Examining the relationship of school environment, self-concept, and workload with academic stress among young students of Sudan.

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Abstract

In today's highly competitive world, students face various academic problems, including disinterest in attending classes, inability to understand the subject taught, and most significantly, academic stress. The alarming rates of academic stress among tertiary students constitute grave consequences for educational practitioners and society. This study, therefore, examined the school environment, self-concept, workload, and classroom size as predictors of academic stress among first-year tertiary students in Southwestern Nigeria. For this study, a descriptive research design of survey type was adopted. The study adopted the multistage sampling method. The simple random sampling technique was used to select one tertiary institution from each of the six states in Southwestern Nigeria. 300 first-year students were used for the study. Valid and standardized instruments, including the School environment Scale (α=0.78), Self-concept Scale (α=.82), Academic Workload Scale (α=.78), and Student Academic Stress Scale (α=.73), were used for information gathering. Data collected was analyzed using simple percentages, Pearson product-moment correlation (PPMC), and multiple regression statistical method at 0.05 level of significance. Findings revealed that academic stress of first-year tertiary students is significantly correlated with the school environment, self-concept, workload and classroom size. Class size made the most significant contribution, followed by workload, School environment and Self-concept. Based on these findings, it is concluded that many of the students were highly stressed due to the large class size and too much academic workload. Therefore, there is a need for active participation from both the public and private sectors in the planning of educational facilities in tertiary institutions.

Keywords: School Environment Self-Concept, Workload, Classroom Size, Academic Stress

1. Introduction

Stress has become a significant impediment to academic performance among students both at the secondary and tertiary levels as more students than ever before report feeling stressed. The primary source of stress, according to 55% of students, is academic-related (Busari & Adewuyi, 2018). Stress results from any enormous burden on a person which exceeds available assets, especially when it is harsh and extended. Stress is the unfavorable reaction people have to tremendous pressure due to the burden put on them and is a reaction to a situation that a person perceives as intimidating. It is a means by which the body shows that something is going on that requires attention. Hence, high stress could prohibit students from achieving their educational objectives. According to Adam and Aminu (2017), students may find educational pursuits stressful and busy. Students must overcome some frustrating obstacles while juggling the work of writing, reading, interpreting, verbal communication, and conducting calculations and this may result in a condition known as academic stress. Moreover, stress can be linked to or made worse by a number of the emotional and physical symptoms that primarily affect students, such as headaches, sadness, exhaustion, anxiety, and an inability to cope. Some students are diagnosed with clinical depression due to excessive workloads. Students who have assignments due for submission may grow anxious, likely leading to stress. Any student who wants to excel academically and avoid failure must spend most of their time reading, thereby losing sleep which may also lead to stress in the long run.

Currently, students are found to be susceptible to stress and its effects, such as anxiety, sadness, and burnout. Stress can make it more difficult for students to participate in their education, raise their risk of substance abuse, and their engagement in other potentially dangerous behaviors. Concerning life events, the primary and second most frequently mentioned issues for people are death and taxes, respectively, with stress coming third (Rosa & Preethi, 2012). Stress is a part of life regardless of how affluent, muscular, attractive, or joyful a person may be. However, depending on the circumstances, stress can manifest in several ways. Stress might occur when taking a challenging exam, being involved in a car accident, standing in line, or when everything goes wrong in one day. A significant turning point in a person's academic life occurs during their postsecondary education. At this point, decisions about the next higher level of school and possibly even a career are heavily influenced by young people's academic achievement. Hence, too much stress during this period could increase the incidence of psychological issues like anxiety and depression, which could ultimately have a detrimental effect on achievements, resulting in academic stress (Ghatol, 2017).

Busari (2011, 2014) views academic stress as a worldwide phenomenon that affects students' academic performance. While people try to deal with or adjust to pressure, academic stress is a damaging emotional, cognitive, behavioral, and physiological process. Examples of such stressors include the academic obligations that students have to satisfy, such as school tests, answering questions in class, proving progress in courses, understanding what the teacher is teaching, competing with classmates, and meeting teachers' and parents' academic expectations. These demands or tasks may exceed students' abilities and resources; as a result, it could put them under stress. Academic stress is a significant element affecting how academic achievement varies. It also relates to significant risks for mental health and physical stress-related issues (Adewuyi, 2021). Stress significantly influences future student performance predictions and is a poor indicator of academic performance for students.

