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The Relationship between Self-esteem, Anxiety and Depression among University Students in Lagos, Nigeria

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Abstract
Previous studies showed negative significant correlations between self-esteem, and emotional states such as anxiety and depression among adolescents especially when studying in a higher institution. This study was, therefore, designed to investigate the prevalence of self-esteem, anxiety and depression, their sociodemographic correlates and the relationships between self-esteem, anxiety, and depression.

Methods
A cross-sectional design was employed for this study with the participation of 236 students at a university in Lagos, Nigeria. A structured questionnaire was applied to ask about the sociodemographic characteristics of the participants. They were also asked to complete the Rosenberg Self-esteem Scale, and the Hospital Anxiety and Depression Scale (HADS) to determine their levels of self-esteem and probable anxiety and depression and their statistical relationships.

Results
The findings on the reported levels of self-esteem showed that 22 (9.3%) had low self-esteem and only 12 (5.1%) experienced higher self-esteem. The males had lower self-esteem compared to the female participants. The majority of the participants 154 (65.2%) experienced probable anxiety while about one-third of them 101 (32.8%) manifested with probable depression. There were negative correlations between self-esteem, anxiety and depression -.403 and -.438.

Conclusions
This study showed that self-esteem negatively correlated with anxiety and depression. This negative association could significantly affect students' educational achievements and quality of life. There is a need for tertiary institutions to routinely determine the self-esteem of students and also provide psychological interventions aimed at proactively increasing students' self-esteem to prevent the existence of comorbid psychological and academic distress.

Keywords : Self-esteem, anxiety, depression, students, educational performance, Lagos, Nigeria.

Introduction

The literature has severally demonstrated that the adolescent period is one of the most rapid phases of human development (Nguyen et al., 2019). The youthful era is also made up of rapid emotional, physical, social, and cognitive growth which is important for their emotional stability including their self-esteem (Nguyen et al., 2019). Self-esteem is how one values and perceives oneself. It is determined by one's opinions and beliefs about oneself. Self-esteem is also related to self-confidence, as well as emotional states, such as triumph, despair, pride, and shame (Arshad et al., 2015; Mustafaa et al.,

2016). Therefore, enhanced self-esteem has been demonstrated to have a significant impact on important life upshots including health and social outcomes during adolescence and adulthood (Mustafaa et al., 2016). On one hand, empirical evidence demonstrated positive relationships between higher self-esteem and positive outcomes in academic achievements, better social relationships, a sense of well-being, positive perceptions by peers, good coping skills and occupational success as adults (Arshad et al., 2015). On the other hand, reduced self-esteem was also indicated to be causally related to mental health

conditions such as anxiety, depression, substance abuse and antisocial behaviour (Nguyen et al., 2019; Arshad et al., 2015; Mustafaa et al., 2016).

About the association between self-esteem and anxiety; the relationship has been extensively studied. Generalised anxiety disorder was rated as one of the commonest mental health disorders globally. It is one of the most widely experienced emotions defined as a displeasing feeling of uneasiness, nervousness, apprehension, fear, concern or worry (Sowislo & Orth, 2013; Ngu et al., 2019; Arshad et al., 2015; Mustafaa et al., 2016) Anxiety disorders are present in almost all cultures and estimates show that they will be experienced by approximately 18% of adults every year and about 32% of people during their lifetimes (Sowislo & Orth, 2013). Among tertiary institutions, students' anxiety levels were found to be a major predictor of academic performance. For that reason, studies have shown that high degrees of anxiety were highly prevalent among students (Millings et al., 2012; Arshad et al., 2015). Higher anxiety levels might interfere with students' everyday functioning like studies and even social lives. Studies indicated that students with a higher level of anxiety had lowered academic performance because it was found to also affect their cognitive functions (Millings et al., 2012; Arshad et al., 2015). Similarly, reduced self-esteem was reported to be associated with symptoms of anxiety, depression and somatic complaints while high self-esteem was considered an important buffer against anxiety (Orth & Robins, 2013; Keane & Loades, 2017). Therefore, high self-esteem may have positive consequences for well-being and success in students in the higher institutions while low self-esteem may be a risk factor for negative emotional outcomes (Orth & Robins, 2013; Keane & Loades, 2017).

