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Academic Stress and Coping Strategies among Postgraduate Students: Comparative Study of Universities in Imo State, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aims: The study aimed to identify and compare the prevalence of stress among postgraduate students in Imo State University (IMSU)and Federal University of Technology, Owerri(FUTO)using General Health Questionnaire-12 (GHQ-12), to identify and compare their sources of academic stress using Postgraduate Stressor Questionnaire(PSQ); and to identify and compare the measures the students were using to cope with stress using Cope inventory.
Sample: All the postgraduate students admitted in 2015/2016 session in FUTO and IMSU were sampled for this study, with 10% and 8% attrition rates in IMSU and FUTO respectively.
Study Design: This is a comparative cross sectional study between the postgraduate students in IMSU and FUTO.
Place and Duration of Study: Imo State University (IMSU) and Federal University of Technology, Owerri (FUTO), between August 2017 to November 2017.
Methodology: All the postgraduate students admitted in 2015/2016 session in FUTO and IMSU were used for this study (121 were from IMSU while 832 were from FUTO). PSQ, GHQ-12 and COPE Inventory were for data collection used to collect data. Chi square was used to test the hypotheses and the significance level was $p \leq 0.05$.
Results: It was observed that 79% of FUTO students were under eustress while 36% of those at

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IMSU were under eustress. Majority (80%) of FUTO respondents were using positive coping strategies compared to 36% of IMSU students using positive coping strategies. There was significant difference in the prevalence of stress and coping strategies among the students in the two universities (<0.001*).

Conclusion: Academic stress leads to many physiological and mental illnesses. It results from the stressful situations that persist over time and produces negative health outcomes. Postgraduate students in Nigeria face a number of pressures that are distinct from the stresses that undergraduates face. If it is not managed with positive coping strategies it will leads to wearing effects on people.

Keywords: Stress; coping; distress; eustress; academic stress.

1. INTRODUCTION

Stress generally is a difficult term to define because it is a highly subjective phenomenon. It is often a complex and complicated issue and understanding your own stress can be confusing. Hans Selye, who is credited as being the modern day father of stress, defined stress as the non-specific neuroendocrine response of the body [1]. Later on he dropped "neuroendocrine" because he realized that in addition to the involvement of the neuroendocrine system, almost every other system (e.g. the cardiovascular, pulmonary, and renal systems) is affected in one or several stages of the stress response, i.e. in the alarm reaction, stage of resistance and/or stage of exhaustion. Though he dropped neuroendocrine, yet he was consistent with the word "non-specificity" as the main characteristic of stressors. He later defined stress as the non-specific response of the body to any damage [1]. Hans Seyle's concept of stress is mainly referred to as 'General Adaptation Syndrome' and widely acceptable. Stress is subjective; something that is stressful for someone may not be stressful to another. It was noted that it can affect physical, mental health and behaviour. It is a negative emotional, cognitive, behavioural and physiological process that occurs as a person tries to adjust to or deal with stressors [2]. It is not perceived as having only negative effect; it may break some people down but propels others to achieve more within a short period of time. It is often regarded as a physiological process that involves an individual's personal interpretation and response to any threatening event [2]. Stress was further defined as "the negative evaluation of a condition as threatening; occasioned by the incapability of the person concerned to cope with a situation" [3]. Hans Selye noted that there are positive and negative aspects of stress. The positive aspect is known as eustress, and it provides challenges that motivate individuals to work hard and meet their goals, while distress (negative) results from the stressful situations that persist over time and produce negative health outcomes [4]. This was supported by another finding which stated that "a substantial level of stress is important in academic performance" [5].

Academic stress refers to the unpleasant psychological situations that occur due to the educational expectations from parents, teachers, peers and family members; pressure of parents for academic achievement, present educational and examination system and burden of homework [6]. Stress among postgraduate students is multi-factorial, arising from both academic and non-academic factors, including socio-cultural, environmental and psychological attributes [7]. A study conducted in 2006 noted that the pressure to perform well in the examination or test and time allocated make academic environment very stressful [8]. Another study went further to define academic stress as mental distress with respect to some anticipated frustration associated with academic failure or even unawareness to the possibility of such failure [9]. Postgraduate students in Nigeria face a number of pressures that are distinct from the stresses that undergraduates face. In a survey conducted in Nigeria among postgraduate students in Nigeria, it was discovered that stress among the sampled Nigeria postgraduate students was multifactorial [10]. In a study conducted among six Universities selected in the six geopolitical zones in Nigeria; NnamdiAzikiwe University Awka, University of Port Harcourt, Port Harcourt, University of Lagos, Lagos, AbubakarTafawaBalewa University, Bauchi, Ahmadu Bello University, Zaria, and University of Markurdi, Markurdi; two hundred and forty six (246) respondents were sampled, and the causes of stress and eventual low CGPA among postgraduate students were noted. The result of the study showed that time management was not the only factor that affected the student's CGPA

