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Test Anxiety and Academic Stress as Predictors of Depression among Undergraduate Students of University of Ilorin

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Abstract

Depression is one of the leading causes of mental health-related challenges globally wish affect well over 300 million people worldwide (Patel et al., 2016). Incidentally, depression has been reported to be highly prevalent among students and despite current intervention measures, depression continues to persist at substantially high levels in this population. However, several factors have been associated with depression prevalence rates among students, but very little has been done about the relationship between test anxiety academic stress and depression among university undergraduates. It is to this end that this study aimed to study test anxiety and academic stress as predictors of depression among undergraduates of University of Ilorin, Kwara State. The study adopted cross sectional survey method. Using purposive sampling technique; 390 undergraduates were selected across the eight faculties in University of Ilorin. The sample comprised of 176 males and 214 females aged between 17-44years (Mean =21.58; SD =2.99). The participants responded to measures on test anxiety, academic stress factors. Three hypotheses were formulated and tested with Multiple Regression and ANOVA. The findings showed that test anxiety and academic stress had significant joint prediction on depression among university undergraduates [F (2,388) = 95.61, p< .01]. Also, there was a significant positive prediction of test anxiety on depression among university undergraduates (β = .50, p< .01). Similarly, academic stress had a significant prediction on depression (β = .16, p< .01). In conclusion, test anxiety and academic stress were found to independently and jointly predict the level of depression among undergraduates. The study therefore recommends that tertiary institutions especially University of Ilorin should consider implementing stress management programmes that provide students with effective coping mechanism and techniques in managing academic stress and test anxiety.

Keywords: depression; test anxiety; academic stress and university undergraduates

Introduction

Depression is one of the leading causes of mental health-related challenges globally wish affect well over 300 million people worldwide (Patel et al., 2016). The figure of incident cases of depression was reported to have increased by 49.86% from 1990 to 017, from 172 million to 258 million (Liu et al, 2021). Mackenzie et al. (2011) defined depression as a state of intense sadness or despair that has progressed to a level that negatively affects an individual's social functioning and the basic activities of daily living. Depression has become a serious mental disease that affects both young and old people in the society. It is usually characterised by persistently depressed mood and entertained negative thoughts, and this makes the depressed perceive life issues negatively. This negative perception to life issues, further complicates the treatment of depression. According to the world Health Organization (WHO, 2009),

those experiencing depression may often lose interest in daily activities, suffer from low self-esteem, recognize a loss of energy, and experience difficulty with sleep patterns have feelings of helplessness and hopelessness, The review of extant literatures shows high rates of depression among university students that have been reported in many parts of the world. Despite different intervention measures, increase in the incidence of depression continues uncontrollably among this population. There are several important issues that are relevant to depression prevalence rates among university students (Hames, Hagan & Joiner, 2013). Such issues are students' transition from high school to university, environmental changes, academic and peer pressure, adjustment to the new school environment being an entirely new interpersonal environment are some of the challenges that the University student must face before

Auctores Publishing LLC – Volume 9(3)-323 www.auctoresonline.org

ISSN: 2637-8892 Page 1 of 7

process of identity development takes place. Traversing the process of identity development can lead to self-doubt, Low social functioning, social withdrawal, loneliness, lowered self-esteem, and even depression (Hames et al., 2013). Furr, Wastefeld, McConnell & Jenkins, (2001) attributed academic problems, loneliness, economic problems, and relationship difficulties as four common reasons for depression among university students. Similarly, depression among students is correlated with impaired social functioning, substance abuse, and school difficulties (Wells, Kataoka & Asarnow, 2001).

Finding risk factors that play a central role as predictors of depression is critical for the understanding and development of prevention programs for the adolescents.

A gap in knowledge exists in the reviewed studies on test anxiety and academic stress on depression. This became evident in that the reviewed studies did not explicitly examine the predictive roles of these factors among university undergraduates in Nigeria. Though, past studies have shown a connection between these factors and depression among adolescents, there is need to further examine the level at which test anxiety and academic stress predicts depression, particularly among university undergraduates. This study therefore, intends to focus on independent and joint predictions of test anxiety and academic stress on depression among university undergraduates in university of Ilorin, Nigeria. This gap in knowledge is what this present study aims to fill.