Concerning the correlation between low self-esteem and depression, studies have indicated that self-esteem plays a big role in determining one's prevalent mood especially when it comes to mood disorders like depression and bipolar disorder. Symptoms of depression were observed to worsen with persistent lowered self-esteem. In the same vein, lowered self-esteem is most times associated with mental incapacity and feelings of worthlessness (Keane & Loades, 2017; Nguyen et al., 2019). Documented evidence noted that individuals with low self-esteem may also be at greater risk for depression. Most especially, students who reported low self-esteem had nearly six times the odds of being at risk of depression and four times the odds of having depressive symptoms when compared to other students (Orth & Robins, 2013; Nguyen et al., 2019; Keane & Loades, 2017). This is because those with low self-esteem tend to catastrophise their negative thoughts, irrational beliefs, and everyday events or interactions, which may affect how they perceive themselves. Those with low self-esteem were also found to have feelings of guilt which was found to reinforce their symptoms of depression. Therefore, those who experienced feelings of worthlessness, and hopelessness, may have manifested with reduced self-esteem before developing the emotional state of depression (Orth & Robins, 2013; Nguyen et al., 2019; Keane & Loades, 2017).

As regards the strong relationship between self-esteem and academic achievement, this association was regarded by many educators as a well-established fact Therefore, students with high self-esteem and low anxiety had higher examination scores compared to those with high anxiety students. This reinforced the positive relationship between self-esteem and academic performance (Akinleke, 2012; Sadaat et al., 2012; Keane & Loades, 2017). Thus, the level of self-esteem of students was reported to be related to the level of academic achievement, as the experience of success drives students to develop positive feelings and attitudes towards themselves and those with high academic achievement had a high appreciation. Many studies eventually concluded that the relationship between self-esteem and academic achievement was positive, although there was a slight variation in the results of some studies. (Mohammad et al., 2010; Al Doulat et al., 2018).

In light of the above discussion, the literature search on the determination of self-esteem and the development of psychopathology was found to be relatively scanty in the sub-Saharan literature, therefore, a study on this important topic among Nigerian students cannot be over-justified. This study was, therefore, designed to investigate the prevalence of self-esteem, anxiety and depression, their sociodemographic correlates and the relationships between self-esteem, anxiety, and depression.

Materials and Methods
Study Design and Location
This study was a cross-sectional and descriptive survey. The study took place in October 2022 at the Faculty of Management Sciences of the Lagos State University of Science and Technology, Lagos, Nigeria.

Participants
Two hundred and thirty-six consecutive students aged 16 years and above who consented to the study were invited to participate in the study while waiting for another lecture to commence.

Measures
Rosenberg Self-esteem Scale (RSS)
The 10-item Rosenberg Self-esteem Scale (Rosenberg, 1965) was used to assess global self-esteem, with higher scores indicating more positive self-regard. Each item asked for a response using a 4-point Likert scale ranging from 1 (strongly agree) to 4 (strongly disagree). The scale was found to be generally reliable, with test-retest correlation values between 0.82 and 0.88 (21). The Cronbach α of the scale in the present study was 0.77. The scale ranges from 0 to 30. A score greater than 25 suggests high self-esteem; scores between 15 and 25 are considered to be within the normal range, whereas scores less than 15 suggest low self-esteem. The RSS has been used widely in Nigeria previously (Coker et al., 2019).

Hospital Anxiety and Depression Scale (HADS)
The Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) The HADS is a self-report inventory made

up of 14 four-point scaled items designed to detect anxiety and depression in general medical outpatients. It has two sub-scales, seven for anxiety (HADS-A) and depression (HADS-D). Each item is scored from 0-3 making the maximum score per scale to be 21. Scores between 0 and 7 are generally regarded as "non-cases," while those above 8 and 10 are regarded as "doubtful cases". Scores between 11 and 21 are regarded as "definite cases." For this study, values of 7 and below were "non-cases" while values of 8 and above were defined as "cases" based on the validated cut-off for Nigerians. HADS has been reported to perform well in assessing the symptom severity of anxiety disorders and depression in both somatic, psychiatric and primary care patients and the general population. The sensitivity and specificity for both HADS-A and HADS-D of approximately 0.80 were very similar to the sensitivity and specificity achieved by the General Health Questionnaire (GHQ). Correlations between HADS and other commonly used questionnaires were in the range of .49 to .83. The HADS has been validated and used extensively in Nigeria and found to have a high sensitivity and specificity (Abiodun, 1994; Coker et al., 2010).

