researcher and trained assistants in English and Yoruba, based on convenience, and pretested before administration.

Generalised Anxiety Disorder Scale (GAD-7)

Generalised Anxiety Disorder Scale (GAD-7) is a 7-item assessment tool used to assess anxiety disorder among students, [32] and has a Likert scale of 0- 3 with a score of 5 and above taken as anxiety. The scores 0, 1, 2, and 3 in the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day." GAD-7 total score for the seven items ranges from 0 to 21. 0-4: minimal anxiety, 5-9: mild anxiety, 10-14: moderate anxiety and 15-21: severe anxiety.

Parental Authority Questionnaire (PAQ)

Parenting styles were assessed using the PAQ, a 30-item self-report questionnaire developed to determine parenting style from the adolescents' perspective. It has three subsections: permissive, authoritarian, and authoritative, each with 10 items. Separate forms were used for the mother and father, but they had the same content. The pattern of response is in Likert

format, 1- 5 ("strongly disagree" to "strongly agree").

The Multidimensional Scale for Perceived Social Support (MSPSS)

This is a 12-item questionnaire, validated in Nigeria by Bello *et al.* It was used to assess sources of support received from friends, family, and others. It is a 7-point Likert scale scored as 1-7, from "very strongly disagree" to "very strongly agree".

Adaptability, Partnership, Growth, Affection, and Resolve (APGAR)

The family function was measured by assessing the adolescents' satisfaction with intra-family relationships with the APGAR scale, which is a 5-item questionnaire with a Likert scale of 0 -2 ("hardly ever to almost always"). Scores less than three are in the category of severe, (4-6) moderate and (7-10) mild family dysfunction. It is commonly used as a tool to evaluate the functioning of families and is the ideal method for assessing dysfunctional families. It is reasonably simple and easy to administer.

Data analysis

Research data were obtained and analysed with SPSS version 21. Analysis of the data was done with both descriptive and inferential statistics. The test of associations between the outcome variables was performed using the Chi-square test, the Pearson correlation test and the Student's t-test as necessary. *P* values less than 0.05 defined statistical significance.

Results

Age prevalence of anxiety among the participants

Table I shows the prevalence of anxiety in the various age groups. The prevalence of anxiety was predominantly higher among early adolescents. One hundred and fourteen of 302 study adolescents had anxiety, with a prevalence of 37.7%. The mean age was 13.6 ± 2.4 years. The mean and median age of subjects with anxiety were 13.1 and 13.0 respectively; for subjects without anxiety, the mean and median age were 13.9 and 13.1, respectively as shown in Table II.

Table I: Age prevalence of anxiety among in-school adolescents

Age (Years)	Anxious n (%)	Non-anxious n (%)	Frequency, N = 302	% (Prevalence)
Early Adolescence (10-13)	75 (42.9)	100 (57.1)	175	58.0
Middle Adolescence (14-16)	16 (21.6)	58 (78.4)	74	24.5
Late Adolescence (17-19)	23 (43.4)	30 (56.6)	53	17.5
Total	114 (37.1)	1188 (62.9)	302	100

Table II: Comparison of the mean anxiety scores of the anxious and the non-anxious adolescents

Variables	T	df	p-value	Mean difference	95% confidence interval	
					Lower	Upper
Anxious	65.561	114	0.001	13.1	12.7	13.5
Non-Anxious	76.173	188	0.001	13.9	13.1	14.2

Academic Achievement and CA of anxious and non-anxious adolescents

Academic achievement, as derived from APQ and continuous assessment scores, of anxious and non-anxious adolescents is described in

Table III. The academic achievement of the subjects with anxiety was significantly lower than those without anxiety ($X^2 = 61.972$, $p = 0.001$). None of the 84 adolescents with anxiety had good CA scores, while about a quarter

(25.2%) of the 218 adolescents without anxiety had good CA scores. The CA score of the respondents with anxiety was statistically

significantly lower than those without anxiety ($X^2 = 26.016$, $p = 0.001$).

Table III: Academic performance and continuous assessment output of respondents

Variables	Anxious n (%)	Non-Anxious n (%)	Total n = 302	X^2	p-value
APQ				61.972	0.001*
90-100%	0 (0.0)	6 (100.0)	6		
89-90%	0 (0.0)	49 (100.0)	49		
70-79%	69 (36.7)	62 (63.3)	131		
60-69%	40 (4.0)	60 (69.0)	100		
0-59%	5 (31.3)	11 (68.7)	16		
Continuous Assessment				26.016	0.001*
Good	0 (0)	25 (100.0)	25		
Average	79 (34.2)	152 (63.8)	231		
Low	35 (31.3)	11 (68.7)	46		

*Fisher's Exact test

Correlation of continuous assessment, academic achievement, age, and prevalence of anxiety

Table IV shows a weak positive correlation between educational attainment and severity of anxiety among the respondents ($r = 0.230$, $p = 0.001$). Similarly, a weak positive correlation was

observed between continuous assessment and severity of anxiety among the respondents ($r = 0.337$, $p = 0.001$). There was a weak positive correlation between age and severity of anxiety among the in-school adolescents ($r = 0.122$, $p = 0.033$),