Test Anxiety and Depression

Test Anxiety is considered one of the important factors that influence the tests outcomes; as it raises the anxiety degree of the students, most especially new university students and thus requires psychological explanation. (Balogun, Balogun & Onyencho 2017). In its simplest form, a test is any measurement that yields quantitative data and anxiety can be defined generally as a feeling of apprehension about the future without a specific cause for such fear. Test has become an indispensable tool which could be used to measure the cognitive, emotional and affective domains of students. Literarily, test can be in form of aptitude, intelligence, psychological, achievement, speed, power test depending on the purpose for its usage. Test scores are fast becoming more important than ever in evaluating applicants for demanding jobs as well as job placement and candidates for admission into highly competitive educational programs. There are many situations relating to general examinations such as final examinations at the end of each academic semester, manifestations of interests as to the examinations and results thereof refer to anxiety, which some families suffer during such period of Time (Hill & Wigfield.1984). Test Anxiety as a serious mental health issue has become disturbing in our schools and is traceable to the constant usage of test as a means of evaluating the competency level of students. Test Anxiety negatively affects students; more so if the anxiety is dealt with in an unhealthy manner and extends over a long period of time. Hill & Wigfield (1984) approximated that 10 million students having Test Anxiety experienced poor test performance. Therefore, Test Anxiety problem is one of the most important and complicated psychological problems that faces the students globally. Alum, Ababa & Afosi (2020) examined the occurrence of depression, anxiety and stress and associated socio demographic factors among undergraduate pharmacy students in Nigeria. The study was an online-based cross. A total of 408 students out of approximately 3,068 students responded to the survey (response rate: 13.32%). The prevalence of depression, anxiety and stress was 44.6%, 63.5%, and 35%, respectively. Depression was found to be strongly correlated with stress

(r=0.739, p<0.001) and anxiety (r=0.715, p<0.001). Depression, anxiety and stress scores significantly correlated with perceived academic performance and year of study with no significant association between gender, cigarette smoking, type of accommodation, and the levels of depression, anxiety, and stress. The prevalence of depression anxiety and stress among pharmacy students responding to a survey in Nigeria was high. Mohammad (2020) investigated risk factors associated with stress, anxiety, and depression among university undergraduate students in developed and developing countries. He identified and critically evaluated forty-one articles about risk factors associated with mental health of undergraduate university students in developed and developing countries from 2000 to 2020 according to the inclusion criteria. Selected papers were analysed for risk factor themes. Six different themes of risk factors were identified: psychological, academic, biological, lifestyle, social and financial. Different risk factor groups can have different degree of impact on students' stress, anxiety, and depression. Similarly, Garba (2023) investigated stress, anxiety and depression, as predictors of academic performance among undergraduate University students. His Findings revealed that significant negative relationship existed between all the independent variables (stress, anxiety, and depression) and the dependent variable (academic performance) of university students. Stress and academic performance (p=0.002 and r=0.632) anxiety and academic performance (p = 0.000 and r = 0.957) and depression and academic performance (p = 0.001, r =0.837 Moreover, Balogun, Balogun & Onyencho (2017) investigated the moderating role of achievement motivation in the relationship between test anxiety and academic performance. Their results showed that test anxiety had a negative impact on academic performance ($\beta = -.23$; p < .05). Achievement motivation had a positive impact on academic performance ($\beta = .38$; p < .05). Also, achievement motivation significantly moderated the relationship between test anxiety and academic performance ($\beta = .10$; p < .01).

Academic Stress and Depression

Apart from test anxiety, another risk factor that may have predictive influence on depression among university undergraduates is academic stress. Academic stress has to do with stress that result from both academic and non-academic factors. It has the ability of triggering depression and suicidal ideations and if not attended to may lead to actual suicide (Uyanne, 2021). Also, Kamble & Minchekar (2018) investigated academic stress and depression among college students. The result of their study revealed significant positive relationship between academic stress and depression, suggesting that higher levels of stress are associated with increased likelihood of experiencing depression. In a related development, Bekova, Dementeva & Smirnov (2020) used data on 4,182 students from a selective university to identify the main factors associated with symptoms of depression among this cohort. Besides sociodemographic characteristics that are largely out of the university's control, specific attention was paid to the role of students' satisfaction with various aspects of their university life. While controlling for potential confounders, satisfaction was found to be negatively associated with depression. Mankinde, Adegbite, Oyedokun, Aina, & Christopher (2020) reported that there was a positive significant relationship between depression and peer pressure among adolescents implying that peer pressure contributed to the development of depression in adolescents. Their study equally validated that low self-esteem and Peer pressure positively influence depression in that, both peer pressure and low selfesteem contribute to the development of depression in adolescents.