Data Collection and Analysis
Statistical analysis of the collected data was analysed with the aid of Statistical Package for Statistical Solutions (SPSS; version 22 windows). The descriptive statistics were performed and inferential statistics were analysed with Chi-square. The results were reported with 95% confidence intervals and a P value <0.05 was considered significant.

Ethical Concerns
The permission to carry out the study was taken from the Research and Ethics Committee of the institution. Written permission and informed consent were sought from every participant after explaining the aims and objectives of the study. In the informed consent letter, voluntary participation, anonymity and confidentiality were emphasized. The questionnaires were administered in their classrooms.

Results
Of the total 236 participants, the age range of the 17 to 25 years bracket was in the majority 211 (89.4%); the greater numbers were females 169 (71%) and males 67 (71%), many of them were Christians 144 (61%) and 89 (37.7%) were Muslims, about half of them lived in the hostel accommodation (123 (52.1%)) while others 113 (47.9%) lived in non-hostel accommodation. According to their classes distribution, 70 (29.7%) were in National Diploma 1 (ND I), 90 (38.1%) in Diploma II (ND II), 57 (24.2%) in Diploma III (ND III), only 2 (0.8%) were in Higher National Diploma class (HND I) and 17 (7.2%) were in the Higher National Diploma (HND II). According to their sources of pressures, about one-quarter of the participants 62 (26.3%) claimed financial pressures, 25 (10.6%) mentioned lectures and when asked whether they enjoyed lectures or not, a large preponderance 195 (82%) claimed that they enjoyed their lectures while 99 (41.9%) noted that they do not enjoy their lectures. Regarding the distance from their homes to the campus, about half of them 137 (58.1%) lived far from the university while 99 (41.9%) lived closer to the university. All these are reflected in Table 1. The findings on the reported levels of self-esteem showed that 22 (9.3%) had low self-esteem and only 12 (5.1%) experienced higher self-esteem. The mean score was 20.23; SD was 3.93; the range was 24, the minimum was 4 while the maximum score was 28. The boys had lower self-esteem compared to the girls (6.0 vs. 16.0; p = 0.068), and the female participants also expressed higher self-esteem compared to the males (2.0 vs. 10.0; p = 0.068) as shown in Table 2. Regarding the age and self-esteem of the participants, the age bracket 17-25 years had lower self-esteem scores when compared to the age bracket 26 to 34 years. In the same vein, the participants in the age bracket 17 to 24 years recorded high self-esteem scores than those in the age bracket 26 to 34 years.

With regards to the prevalence of anxiety, the results showed that more than half, 154 (65.4%) of the participants manifested with probable anxiety. Of them all, 48 (20.3%), 90 (38.1%) and 16 (6.8%) experienced mild, moderate and severe forms of probable anxiety respectively.

Variable	Frequency {n}	Per cent {%}
Age {Years}	Mean age	
31	21.6	16
16	1	4
17-25	211	89.4
26-34	24	10.2
Gender		
Male	67	28.4
Female	169	71.6
Religion		
Christianity	144	61.0
Islam	89	37.7
Traditional	3	1.3
Accommodation Type		
Hostel Accommodation	123	52.1
Non-Hostel Accommodation	113	47.9
Level of Study		
National Diploma I	70	29.7
National Diploma II	90	38.1
National Diploma III	57	24.2
Higher National Diploma I	2	0.8
Higher National Diploma	17	7.2
Source of Pressure		
Finance	62	26.3
Lecturers	25	10.6
Peers	10	4.2
Finance/lecturers	3	1.3
Finance/lecturers/Peers	17	7.2

