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Demographic Factors and Test Anxiety among Secondary School Students

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A B S T R A C T

The purpose of this study was to determine the level of test anxiety among secondary school students in Ilesa East Local Government Area (LGA) of Osun State, Nigeria. It also examined the association between students' demographic factors and test anxiety in the study area. The study population comprised all Senior Secondary School (SSS) III students in the LGA. A sample of 240 students was selected by stratified sampling technique using school ownership (public and private) as a stratum. An adapted questionnaire titled Students' Test and Examination Anxiety Measure (STEAM) was used to collect data for the study. The result showed that 50.8% of the respondents had a low level of test anxiety while 49.2% of respondents have a high level of test anxiety, and there was no statistically significant influence on students' gender (Wald X2 = 0.000, p > 0.05) on test anxiety. The study concluded that test anxiety is a physiological condition commonly exhibited by students irrespective of gender. It is recommended that any policy intervention programme to be developed either by the government or private organizations must not be gender biased.

A R T I C L E I N F O

1. INTRODUCTION

Anxiety is a general phenomenon commonly exhibited by people at one stage of life or the other irrespective of age, gender, educational level, and social status. It is characterized by excessive anticipated fear, exaggerated worry, tension, and behaviour disturbances even when there is little or nothing to provoke it. From the psychiatric perspective, different forms of anxiety have been established and well documented as anxiety disorders. These among others include social anxiety, panic disorder, agoraphobia, and substance/medication-induced disorder. However, within the framework of education and school context, students commonly exhibit some anxiety-related problems, including test anxiety.

Test anxiety relates to a physiological condition in which students experience extreme distress or panic before, during and after tests which in turn impedes academic outcomes. Severe test anxiety is not only potent enough to cause poor academic performance but can negatively affect the long-term educational achievement and well-being of students (Salend, 2012). Test anxiety is characterized by physical, cognitive, and behavioural symptoms when preparing for the test and performing tests. It becomes a more complex problem that requires serious psychological or medical attention when a high or severe level of anxiety counteracts preparing for the exam and performing well in the test (Gilavand, 2018), preventing students from demonstrating their knowledge on examinations, or when it is associated with abnormal behaviour, impaired concentration, or avoidance of reality.

Apart from this, students at various levels of education have reported experience of test anxiety in some empirical studies conducted in different countries of the world. For instance, test anxiety affects 10 to 40 per cent of all students across the world (McDonald, 2010), and between 25 and 45% of students reported the effects of test anxiety (Salend, 2012), Kavakci *et al.* (2014) reported 52.25% among Turkish students. The prevalence of test anxiety documented in a few selected studies from the United States of America (Saha, 2012), United Kingdom (Putwain & Daly, 2014), and Malaysia (Salend, 2012) are 55%, 16.4%, and 32.5% respectively. In developing and African countries, available statistics reveal that test anxiety is high due to poor learning conditions, and insufficient resources and facilities needed for learning (Okongo *et al.*, 2015). Tsegay *et al.* (2019) estimated that 52.3% of medical students in Ethiopia exhibited test anxiety. In Nigeria (Aluh *et al.*, 2020) and Ghana, the degree of test anxiety was documented as 63.5% and 53.3% respectively and skewed toward the female than the male population.

In addition, empirical information from previous studies found that gender and low self-concept (Masson *et al.*, 2004; Iroegbu, 2013), academic dishonesty, alcohol and coffee consumption, and use of illicit drugs (Newbury-Birch *et al.*, 2000), lack of time management skills (Duraku, 2017), and exhibition of maladaptive behaviour (Saha, 2012) are some of the associated factors of test anxiety among students. According to the Anxiety and Depression Association of America (ADA), people that are suffering from test anxiety must consistently manifest some physical symptoms (excessive sweating, rapid heartbeat, headache, lightheadedness or faint, nausea, shortness of breath); emotional Symptoms (stress, fear, hopelessness, anger, self-doubt, fidgety); and behavioural symptoms (going blank during the test, performing well in class or on homework, but failing to do well when tested, lack of confidence during the examination, and always complaining that time was not enough to prepare for the examination, lack of concentration) over six months or more.