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J. Psychology and Mental Health Care

.Mishra (2018) reported that academic stress is a function of excessive school workload and homework, impacting students' anxiety levels. This in turn may make a student not to be actively involved or engaged in other academic related activities. The excessive demand that results from the academic work load causes significant stress for students which may put them at risk of having thoughts about suicide. For example, Nwonyi (2020) in his study on academic stress and suicidal ideation in a sample of 482 students found that suicidal ideation and academic stress are statistically related. Such that an increased level of stress was related to an increased level of suicidal ideation. Similarly, in a sample of adolescents in Lagos state Nigeria, Okechukwu et al. (2022) investigated the moderating roles of coping and resilience in the relationship between academic stress and suicidal ideation and reported that thoughts about committing suicide increased with academic stress.

Hypotheses

Based on the literature reviewed the following hypotheses were tested.

- 1. Test Anxiety will significantly predict level of depression undergraduates of University of Ilorin
- 2. Stress will significantly predict the level of depression undergraduates of University of Ilorin
- 3. Test Anxiety and stress will independently and jointly predict the level of depression undergraduates of University of Ilorin.

Conceptual Framework of the Study

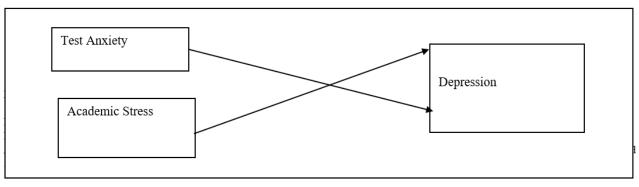


Figure 1: Hypothesized Relationships of Test Anxiety and Stress with Depression among undergraduates of University of Ilorin.

Method

Research Design

A cross sectional design was adopted in the study. The design was appropriate because the participants were selected across faculties, departments and academic levels in the University. The dependent variable was depression while the independent variables were stress anxiety and stress.

Research Settings

This study was be conducted among undergraduates of University of Ilorin. The location was purposively selected because of convenience and in order to have control on the environmental factors. The population of the study comprised undergraduates of University of Ilorin. In selecting the participants, a purposive sampling technique was used. Purposive sampling technique was used to select the undergraduates of University of Ilorin for the study. Participation in the study involved undergraduates who were on campus, available and willing to participate in the study.

Participants

A total of 390 undergraduate students were be selected for this study. They were selected from the faculties and departments in the university. They were described in terms of age, gender, academic level. The study adopted cross sectional survey method. Using purposive sampling technique; 390 undergraduates were selected across the eight faculties in university of Ilorin. The sample comprised of 176 males and 214 females aged between 17-44years (Mean =21.58; SD =2.99).

Inclusion Criteria

1. The individual must be an undergraduate of University of Ilorin

2. He or she must be on campus, available and willing to participate in the study.

Exclusion Criteria

- 1. All postgraduate students, pre-degree students, remedial, and diploma students were excluded from the study.
- 2. Undergraduates who were sick and unable to actively participate in the study were excluded from the Study.

Instruments

Three validated instruments were used for data collection.

Test Anxiety Inventory

Test Anxiety Questionnaire for ESO and Bachillerato - Adapted (CAEX-A) by Valero (1999) was used. The first part consists of 37 items that evaluate the intensity of the TA responses with a 5-point Likert type scale (0 = not at all, 1 = a little, 2 = a moderate amount, 3 = a lot, and 4 = very)much) and the second of 11 items on TA caused by different test modalities evaluated with the same scale, to which the option "I have not done it" was added in case the student had never taken that type of test. The first part of the TA questionnaire is based on Lang's threedimensional theory of anxiety and comprises three factors: (1) physiological responses (20 items, range 0–80) (e.g., in the test, my hands sweat. When I'm taking the test my heart beats very fast); (2) cognitive responses (14 items, range 0-56) (e.g., I think I'm going to get nervous and forget everything); and 3) motor responses (3 items, range 0-12) (e.g., I get sick and make excuses for not taking the test). The total score is obtained by adding up the scores of the items of the three factors (range 0–148). The internal consistency, Cronbach's α, is high except in the behavioral dimension: CAEX-A ($\alpha = 0.94$), physiological responses ($\alpha =$

0.90), cognitive responses ($\alpha = 0.90$), behavioral responses ($\alpha = 0.50$). In addition, the value of omega exceeds 0.85 in all scores. Also the test-retest reliability shows high values in the correlations, which points to the temporal stability of the instrument: $r_{xy} = 0.87$ for the physiological response; $r_{xy} = 0.81$ for the cognitive response, $r_{xy} = 0.52$ for the motor avoidance response, and $r_{xy} = 0.66$ for the total score. The percentage of variance explained by each factor is as follows: 41.33 for the physiological, 4.85 for the cognitive, and 6.84 for the behavioral. Finally, the convergent validity of the instrument with the *State-Trait Anxiety Inventory for Children* (STAI-C; Spielberger, 1973; Spielberger et al., 1990). In the present study, the Cronbach Alpha of .80 was reported

Academic stress Scale.