Further, a first-year tertiary student may experience stress for various reasons, including academic pressure, money woes, health issues, or the death of a close friend or family member. The person's capacity to handle life's obstacles will determine whether they experience stress. Both beneficial and harmful effects might result from academic stress. Unfavorable stress is an inhibitor of learning and is linked to the suppression of students' academic performance (Olanrewaju & Omoponle, 2017). Academic stress is acknowledged as a feature of student life and has the potential to affect how well students manage the demands of their academic lives. This is the case since academic work is consistently completed through stressful activities (Busari & Adewuyi, 2018).

The first year on campus can be very stressful for many tertiary students. Their academic success could be determined by how they cope with the stressful events during this first year. New expectations are placed on the students, particularly concerning their development as independent learners. Many students need help with being self-directed learners. Students' dissatisfaction with their teachers and the academic environment at their university can be a direct result of these new demands. Wintre and Yaffe (2000) affirm that high levels of stress in the first year of tertiary education predict a poorer overall adjustment and can make students more vulnerable to social and psychological problems which can lower their grade point average (GPA) in the final year. Researchers who have studied this issue have found that several psychological issues, such as stress, anxiety, and depression, have an impact on students' academic performance. In anxious and depressed young people, stressful life situations are much more common, which result in low academic performance, according to Williamson, Birmaher, Ryan, and Dahl (2005).

Students today deal with various academic issues, such as failure, a lack of enthusiasm for attending courses, a lack of understanding of the subject or course of study and exam stress which includes feeling anxious or uneasy about how well one will perform in the exam. Three out of every 10 people needed help falling asleep or skipping lunch at least once per week. Academic stress is linked to several psychosocial factors, such as depression, loneliness, anxiety, substance use, mood disturbance, sadness, despair, discouragement, and poor relationship quality with peers which may lead to experiencing mental health problems (Busari & Adewuyi, 2018). It is paramount to know that academic stress among students does not only affect the first-year undergraduates but society at large. Given this gap, this study examined the school environment, self-concept, workload, and classroom size as predictors of academic stress among first-year tertiary students in Southwestern Nigeria.

School Environment

The school environment substantially impacts students' social, emotional, and ethical development and has an overall effect on academic stress, learning, and progress. Students are less likely to exhibit problem behaviour and feel stressed when they perceive their learning environment as nurturing and caring. Students become more motivated, ambitious, and engaged in learning when they perceive their school as a loving community (Yelkpieri, 2009). The location of the schools significantly influences the stress that students experience at school. A few of the factors that contribute to the academic stress of students in their various institutions include uneven resource distribution, inadequate school facilities, the problem of qualified teachers refusing appointments or unwilling to perform well, a lack of good roads, poor communication, and the casual attitude some communities have toward schools.

Most students attending tertiary institutions approach the change with excitement. The separation from their parents and the introduction to new setting thrill students. The upbeat tone is frequently replaced with stressed, unfavorable feelings once students have been in these institutions for a while. Many, if not all, students may feel stress related to the adjustment and transfer to tertiary education due to environmental circumstances—the demands resulting from the environmental shift may cause many students to experience significant stress. People may feel they have little control over their new surroundings during this change and transition. The students need to adjust to the new surroundings, people, and routines because they will have new characteristics (Williamson, Birmaher, Ryan, and Dahl, 2005). Early in the first semester, some students may experience higher-than-normal levels of sadness and forgetfulness.

In other words, students benefit significantly from a conducive learning atmosphere that lowers their stress levels. Subramani and Kadhiravan (2017) figured out how the school environment and academic stress related to one another. The researchers affirm that the academic system is restrictive and that there is a connection between students' school environments and academic stress. With the need for more support from parents and schools regarding the learning environment, students are under excessive pressure from their parents and schools to achieve higher grades. Students with healthy mental health participate actively in academic forums. Bataineh (2013) examined the academic demands that university students experience in his research. The results show that heavy academic load, a lack of appropriate study space, and poor environmental conditions are among factors that contribute to academic stress.