Table IV: Correlation of continuous assessment, academic performance, age and severity of anxiety among respondents

Variables	R (Correlation coefficient)	p-value
Severity of anxiety	0.961**	0.001
Continuous assessment	0.337**	0.001
Academic performance	0.230**	0.001
Age	0.122*	0.033

Discussion

In this study, poor academic achievement was found in adolescents with anxiety, and this was in agreement with the research done by Jansen *et al.* who reported that anxiety negatively affects academic achievement. [14] Similarly, Dickson *et al.* also reported that anxiety negatively affected adolescents' academic achievement by affecting their cognitive functioning and concentration

ability. [12] Also, Brown *et al.*, documented the negative correlation between anxiety and academic achievement among school adolescents. [9] Abdullahi *et al.* in another study emphasised that adolescents who had chronic anxiety have a tendency to have poor grades and increased school absenteeism compared with those without anxiety. [10] Ibrahim *et al.*, in their study highlighted the adverse effects of anxiety on school adolescents' ability to retain

information, concentrate and perform well in examinations. [13] The research by De Botton *et al.* reported that anxiety negatively impacted academic achievement by affecting motivation, cognition, lack of interest, and poor school attendance and also leads to avoidance of challenging tasks by the affected adolescents. [11] Anxious adolescents may be prone to low academic achievement due to poor concentration, lack of motivation, poor school attendance, loss of interest, and distractions. [35]

This research agreed with previous studies that reported that anxious adolescents tend to have poor academic achievement. Poor academic achievement was commoner with those who had severe anxiety and was in accordance with the study done by Leigh *et al.* [17] This could be a result of comorbidities and severe affectation of cognitive functions and concentrations. The perceived possibility of not being able to achieve these milestones in life due to poor academic achievement could be significant enough to predispose adolescents to anxiety. [37] Anxiety was reported to have a subjective impact on the evaluation of academic ability than on actual academic achievement. [38] Low academic achievement, particularly achievement that demands rapt attention and concentration, has been documented to be linked with adolescents' anxiety. [16] Bashir *et al.* also reported that anxious adolescents scored significantly lower on academic achievement tests. [25]

Despite various studies reporting an inverse relationship between anxiety and academic achievement, some documented studies have reported contrary results. [36] Balogun *et al.* found that anxiety had no significant adverse effect on mathematics achievement among school adolescents. [19] Dawood *et al.* reported that there was no adverse significant relationship between anxiety and nursing adolescents' grades. [24] Alemu *et al.* also found that female school adolescents with anxiety had significantly higher

academic scores than male adolescents. [23] These contrary results may be due to varying societal values, expectations and socioeconomic status among the studied adolescent population.

Conclusion

Secondary school adolescents with anxiety had poor academic achievement. Understanding the relationship between academic performance and anxiety can allow parents, educators and the government to strategise to overcome the challenge. Anxious secondary school adolescents should be promptly referred to a mental health team for management. School health programs should be instituted for enlightenment about anxiety to reduce its negative impact on academic achievement. A conducive school environment should be fostered to promote healthy psychological development in secondary school adolescents. Financial incentives and scholarships should be made available for indigent adolescents to cushion economic hardship and stress. Efforts should also be made to enhance the family system and function through a government-supported family support program.

Authors' Contributions: Both authors conceived and designed the study, did the literature review, data analysis and interpretation and drafted the manuscript. Both authors revised the manuscript for its sound intellectual content and approved the final version.

Conflicts of Interest: None.

Funding: Self-funded

Publication History: Submitted 11 December 2024; Accepted 07 April 2025.

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Appendix I

Section A: Academic Achievement Questionnaire (APQ)-

Note: 5 indicates 90% to 100%; 4, 80% to 89%; 3, 70% to 79%; 2, 60% to 69%; 1, 0% to 59%.

Mark the column that fits best into the academic achievement of this child in the class.

<i>Items</i>	1	2	3	4	5
1 If you compare this student with other average students in your class, how good is this child's reading ability?					
2 If you compare this student with other average students in your class, how good is their ability to comprehend what they read?					
3 If you compare this student with other average students in your class, how good is their ability to perform math calculations?					
4 If you compare this student with other average students in your class, how good is their ability to perform math word problems?					
5 What is the percentage estimate of written completed math work (regardless of accuracy) compared to classmates?					
6 What is the percentage estimate accuracy of written math work completed?					
7 If you compare this student with other average students in your class, how good is he/ her able to write essays or short stories?					
8 What is the percentage estimate of written language arts work Completed (regardless of accuracy) compared to classmates?					
9 What is the percentage estimate of the accuracy of completed written language arts?					
10 What is the percentage estimate of the percentage of homework completed?					

Appendix II

GAD-7 Anxiety Scale

<i>Over the last two weeks, how often have you been bothered by the following problems?</i>	<i>Not at all</i>	<i>Several days</i>	<i>More than half the days</i>	<i>Nearly every day</i>
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3