Nothing	31	13.1
No Disclosure	39	16.5
Inadequate Infrastructures	3	1.3
Academics	28	11.9
Academic/Finance	15	6.4
Cultists	1	0.4
Security	2	0.8
Enjoying lectures		
Yes	195	82.6
No	41	17.4
School distance from the residence		
Far from school	137	58.1
Not far from school	99	41.9

Table 1: Sociodemographic characteristics of the participants

Rating	Self-esteem	Male	Female
Normal	202 (85.6%)	59 (25%)	143 (60.5%)
Low	22 (9.3%)	6 (2.5%)	16 (6.7%)
High	12 (5.0%)	2 (.84%)	10 (4.2%)

Table 2: Distribution of scores of Rosenberg's Self-esteem Scale according to gender

Concerning the degrees of probable depression, our findings showed that 101 (42.8%) of the participants manifested probable depression. Among the respondents, 67 (28.4%), 31 (13.1%) and 3(1.3%) experienced mild, moderate and severe forms of probable depression respectively as reflected in Table 3.

Rating	Anxiety	Male	Female	Depression	Male	Female
Mild	48(20.4%)	13(5.5%)	35(14.8%)	67(28.4)	21(8.8)	45(19%)
Moderate	90(38.2%)	27(11.4%)	31(13.1%)	31	8 (3.3%)	27(11.4%)
Severe	16(6.8%)	4(1.6%)	12(5.0%)	3 (1.2%)	3(1.2%)	
	154(65.4%)	44(18.6%)	110(46.6%)	101 (42.8%)	29(12.1)	72(30.4%)

Table 3: Scores of Anxiety and depression according to gender

Regarding the scores of self-esteem of the participants and their distribution of classes, the ND I participants had the highest number of those with 6 having high self-esteem out of the 12 participants while ND III had the highest number of those with low self-esteem 9 out of the 22 participants. However, there was no significant statistical difference df=8;p=0.021. Concerning the degrees of anxiety within the distribution of classes, ND II had the highest scores 63 (26.6%), followed by ND I, ND III and HND II with 46 (23.7%), 39 (16.5%) and 9 (3.8%) respectively but there were no significant associations df = 12;p=0.472. As per the degrees of depression among the participants regarding their classes, ND II had the higher scores 38 (16.1%), followed by ND III 35 (14.8), ND I 28 (11.8%) and HND II 1 (0.4%) respectively. Nonetheless, the associations did not reveal any significant statistics df = 12; p=0.822. Table 5 shows the correlations between the subscales of depression, anxiety and self-esteem. This showed that self-esteem negatively correlated with the emotions of anxiety and depression -.403 and -.438 respectively.

Items	NDI N(%)	NDII N(%)	NDIII N(%)	HNDI N(%)	HNDII N(%)	p-value N(%)
Depression						
Normal	42[17.8]	52[22]	32[13.6]	2[0.85]	16[6.8]	0.082
Mild	17[7.2]	27[11.4]	21[8.9]	0	1[0.4]	
Moderate	11[4.7]	11[4.7]	11[4.7]	0	0	
Severe	0	0	0	0	0	
Anxiety						
Normal	14[5.9]	27[11.4]	18[7.6]	2[0.8]	8[3.4]	0.472
Mild	17[7.2]	16[6.8]	11[4.7]	0	3[1.3]	
Moderate	32[13.6]	40[16.9]	25[10.6]	0	5[2.1]	
Severe	7[2.9]	7[2.9]	3[1.3]	0	1[0.4]	
Low SE	8[3.4]	9[3.8]	0	0		0.021
Normal SE	59[25]	81[34.3]	45[19.1]	1[0.4]	16[6.8]	
High SE	6 [2.5]	1 [0.4]	3[1.3]	1[0.4]	1[0.4]	

Table 4: Severity of Symptoms of Depression, Anxiety and Self-esteem of the participants according to their levels of education in detail