and stress level. Family and financial obligations, health, biological, psychological and non-residency of the postgraduates students were greater forces that led to academic stress and affected their academic performance. These factors also lead to distress among the students [10].

The effect of academic stress is not just on individual basis but can affect the health of the world generally. This is mostly common among medical postgraduate students [11]. In addition to coping with the normal stressors of everyday life, medical science students must deal with stressors specific to medical school, which included information and output overload, financial debts, lack of leisure time and pressures of work, work relationships and career choices. Impact of stress among the medical postgraduate students affects the health care delivery [11].

A pilot study conducted among 25 medical and 25 dental postgraduate students of Maharishi Markandeshwar University, Mullana, Ambala, revealed that only 14% of the respondents did not have any stress, while the others were under varying degrees of stress [11]. Stress among these groups of professionals could have professional ramification, including damaging effect on empathy, ethical conduct and professionalism, as well as personal consequences such as substance abuse, burn-out, broken relationships and suicide tendencies. It could lead to mental distress and have negative effect on attentive functioning and learning.

By the mid-70s, the social demand for education at all levels in Nigeria had become so high that educational expansion at all levels became one of government's priorities. The Chapter 2, section 18 of 1999 Nigerian Constitution included education in the concurrent legislative list, thus making it possible for State Governments to establish their own universities. This led to the establishment of at least one University in each State of the federation such that by the new millennium, there were over eighty Universities in Nigeria [10]. The growth trend of Universities in Nigeria is expansive rather than developmental in nature especially in State Universities. It has resulted in many administrative and academic problems for the government, schools, supervisors and the students.

Some pertinent questions that this research addressed were: what is the prevalence of academic stress among postgraduate students in IMSU (State University) and FUTO (Federal University)? What are the sources of academic stress among postgraduate students in IMSU and FUTO? What are the measures used by IMSU and FUTO postgraduate students to cope with academic stress?

Research hypotheses were tested using chi-square to ascertain the significant differences in sources, prevalence of academic stress and coping strategies for academic stress between the postgraduate students of IMSU and FUTO. The answer to these questions will help in evaluating and comparing the level of stress among postgraduate students of Imo State University and Federal University of Technology Owerri, to identify the sources of such stress, to ascertain the strategies the students were using to cope with stresses.

2. MATERIALS AND METHODS

This comparative study was carried out among postgraduate students in a State University (IMSU) and a Federal University (FUTO) in Imo State, Nigeria. All the postgraduates students admitted in 2015/2016 session were enrolled in this study. No specific sampling method was used for this study because all the students admitted in 2015/2016 academic session were sampled. The researcher, with the help of two well-trained research assistants, administered questionnaires to the respondents during their lecture days. The questionnaires were self-administered. They were administered to the respondents before their lectures, during their break period, while waiting for their lecturer(s) to come, and after the lectures. It was also administered on their seminar and project defence days, while some were administered on the days of their practical, especially FUTO students and IMSU students in the Faculty of Science. Some of the questionnaires were sent through E-mail to some students that could not be reached personally. They filled the questionnaires and sent it back to the researcher through E-mail. The design used for this study was descriptive cross-sectional comparative. It was used to compare the sources of stress, level of stress and coping strategies adopted by Postgraduate students in the two Universities in Imo State. The two Universities that offered Postgraduate studies in Imo State during this study period were Imo State University, IMSU, which is a State University and Federal University of Technology Owerri, FUTO, which is

a Federal University. Hence both Universities were used for this study. Study Duration was from August 7th,2017 to November 18th 2017.