Students need to be in a safe, wholesome, stimulating atmosphere to develop and learn. Students may spend six to eight hours a day in school during the school year, where the surroundings are essential to their growth. More time is spent on school-related activities or the shuttle to and from school. Because of this, experiences that support education, health, and the future must be carefully planned and designed. Thus, the educational setting is crucial in developing and redeveloping intellectual capacity. Therefore, a comfortable and welcoming school setting with ample learning resources and a pleasant climate helps children focus more intently on their studies, achieve outstanding academic results, and lessens the stress associated with the school. As students' education takes place in a physical, social, cultural, and psychological setting, for learning to be successful, a suitable setting is required. The ideal learning environment at school gives students the required motivation to learn.

Self-concept

Self-concept is a group of self-perceptions including gender roles, academic success, sexuality, and race identification. The answer to "Who am I?" is often embodied by one's self-concept. The way people see their present selves is related to how they see their past and future selves. The temporal self-appraisal hypothesis states that in order to maintain a positive self-evaluation, people prefer to concentrate more on their perfect selves and keep their negative selves at a distance. Abdulnsir (2015), in his research, revealed a significant inverse relationship between self-concept and academic stress levels. This suggests that the higher the self-esteem, the lower the level of academic stress. This demonstrates the close relationship these two psychological constructs have. These findings are consistent with research from Bhatta (2013) and Alam (2016), which found a significant negative association between academic stress and students' perceptions of their worth among Nepalese and Pakistani students, respectively.

Kaur and Kumaran (2016) also concluded that the students' self-confidence and effort in academic tasks make up their academic self-concept. Students who are optimistic and self-assured about their academic performance will not experience crippling academic stress. As a result, individuals are more likely to view academic stress as a task to be overcome than a danger. The same is true for the component of academic self-

concept, where students who put enough effort into their coursework will be on the right track to succeed in exams. Hence, the analysis's discovery of an inverse association makes sense. In addition, some research stated that the factors related to students' efforts, self-concept, and confidence are generally supported by relationships with academic stress (Putwain, 2010).

Although the two constructs have significant affinities, there has been extensive research in the pertinent literature on the relationship between academic stress and self-concept in academic contexts. Many studies have shown a substantial correlation between self-concept and depression and other co-occurring psychological challenges, including stress and anxiety, as academic stress affects and negatively affects self-concept. The level of self-concept is "a good indication to examine the level of academic stress among international students, especially when cultural influences may play a role," according to Amorim and Lam's (2013) study. To many, self-concept is a crucial psychological concept that theoretically underpins and correlates with practically all psychological concepts and factors related to academic performance (aptitude, achievement, and stress).

Workload

Workload refers to numerous varied but connected activities that students engage in to advance academically, socially, and physically in school. The workload comprises the time students need to study, how much time is allotted in the curriculum, and how much and how challenging the study material is (Karjalainen, Alha, & Jutila, 2016). The majority of these works, however, clearly state that they should take at least two hours and at most three hours to complete work for each credit point. The workload, according to Lal (2014), is the perceived correlation between the quantity necessary for a task and the amount of mental processing, capability, or resources needed to complete it. When they have an enormous workload, students experience significant stress. There is a connection between the students' sentiments of feeling overloaded and their experiences of challenges, academic stress, worry, and the desire to give up. Overwhelmed students need to learn more effectively and have satisfying learning experiences (Karjalainen, et al., 2006). A heavy workload not only makes it more likely that students will plagiarize, cheat, and experience academic stress, but it also forces them to extend or postpone their studies as a result of failing and repeating courses.

According to a study by Kember and Leung (2018), there is a correlation between reported workload and English proficiency, with higher reported workload being associated with poor English proficiency. According to polls, 60% of students said their coursework was "challenging" or "extremely hard" to handle, resulting in academic stress. Moreover, 11% of international students studied for 61 to 100 hours weekly. A study by Busari and Adewuyi (2018) found that when asked why they felt stressed about their academics, students reported workload (33%) and a lack of desire (28%) rather frequently (almost one-third of the students polled). Particularly among international students, financial difficulties (15%) and the requirement for part-time employment (42%) were highly regarded factors. International students were three to four times more likely to struggle with writing assignments and participating in class because of the higher workload. The study found that the likelihood of getting sick was significantly positively correlated with the quantity of exams and tasks. College students' stress levels and academic performance were significantly inversely correlated by Akgun and Ciarrochi (2003), who also emphasized the detrimental effects of academic stress on students' intellectual, social, and emotional development.