Correlations

		Rosenberg's Self-esteem Scale Raw score	HADS Anxiety Raw Scores	HADS Depression Raw Scores
Rosenberg's Self-esteem Scale Raw score	Pearson Correlation	1	-.403**	-.438**
	Sig. (2-tailed)		.000	.000
	N	236	236	236
HADS Anxiety Raw Scores	Pearson Correlation	-.403**	1	.607**
	Sig. (2-tailed)	.000		.000
	N	236	236	236
HADS Depression Raw Scores	Pearson Correlation	-.438**	.607**	1
	Sig. (2-tailed)	.000	.000	
	N	236	236	236

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5: Correlations between the subscales of Depression, Anxiety and Self-esteem

Discussion

This research sought to determine the prevalence of low self-esteem, the correlates and characteristics associated with low self-esteem and the relationships between self-esteem, anxiety, and depression. The findings of the study showed that more than half of the participants 65.2% experienced probable anxiety. This observation aligned with other findings from other workers globally, especially in developing countries. For example, high rates were found in Brazil (74.8%), (Vasconcelos et al., 2021), Iran (83%) (Asadi et al., 2020) and even in the USA (56%), (Liyanage et al., 2021). Students in the tertiary institutions majorly adolescents and young adults which is the developmental period of transitions from late adolescence to adulthood. The experience of the symptoms of anxiety can lead to shortness of breath, headache, loss of mental power, anger, and many other syndromes which can greatly affect academic performance, and lowered self-esteem that may cause physical and mental health to further decline. Other associated physical health changes include tachycardia, muscle tension, breathing difficulties, stomach pains and constant sweating. The emotional disturbances may also lead to maladaptive behaviours such as the use and abuse of alcohol and other forms of psychoactive substances (Akinleke, 2012; Arunavo et al., 2021). Anxiety is also one of the risk factors for suicidal behaviour, and it has been reported in many studies involving young people. Studies have reported that teens and young adults are likely to be struggling with psychological distress and anxiety as compared to older adults (Coker et al., 2019; Mohamadet et al., 2021).

In the same light, one of the possible reasons for this observed high score among the participants who were students in the university in Lagos State is the high cost of living as a student on the university campus, frequent and regular continuous assessments and examinations, crowded classrooms and lecture halls. Above all, high-security awareness programmes are going on on Nigerian university campuses. There is a demonstrated obvious relationship between self-esteem and anxiety. It was also documented that self-esteem serves as a buffer against anxiety. High self-esteem was found to predict a decrease in the rates of anxiety. Some authors also noted the possible opposite causal direction such that frequent and repeated experiences of intense anxiety might reduce the levels of self-concept and self-esteem (Sowislo & Orth, 2013; Arunavo et al., 2021).

Regarding the relationship between self-esteem and anxiety, studies have repeatedly indicated there is a positive significant correlation relationship between self-esteem and anxiety among students. These findings imply that educational policymakers including lecturers and school counsellors should continue to carry out psychological intervention programmes that will enhance students' self-esteem which will boost their self-perception and further reduce their anxiety. Studies have also indicated that when students' self-esteem levels are enhanced, they will become more confident in what they do including their academic performances. It could also enhance their creative thinking abilities, take greater risks and challenge the norms in their task performance. In the same vein, the boosting of self-esteem among students will more likely enhance the thinking pattern of those from lower socioeconomic status families (Asadi et al., 2020; Arunavo et al., 2021; Nazad et al., 2021).

The findings on the prevalence of depression showed that 101 (32.8%) of the participants manifested probable depression. Among the respondents, 67 (28.4%), 31 (13.1%) and 3(1.3%) experienced mild, moderate and severe forms of probable depression respectively. Previous studies on self-esteem and depression showed similar findings. For example, in Malaysia (21.5%) (Ibrahim et al., 2022), in China (23.8%) (Lei et al., 2016). However, in one meta-analytical study by (Ibrahim et al., 2013) the findings showed that the prevalence of depression among university students ranged between 10% and 85% with a weighted mean prevalence of 30.6%. Regarding the correlation between self-esteem and depression, self-esteem has been known to be significantly associated with depression among university students. Self-esteem was observed to be a vulnerability factor in the development of depression mediated independently by social issues. It has been severally stated that poor self-esteem leads to depression while the scar model explained that depression erodes self-esteem (Ibrahim et al., 2013; Ibrahim et al., 2022). Nonetheless, the prevalence of depression among university students was reported to be high

globally. It is, therefore, important that more attention should be given by the university authorities to the development of appropriate psychological healthcare interventions for university students in Nigeria.