During public examinations conducted by various examination bodies in Nigeria such National Examination Council (NECO), West African Examination Council (WAEC), Joint Admission and Matriculation Board (JAMB), and Nation Business and Technical Examinations

Board (NABTEB) in Nigeria, many examinees exhibit various symptoms of test anxiety not only when it comes to Computer-Based Test (CBT) but also during the paper and pencil tests. This may be attributed probably to their level of computer self-efficacy and other related skills, preparation for the examination, and reading and time management skills. However, necessary information about students' demographic factors related to the exhibition of anxiety before, during and after examination needed by teachers, professional counsellors, education policymakers, and examination bodies is required in providing therapeutic help, necessary learning resources and supports for the examinees in Nigeria and Africa at large. Following this background, it is the purpose of this study to determine the level of test anxiety among secondary school students and examine the influence of demographic factors on students' test anxiety in Ilesa East Local Area of Osun State, Nigeria.

2. METHOD

This study employed a descriptive survey design. The study population comprised all Senior Secondary School (SSS) III students in Ilesa East of Osun State. A sample of 240 students was selected in stages for the study. First, a stratified sampling technique was used to select six secondary schools using school ownership (public and private) as a stratum. Three secondary schools were selected from each of the stratum making a total of six secondary schools. Only SSS III students were purposively considered eligible participants for this study because they were already preparing for the next Senior School Certificate Examinations (SSCE) being conducted by the West African Examination Council (WAEC) and National Examination Council (NECO) and Unified Tertiary Matriculation Examination (UTME) being conducted by Joint Admission and Matriculation Board (JAMB) in Nigeria. In each school, a simple random sampling technique was used to select 40 students making a total of 240 participants for the study.

A questionnaire titled Students' Test and Examination Anxiety Measure (STEAM) was used to collect data for the study. The STEAM contained 26 items sub-divided into two sections A and B. Section A of the questionnaire consisted of 4-item of students' demographic information (gender, school ownership, age, religion), while section B made up of 26 close-ended items measuring test and examination anxiety of students. The STEAM was slightly modified to suit the educational level of the study participants. Participants were asked to respond to the 26-item using a 5-point Likert rating Scale ranging from "Untrue of Me" to "True of Me". The items were scored "1", "2", "3", "4", and "5" for Untrue of Me", Somewhat Untrue of Me", Can't Say", Somewhat True of Me" and "True of Me" respectively. Adding up the scores, the minimum and maximum scores for a participant are 26 and 130 respectively. These were used to classify participants into two levels of test anxiety. The participant whose scores ranged from 26 to 89 were judged to have a low level of test anxiety while participants whose scores ranged between 90 to 130 were judged to have a high level of test anxiety.

Based on the psychometric properties questionnaire as reported in the original version of the instrument, The STEAM produced the internal consistency measure of Cronbach's alpha of 0.90 and demonstrated concurrent validity with other measures of anxiety and test anxiety. Apart from the reliability scores reported by the authors of the STEAM, efforts were made to validate the instrument further. This was done to ensure that items that can convey the content of domains are well measured. Consequently, the instrument was tested for the suitability of the items for factorial validation. Using the Kaiser-Meyer-Olkin (KMO) measure of adequacy 1974, 0.531 was obtained and this is more than the acceptable and recommended benchmark of 0.500 (Kaiser, 1974). This ensures the adequacy and reliability of the STEAM used for data collection . Data collected were managed and analysed in Microsoft Excel 2010

and SPSS 20 version using analysed using simple descriptive statistics. Specifically, frequency count and percentage were used to answer the research question raised while hypotheses one and two were tested by ordinal logistic regression and chi-square analyses respectively.