Classroom size

Developing countries are negatively impacted by the phenomena of large class sizes in education, as are developed countries. In recent years, organizations in several nations have accepted that having large class sizes is a necessary evil. The effectiveness of the instruction and evaluation of the wellness of the students directly influence how serious the issue is (academic stress in particular). According to Anderson (2010), teaching-related elements are among the most likely causes of class size and students' academic stress. Because of population growth, a desire for higher education, and improved living conditions, the problem of substantial class sizes has emerged. Large classes have also resulted from rapid population increase and international efforts to provide universal education (Benbow, Mizrachi, Oliver, & Said-Moshiro, 2007). However, there are several difficulties that both teachers and students must overcome, especially academic stress in developing nations.

McKeachie, in Muraina's (2017) study of the education literature, reveals that learning is not significantly changed by class size because instructors can adjust their teaching approaches to class size. Adewuyi and Oluwole (2016) estimated how class size affects academic stress using data from a nationally representative survey collected across middle school reading and math classes. Smaller class sizes were found to be associated with improvements in academic performance connected to students' psychological involvement with the school, decreasing their academic stress. These adjustments included things like improved interest and motivation, decreased boredom and anxiety, a sense of belonging, and a generally more favorable reaction to academics, teachers, and peers. Small classes (in early grades) are advantageous for all sorts of students, according to quantile regression analyses from Tennessee's Student Teacher Achievement Ratio (STAR), a project cited by Konstantopoulos and Chung (2009) to support their claim (e.g., low, medium, and high achievers) across all achievement tests. Throughout the four years of the study, students were frequently given the Stanford Achievement Test and scores from the 11 students were tallied and examined. According to research by Konstantopoulos and Chung (2009), affirmed that poor achievers tend to gain more from being in small classes for more extended periods, and academic stress lowered in turn, for specific grades, in reading and science.

Research questions

The following research questions guided the study:

- What is the pattern of relationships that exist between the independent variables (school environment, self-concept, workload and classroom size) and academic stress among first-year tertiary students in Southwest Nigeria?

- What is the joint contribution of the independent variables (school environment, self-concept, workload and classroom size) on academic stress among first year tertiary students in Southwestern Nigeria?

- What is the relative contribution of the independent variables (school environment, self-concept, workload and classroom size) to academic stress among first year tertiary students in Southwest Nigeria?

2. Methodology

This study used a survey-type descriptive research design as its methodology. It is the systematic empirical investigation that restricts the researcher from manipulating the circumstances. All first-year tertiary students in Southwest Nigeria made up the population for this study. Six tertiary institutions were chosen using the simple random sample technique, one from each state, and 50 first-year students were chosen at random in each of the identified institutions. Three hundred first-year students in total were sampled for the investigation.

Instrumentation

Data was gathered via a questionnaire. Sections A and B of the questionnaire were separated. The respondents' demographic data is shown in Section A. Age, sex, religion, study field, and parental educational attainment are some of these demographic traits. The remaining standardized tests used in the study are included in Section B. They are: School environment Scale (α=0.78), Self-concept Scale (α=.82), Academic Workload Scale (α=.78) and Student Academic Stress Scale (α=.73).

Data Analysis

At a significance level of 0.05, the study's data was analyzed using simple percentages, the Pearson Product Moment Correlation (PPMC), and multiple regressions.

3. Results

Research question one: What is the pattern of relationships that exist between the independent variables (school environment, self-concept, workload and classroom size) and academic stress among first-year tertiary students in Southwest Nigeria?

Table 1: Descriptive statistics and inter-correlations among the variables

Variables	N	Mean	SD	1	2	3	4	5
Academic stress	300	80.51	40.06	1.00				
School environment	300	104.38	14.31	.442**	1.00			
Self-concept	300	29.34	9.29	.528**	.731**	1.00		
Workload	300	67.70	37.68	.397**	.021	.075	1.00	
Classroom size	300	94.40	23.30	.575**	.815**	.937**	.077	1.00

**Correlation significant at 0.01 levels

Table 1 provides inter-correlations between the study variables and descriptive statistics. The table demonstrates a substantial correlation between academic stress and the school environment, self-concept, workload, and classroom size for first-year tertiary students. Significant correlations between the independent variables were also present.