Academic findings indicated that low self-esteem work in a vicious cycle with other mental health conditions such as depression and anxiety. It is, therefore, difficult to determine which comes first. Nonetheless, the combination is both common and troublesome. Someone who already lives with a mental illness may find that low self-esteem develops due to the social stigma surrounding mental illness. Stigma can perpetuate the feeling that they have somehow failed (Lei et al., 2016 ; Nguyen et al., 2019). However, one model, the vulnerability model states that low self-esteem contributes to depression; but the scar model states that depression erodes self-esteem. Moreover, the vulnerability model is robust and holds across gender, age, and affective-cognitive versus somatic symptoms of depression. The important practical implications suggest that depression can be prevented, or reduced, by interventions that improve self-esteem (Orth & Robins, 2013; Lei et al., 2016; Nguyen et al., 2019).

Regarding the findings on self-esteem, our results showed that a large preponderance of the participants scored within the normal range 202 (85.6%), 22 (9.3%) had low self-esteem and only 12 (5.1%) experienced higher self-esteem. Our finding was not in tandem with other findings from other researchers. Take, for example, Ethiopia (19.0%), (Gidi et al., 2021), Saudi Arabia (23.4%), (Aboalshamat et al., 2017) and Tunisia 29.5%, (Ketata et al., 2021). One on hand, the literature has severally demonstrated that self-esteem has a positive and significant relationship with certain mental health conditions such as anxiety and depression. Empirical evidence showed that low self-esteem which was associated with irrational and negative subconscious thoughts could lead to self-defeat and limitations which could also bring about the symptoms of depression (Keane & Loades, 2017; Gidi et al., 2021; Ibrahim et al., 2022). On the other hand, young adults with high self-esteem dared to speak up in groups, reject peer pressure to join cults or indulge in the use and abuse of psychoactive substances. For these reasons, enhanced self-esteem could prevent mental health conditions. make young adults more likeable, and attractive, have better relationships and make better impressions than others with low self-esteem (Ali Fathi-Ashtiani et al., 2007; Radeef et al., 2019). The documented risk factors for low self-esteem include being a girl, the family's low socioeconomic status, parents' education level and employment status, family eligibility for public assistance, and lowered academic achievement (Coker et al., 2019; Ibrahim et al., 2022).

In our study, the female participants scored higher in the domains of self-esteem compared to the male participants. This finding was not consistent with the global studies on gender and self-esteem. Several studies including many meta-analysis studies of gender differences and self-esteem did not find significant statistical differences between males and females. However, some small numbers favoured the males,

especially in developing countries (Zaidi, 2006; Bhamani et al., 2014). In developing countries, documented evidence showed that males developed higher self-esteem as compared to females (Zaidi, 2006; Bhamani et al., 2014). In the same vein, Whites, Hispanics, and Asian Americans showed the same gender difference whereas African Americans and marginal groups did not show any difference (Zukerman et al., 2016). The gender difference increased with age until late adolescence and declined afterwards. Some small percentages favoured the males, but the difference is small (Kling et al., 1999). Nonetheless, people tend to gain self-esteem as they grow older globally, and men generally have higher levels of self-esteem than women, but this self-esteem gender gap was reported to be more pronounced in Western industrialized countries. Albeit, despite these cross-cultural dissimilarities, the differences in the gender and self-esteem ratio depend on the magnitude of socioeconomic, sociodemographic, gender-equality and cultural values (Bleidorn et al., 2016; Zukerman et al., 2016).

Conclusion

The findings of this study showed that the participants experienced high levels of probable depression and anxiety and low self-esteem. It is, therefore, suggested that policymakers and stakeholders in education sector should formulate policies that will help students to improve upon their self-esteem to assist them to cope with common psychopathologies such as anxiety and depression found to be common in tertiary institution students. The education policymakers should frequently evaluate the mental health status of higher institution students and also design psychological intervention programmes to alleviate their psychological distress.

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