3. RESULTS AND DISCUSSION

The results obtained from the analysis of data collected are presented in order of the research objectives raised. It is preceded by the presentation of the preliminary analysis of participants' demographic information followed by the results of the research question and test of hypotheses shown in **Table 1**.

Table 1. Demographic information of the study participants.

Variable	Frequency	Percentage
School type		
Public	120	50
Private	120	50
Gender		
Male	107	44.6
Female	133	55.4
Religion		
Christianity	171	71.3
Islam	65	27.1
Traditional	4	1.7
Age		
10-15	129	53.8
16-20	111	46.3
TOTAL	240	100

Research question one: What is the level of examination anxiety among students?

To answer this question, the responses to section B were summed up to constitute respondents' level of test anxiety. On the scale, the minimum score is 26, the maximum score is 130, while the mean score and standard deviation are 89.05 and 18.92 respectively. The respondents who scored from 26 to 89 were judged to have low test anxiety levels, and respondents who scored from 90 to 130 were judged to have high test anxiety levels. The result is presented in **Table 2**. From **Table 2**, the result showed that 122 (50.8%) of the respondents had a low level of examination anxiety while 118 (49.2%) respondents have a high level of test anxiety.

Table 2. Level of examination anxiety among students.

Level of Examination Anxiety	Frequency	Percentage
Low	122	50.8%
High	118	49.2%
Total	240	100%

Research Hypothesis One: Demographic factors will have no statistically significant influence on students' test anxiety. To test the hypothesis, the computed scores of the respondents in section B were subjected to a test of influence using Ordinal logistic regression showing the influence on student demographic factors sex and age as grouping variables respectively. The result is presented in **Table 3** both gender and age are not statistically significant. For gender, Wald X2 = 0.000, p > 0.05, therefore for each unit increase in females relative to males there is a 6.3 increase in the test anxiety, given that all other variables in the

model are held constant. In terms of age, with Wald X2 =0.000, and p > 0.05 for a one unit increase in age, for each unit increase in age, there is a 3.7 increase in the ordered log odds of an exhibition of test anxiety, given all the other variables in the model are held constant. Hence, the null hypothesis was accepted, and it was therefore concluded that there is no significant influence of student demographic factors (sex and age) on test anxiety.

Table 3. Influence of students' demographic factors on test anxiety.

| | | | Estimate | Std. Error | Wald | df | Sig. | 95% Confidence Interval | |
								Lower Bound	Upper Bound
Threshold	Test anxiety= [1.00]		0.110	0.353	0.097	1	0.756	-0.582	0.802
	Test anxiety= [2.00]		2.847	0.420	45.982	1	0.000	2.024	3.670
	Sex		6.247	0.713	0.000	1	1.000	1.398	1.398
	Age		3.691	0.475	0.000	1	1.000	-0.930	0.930

Link function: Logit.
a. This parameter is set to zero because it is redundant.

Research Hypothesis Two: There is no significant association between school ownership (public or private) and students' test anxiety.

To test the hypothesis, the computed scores of the respondents in section B were subjected to a test of influence using chi-square tests of association with school ownership as grouping variables respectively. The result of the chi-square in **Table 4** shows the analysis of the association between school ownership and test anxiety of students. It can be observed that 32.5% of public-school students exhibited a low level of anxiety while about 69.2% of their counterparts in private schools exhibited a low level of test anxiety. Also, 67.5% of students that exhibited a high level of test anxiety are students in public school while 30.8% of them are in private school. The result shows that school ownership is a major factor and had a significant influence on the level of test anxiety of students ($\chi 2 = 3.83$, $p = 0.005$). Hence, the null hypothesis is rejected, and it can be concluded that there is a statistically significant association between school ownership and the level of test anxiety of students.