Research question two: What is the joint contribution of the independent variables (school environment, self-concept, workload and classroom size) on academic stress among first-year tertiary students in Southwest Nigeria?

Table 2: Multiple Regression Analysis showing joint effect of the independent variables on academic stress

Analysis of variance				
Model	**Sum of square (SS)**	**DF**	**Mean square**	**F**
Regression	219830.122	4	54957.530	62.308
Residual	260198.848	295	882.030	
Total	480028.970	299		

R = .677
R2 = .458
Adjusted R2 =.451

Standard error of estimate= 29.69899The independent variables (school environment, self-concept, workload, and classroom size) together led to academic stress among first-year tertiary students as shown in the table. The value of R Square = .458 and Multiple R2 (adjusted) = .451. With 45.1% of the independent variables accounting for academic stress among first-year tertiary students, the analysis of variance conducted on the multiple regressions produced an F-ratio value of 62.308 and was significant at the 0.05 level.

Research question three: What is the relative contribution of each of the independent variables (school environment, self-concept, workload, and classroom size) to academic stress among first-year tertiary students in Southwest Nigeria?

Table 3: Relative Contribution of Independent Variables to the Prediction

Model	Unstandardized coefficients	Standardized coefficients		t	P
	B	Standard error	β		
Constant	-29.02	14.303		-2.029	.043
School environment	-.134	.211	-.048	-.635	p>0.05
Self-concept	-.469	.535	-.109	-.876	p>0.05
Workload	.375	.046	.353	8.190	p<0.05
Class size	1.185	.252	.689	4.701	p<0.05

The table demonstrates that the independent variables significantly influenced the first-year tertiary students' academic stress in Southwest Nigeria. In terms of the magnitude of the influence, class size ($β$=.689; t=4.701; $p<0.05$) made the most contribution followed by workload ($β$=.353; t= 8.190; $p<0.05$), school environment ($β$= -.048; t=-.635; $p>0.05$), and self-concept ($β$ = -.109; t=-.876; $p>0.05$).

4. Discussion

According to the first research question, the school environment, self-concept, workload, and classroom size are strongly connected with academic stress among first-year tertiary students. This finding is consistent with Uwaifo (2008), who looked at the impact of students' self-concept, classroom size, parental participation, and academic burden on their academic stress in tertiary institutions in Nigeria. Five hundred and sixty students from eight randomly selected schools in two geopolitical zones made up the study's sample. The t-test statistical approach was used for the analysis. The findings demonstrated notable disparities between student academic stress and these noted characteristics. Similarly, Paris and Paris (2001) discovered that school variables, such as the school environment, classroom size, and equipment, impact students' academic stress. The study examined the impact of these variables and consistently discovered that academic activities were widely implemented in schools where the variables mentioned earlier were considered; students showed significant benefits in several areas, such as attitudes toward learning, feelings about learning, and feelings about academic success.

In another study, Pintrich and Groot (2010) demonstrated that a positive teaching environment and a positive self-concept are essential for preventing and minimizing student stress challenges, which is unquestionably accurate and consistent with the present conclusions. The students' academic lives were significantly impacted by their sense of self-efficacy. The things people do with the knowledge and skills they have acquired, and thus what they are capable of, are influenced by their perceptions of their academic aptitude. Also, individuals with identical abilities may experience significantly different levels of academic stress. A student's self-beliefs are essential in cognitive engagement and boosting them might result in a rise in the use of cognitive techniques, and thus, a reduction in academic stress. Their self-perceptions and workloads significantly influence students' academic stress and success. The study by Razia (2016), which included more than 90,000 tertiary students in 12 schools, is relevant. Interviews were conducted with 20,000 research participants and the data from this study showed that academic stress was a protective element in students' lives.