The academic stress experienced by the students was measured using Academic Stress scale (ASS). The scale was designed and standardized by Kohn & Frazer (1986). It was developed to measure the students' stress academically. The scale consists of 35 items with five (5) dimensions; Personal Inadequacy (8 items), Fear of Failure (8 items), Interpersonal difficulties with teachers (8 items), Teacher-pupil relationship/Teaching methods (8 items), Inadequate study facilities (8 items) towards Academic stress. The instrument was rated on 5-point Likert scale (1= No Stress 2= Slight Stress 3= Moderate Stress 4= High Stress 5= Extreme stress). Sample items include: "Teachers make too many extra demands on students" and "Worrying about the examinations". Kim (1970) reported a Coefficient Alpha of .82. With the current sample, a Crombach Alpha of obtained .73 was obtained. High score indicate higher level of academic stress and vice versa.

Depression Scale (PHQ)

Patient Health Questionnaire 9-item scale (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 consists of nine items enquiring about the presence and severity of depression symptoms over the past two weeks. The items consist of the DSM-5 criteria for a depressive episode. The scale is scored on a four-point frequency Likert type scale, ranging from 0 ("not at all")

to 3 ("nearly every day"). Previous studies have found the PHQ-9 to have good psychometric properties. In the original study, Kroenke et al. (2001) found Cronbach's alphas of .86 and .89. It was also found to be reliable among Nigerian students, with a Cronbach's alpha of .85 and test-retest reliability of .89. High score indicates high depression and low score indicates low depression. In the present study, Depression has the Cronbach Alpha of .75

Procedure

Questionnaire were administered to the participants, after they were informed about the study. They were told that no physical or psychological harm associated with their participation in the study. They were also informed that participation in the study is purely voluntary.

Ethical Consideration

Permission to conduct the study was obtained from all relevant authorities. The participants were provided enough information on the purpose, procedure and duration of study that made them participate in the study. Confidentiality of responses were guaranteed.

Data Analysis

Pearson product moment correlation (PPMC) analysis was used to ascertain the type of relationships that exists among the study variables. The three hypotheses were tested with 2-step hierarchical multiple regression analysis. The socio-demographic variables were analysed using descriptive statistics such as frequency counts, mean, standard deviation and percentages.

Results

Test of Relationships among the Study Variables

The mean and standard deviation scores as well as the type of relationships among the study variables are presented in Table 1.1.

Variables	1	2	3	4	5
1. Age	1				
2. Gender	167**	1			
3. Test Anxiety	.203**	.004	1		
4. Academi Stress	.156**	.016	.387**	1	
5. Depression	.084	.026	.556**	.349**	1
Mean	21.58	-	73.03	28.41	7.21
SD	3.00	-	24.58	7.85	6.17

Note: ** p < 0.01, N= 391; Religion was coded: Christianity=1, Islamic=2; others=3; etc.

Table 1.1: Summary of Correlation Matrix Showing the Relationships among the Study Variables

The results in table 4.1 indicated that test anxiety significantly predicted depression among undergraduates. This implies that when test anxiety increases, depression also increases among undergraduates [r (391) = .556, p<.01]. Similarly, Academic stress had a significant prediction on depression among undergraduates. This shows that Academic stress is a determinant of depression among undergraduates [r (391) = .349, p < 0.01]. However, age [r (391) = .084, $\mathbf{p} > 0.05$] and gender [r (391) = .026, $\mathbf{p} > 0.05$] had no significant predictions on depression among undergraduates.

Test of Hypotheses

In order to test hypotheses 1 to 3, a multiple regression analysis was performed to test how test anxiety and stress are connected with depression among undergraduates. In the analysis, test anxiety and stress were entered into the regression model. The results are presented in table 1.2.

Predictors	В	t	R	\mathbb{R}^2	df	F
	<u> </u>	<u> </u>	.58	.33	2,388	95.61**
Test Anxiety	.50	10.98**				
Academic Stress	.16	3.51**				

^{**} p< 0.01, * p < 0.05, N= 391

Table 1.2: Summary of Multiple Regression on the Prediction of Test Anxiety and Academic Stress on Depression among Undergraduate Students of University of Ilorin.