Table 4. Association between school ownership on test anxiety.

| | | School Ownership | | | X^2 | P |
		Public	Private	Total		
Test Anxiety	Low	39 (32.5%)	83 (69.2%)	122 (50.8%)	0.005	3.83
	High	81 (67.5%)	37 (30.8%)	118 (49.2%)		
Total		120 (50%)	120 (50%)	240 (100%)		

(χ^2= 3.83, df= 1, p<.05)

4. DISCUSSION

Having explored the problematic nature of test anxiety and its associated factors among students in the background, this study further established the demographic factors of test anxiety among secondary school students. Consistent with previous studies (Saha, 2012; Salend, 2012; Putwain & Daly, 2014; Gilavand, 2018), the first finding of this study indicates that many secondary school students in Nigeria are also suffering from test anxiety. Further to this, it was found that almost half of the students sampled exhibited a high level of test

anxiety. This finding is consistent with the report of Tsegay *et al*. (2019) that students exhibited significant test-level anxiety. Experience this extent of a high level of test anxiety by test takers is potent enough to negatively affect the academic performance of students on the test (Alemu & Feyssa, 2020) because students that exhibit a low level of anxiety are more likely to perform better in the test than those with the high level of anxiety (Iroegbu, 2013).

Test anxiety among students is associated with many factors, in this study, it was found that gender when compared with the age of the students does not have any predictive influence on the level of examination anxiety of the students. This is an indication that irrespective of the gender role of students , test anxiety is a major issue among them because it was found in this study that there was no statistically significant difference between gender and test anxiety (Brook *et a*l., 2015). The implication of this is that gender cannot be used as a predictive factor of test anxiety among students. Clinically, both males and females that are victims of test anxiety will require an equal degree of attention from professionals like counselling psychologists and psychiatrists for therapeutic help. Many studies have found that students' test-anxiety levels were significantly influenced by gender and that female student will demonstrate higher test anxiety than males (Masson *et al*., 2004; Ngwoke *et al*., 2013). This finding is not in line with the submission of Masson *et al*. (2004) who reported gender differences in test anxiety . One of the factors that may be responsible for these differences includes the sample size of participants and maturity . Apart from this, motivation and aggression were used as correlates of test anxiety in their study but not demographic factors per se.

It was hypothesised that was no statistically significant association between school ownership (public or private) and test anxiety of students. The findings of this study indicate that there was a significant association between school ownership and the test anxiety of students. This finding supports the submission of Akanbi (2013), who reported that students in public schools were having significantly higher test anxiety compared to those in private schools. This is a that school ownership is a major factor and had an influence on the level of test anxiety of students. Empirical findings on this issue with special reference to school ownership are scarce in test anxiety literature. However, some of the factors that may be responsible for this difference in the students' level of test anxiety based on school ownership include the provision of good learning conditions (Okongo *et al*., 2015; Tsegay *et al*., 2019), guidance training on good reading habit (Ngwoke *et al*., 2013), time management skills (Duraku, 2017) and teachers' commitment to quality instruction delivery for the students. This has a lot of implications for school administrators, education policymakers, and school counsellors.

5. CONCLUSION

Based on the findings of this study, it can be concluded that test anxiety is a physiological condition commonly exhibited by students irrespective of gender differences even though it was more prevalent among public school students. Several recommendations are:
(i) Since it has been established in this study that test anxiety is a psychological problem being manifested by both males and females, it is recommended that any policy intervention programme to be developed either by the government or private organization must not be gender biased. The policy must in any way favour males at the expense of females or vice-versa.
(ii) Education policymakers, administrators, and management of public secondary schools should create enabling environment for effective teaching and learning through the

provision of quality learning (human and material) resources that will make instruction delivery more efficient and in turn reduce the magnitude of test anxiety among students.

(iii) School counsellors should intensify their efforts by regularly organising guidance programmes purposely designed to reduce test anxiety among students. Effective guidance programmes that can be organized to reduce this issue may include good "reading habits", "time-management techniques" and quiz competitions for students within the school.

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7. AUTHORS' NOTE

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