The answer to the second research question demonstrates that the classroom size, workload, self-concept, and school environment all cause academic stress in first-year tertiary students. According to Khatoon's (2005) research, most of the academic stress students experience at school is tied to what they learn and how they learn it. The current generation of university students is under much pressure to learn more than previous generations did. Some students may experience stress from regular academic work that is not difficult enough, just as managing a heavy and challenging workload can be stressful. For this reason, the components of academic activities are identified as curriculum and instruction, teamwork, assessment, and placement. Huanet (2005) looked into how students' perceptions of academic stress were affected by their workload, the school environment, and their gender. Participants in this study included 430 Singaporean secondary school students. Two self-report instruments, the life orientation exam and the academic expectations stress inventory were used to gather data. The findings revealed a substantial inverse association between students' academic stress and their workload, school climate, and gender.

Further, a study on the impact of class size on the academic stress of children and adolescents was undertaken by Piel and John (2002). In the study, academic stress is typically predicted by class size, although environmental demands linked to instrumental competence and behavioral controls are not (i.e., academic stress and deviance). The findings indicate that children and teenagers from undeveloped environments (low parental demand and parental responsiveness) have less developed social skills, lower self-esteem, and higher levels of academic stress. These individuals also tend not to perform moderately well in school and do not refrain from engaging in problem behavior.

The last research question examined how each independent variable contributed to students' academic stress. The outcome of the study revealed that class size made the most contribution followed by workload, school environment and self-concept. This finding is supported by Tournaki and Podell (2005), who studied how the combination of student, teacher, and environmental variables impact academic stress. They collected data from 384 students who completed a 16-item academic stress assessment with one of 32 possible case studies representing a student in which gender, reading proficiency, social behavior, and attentiveness were experimentally improved. Their research showed that school environments predicted student academic stress level negatively. It is comparable to the research by Piel and John (2002) on the impact of class size on children's and adolescents' academic stress. Academic stress is typically predicted by class size, while parental expectations are connected to instrumental competence and behavioral control (i.e., academic stress and deviance).

Deb, Esben and Jiandong, (2014) also discusses a variety of academic stressors concerning students' general attitudes toward studying. Students frequently used their experiences with excessive workloads or improper modes of evaluation to justify their negative attitudes. The learning process was made less enjoyable because of insufficient assessment practices. High accomplishment in conventional terms may conceal this unhappiness and the reality that students may not fully absorb the subject content they have learned. In another study by Onyemah and Adewuyi (2022), 400 male students in grades 10 and 12 from five private schools were the subject of the research. High levels of academic anxiety and stress were found in 35% and 37% of students, respectively. This study has shown that students who go to lectures in environments with adequate facilities in terms of class size are less stressed. In addition, it was discovered that students who engaged in extracurricular activities having more workload were more stressed than their non-participating counterparts.

5.   Conclusion

This study focused on tertiary students since it is thought they experience different types of academic stress due to the transition from secondary education. This research has provided an in-depth understanding of tertiary students' academic stress profiles. According to the study's findings, many students were stressed because of their heavy academic workload and inadequate class sizes. However, the study found an important association between the school environment and self-concept, but it was not statistically significant. Because of this, students experienced uncontrollable academic stress when they could not cope with unpleasant circumstances and felt that the task at hand was beyond their capacity to succeed. The answer is to adjust to the circumstances and work through the tension. In this way, stress can inspire students and keep them motivated to produce their best work.

6.   Recommendations

Parents, educators, education specialists, school administrators, non-governmental organizations, and policymakers are encouraged to take into account the following recommendations:

- Every tertiary institution should include counseling services to assist students in developing a healthy self-concept and coping with stress.

- The government should create beneficial regulations that will aid students in performing well academically in their academic settings. Also, the infrastructure and resources needed to improve teaching and learning should be made available

- There is an urgent need for involvement from the public and commercial sectors in school planning, funding, provision, implementation, supervision, and monitoring. To help students cope with stress and improve their academic performance, competitions for quizzes, class presentations and interschool debates should be held.

Ethics Statement

The University of Ibadan examined and authorized the investigations that used human subjects. The participants gave their written informed consent to take part in this study.

Acknowledgments

Availability of Data Statement

The article and supplementary materials contain the original contributions to the study; for further information, contact the corresponding author.

Competing Interests

The authors of the study declare that there was no business or financial connections that may be interpreted as having a potential conflict of interest.

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