The results of the multiple regression analysis shown that test anxiety significantly predicted depression among Undergraduate Students in University of Ilorin. (β = .50, t=10.98, p < 0.01). This implies that test anxiety is a strong determinant of depression. As hypothesized that test anxiety will significantly predict depression among undergraduates. This result confirmed hypothesis 1 and it was accepted. Similarly, Academic stress significantly predicted depression among undergraduate students of University of Ilorin (β =.16, t= 3.51, p < 0.01). This result confirmed hypothesis 2 and it was accepted. Similarly, as shown in the analysis, test anxiety and Academic stress significantly jointly predicted depression among undergraduate students of University of Ilorin and contributed 33% to the observed changes in depression among undergraduates $(R=.58, R^2=.33, F=95.61, P<0.01)$. This implies that undergraduates who are high in test anxiety and Academic stress report higher level of depression. However, other variables not being considered in this research account for 63% this confirmed hypothesis 3 and it was accepted.

Discussion, Conclusion and Recommendations

Discussion

This study examined test anxiety and Academic stress as predictors of depression among undergraduates of University of Ilorin.

Hypothesis one which stated that test anxiety will significantly predict level of depression among undergraduates of University of Ilorin was confirmed. This implies that test anxiety is a strong determinant of depression. The result is consistent with the previous studies of Bashir, Albadawy & Cumber (2019) who investigated the prevalence of exam anxiety and depression severity among student setting for Sudan national boarding examination and found that exam anxiety and depression are highly correlated among students preparing for the Sudan national boarding examination. It highlights that a considerable number of students experience high levels of exam anxiety and depression, particularly in their third year of boarding exams. The result equally reinforces the findings of Alum, Ababa & Afosi (2020) who examined the occurrence of depression, anxiety and stress and associated socio demographic factors among undergraduate pharmacy students in Nigeria. The study was an online-based cross where total of 408 students out of approximately 3,068 students responded to the survey (response rate: 13.32%). The prevalence of depression, anxiety and stress was 44.6%, 63.5%, and 35%, respectively. In the study, depression was found to be strongly correlated with stress (r=0.739, p<0.001) and anxiety (r=0.715, p<0.001). Hypothesis two which stated that Academic Stress will significantly predict the level of depression among undergraduates of University of Ilorin was confirmed. This implies that Academic Stress significantly predicted depression among undergraduates. The result corroborated with the findings of Bekova, Dementeva & Smirnov (2020) who used data on 4,182 students from a selective university to identify the main factors associated with symptoms of depression among this

cohort. Besides socio-demographic characteristics that are largely out of the university's control, specific attention was paid to the role of students' satisfaction with various aspects of their university life. While controlling for potential confounders, in their study, satisfaction was found to be negatively associated with depression. Similarly, Kamble & Minchekar (2018) investigated academic stress and depression among college students. The result of their study revealed significant positive relationship between academic stress and depression, suggesting that higher levels of stress are associated with increased likelihood of experiencing depression.

Hypothesis three which stated that test anxiety and Academic Stress will independently and jointly predict the level of depression among undergraduates of University of Ilorin was confirmed. This implies that Test anxiety and Academic Stress jointly significantly predicted depression among undergraduate students of University of Ilorin. The result agrees with the findings of Nwonyi (2020) who reported that suicidal ideation and academic stress are statistically related such that, an increased level of stress was related to an increased level of suicidal ideation. Similarly, the findings agrees with the findings of Okechukwu et al., (2022) who reported that thoughts about committing suicide increased with academic stress.

Conclusion

The overall outcome of this study showed that test anxiety significantly predicted depression among undergraduates of University of Ilorin. More so, Academic Stress is found to have significantly predicted depression among undergraduates of University of Ilorin. Similarly, test anxiety and Academic Stress were found to independently and jointly predict the level of depression among undergraduates of University of Ilorin

Recommendations

Based on the findings of this study, it is therefore suggested that:

Tertiary institutions especially of University of Ilorin should consider implementing Academic Stress management programs that provide students with effective coping mechanisms and techniques to manage stress. These programs can include workshops, counselling services, and relaxation exercises to help students' better handle stressors related to academics and exams.

Clinical, social and school psychologists should develop intervention programmes to reduce the stress and anxiety that students face in the course of studying, since test anxiety and academic Stress were noted to affect students' psychological health. In addition, the Students' Affairs Division of universities should schedule periodic psychological health check—up for newly admitted undergraduate students. This will keep them in the right mental state to pursue their academic goals.

Limitations

This study included only samples from the University of Ilorin only.

Hence, despite the representativeness of the sample for the given population, caution is suggested to generalize the findings. Future studies should concentrate on applying the instrument to different representative samples of the population from other higher institutions outside Kwara State

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