Sample Size was 953 respondents**.** All the 2015/2016 registered postgraduate students in IMSU and FUTO were used for this study, hence no sampling method was used. Eight hundred and thirty two (832) postgraduate students were sampled from FUTO while one hundred and twenty one (121) students were sampled from IMSU. Total numbers of 953 students were sampled from IMSU and FUTO. Questionnaires were used to collect data from the respondents retrospectively. The questionnaires included socio-demographic characteristics such as age, gender, marital status and degree in view. Level of stress was ascertained using General Health Questionnaire-12 (GHQ-12), sources of stress was ascertained using Postgraduate Stressor Questionnaire (PSQ), while Cope Inventory was used to ascertain the student's different coping mechanisms.

Postgraduate Stressor Questionnaire (PSQ) was adopted without modification from the study conducted by Bhakti, Megha and Neeta [12]. Itis a modified stressor questionnaire developed based on two validated stressor questionnaires designed by previous researchers [13,14]. The modification was done to ensure that suitable and relevant items were included in the PSQ to measure the postgraduate stressors. The General Health Questionnaire-12 (GHQ -12) was adopted and adapted for this study from the study conducted by Sanchez-Lopez and Dresch [15]. The General Health Questionnaire is widely used internationally and locally to measure mental health status, especially in detection of emotional disturbances such as distress [16]. It is a measure of level of stress and current mental health. COPE inventory was adopted and adapted for this study from study conducted by Carver CS [17]. Cope inventory was used to obtain the strategies the students were using to cope with stress. The strategies the students were using to cope with stress were categorized under positive and negative coping strategies.

The questionnaires were administered to the respondents on their lecture days. It was also administered on seminar, proposal and project defence days and during break time for those in class. Some were administered at their offices. Some of the respondents that could not be reached directly but fell within the sample population and were willing to participate after explanation on phone; their e-mail addresses were obtained and the questionnaires were sent to them on-line and same retrieved on-line. Data collection lasted for fifteen (15) weeks.

Chi-square was used to ascertain the significance of difference between the sources of stress, level of stress and the measure the students were using to cope with stress. Five-point Likert scale, ranging from 0 to 4, was used for Postgraduate Stressor Questionnaires (PSQ) comprising; causing no stress at all, causing mild stress, causing moderate stress, causing high stress and causing severe stress. Values between the ranges of 3 to 4 indicated "high to severe stress" and were grouped under distress while values ranging from of 0 to 2 indicated "no stress at all, mild stress and moderate stress respectively" and were grouped under eustress. (0 = Causing no stress, 1= Causing mild stress, 2 = Causing moderate stress, 3= Causing high stress, 4 = Causing severe stress).

General Health Questionnaires-12 (GHQ-12) comprised of 4-point Likert scale (0 to 3) ranging from less than usual, no more than usual, rather more than usual, much more than usual. *0 = less than usual (No stress), 1= no more than usual (Mild stress), 2= rather more than usual (Moderate stress), 3= much more than usual (Severe stress). *Values ranging from of 0 to 2 were grouped under eustress while the value of 3 indicated distress. COPE inventory was measured on a four-point Likert scale which are: Used often =1, Used moderately =2, Rarely Used =3 and Not used at all =4. COPE inventory has scale between the ranges of A to D, with A and B being highly recommended, C slightly recommended and D not recommended at all (the scale is attached in the appendices III). The p-value, level of error, was set at $p \leq 0.05$.

3. RESULTS AND DISCUSSION

All the data obtained were summarized according to the student's degree in view (PGD, Masters and Ph.D.). Eight hundred and thirty two (832) Postgraduate students were sampled in FUTO while one hundred and twenty one (121) Postgraduate students were sampled in IMSU. Hypotheses were tested using Chi-square to compare the data collected from the respondents in the two Universities.

Sources of stress were ascertained using PSQ, and the data on "No stress, Mild stress and

Moderate" stresses were grouped under eustress, which is the positive stress. The data on "High stress and Severe Stress" were presented under distress, which is the negative stress.

The level of stress was ascertained using General Health Questionnaire-12 (GHQ-12). All the data in "Causing no stress at all, Causing Mild stress and Causing Moderate Stress" were presented under eustress, while the ones under "Severe stress" were presented under distress.

From the hypothesis tested using Chi-square in table 2, it was discovered that there is a significant difference in some of the sources of stress between the respondents in IMSU and FUTO, while the difference in some of the sources were not significant. The p-value was less than 0.05 ($p< 0.05$) in Academic, Work-family conflict, Performance pressure and Poor job prospect, hence the null hypothesis was rejected and alternate hypothesis was accepted. Academics and Performance Pressure were the major sources of stress to postgraduate students in FUTO, while work-family conflict and poor job prospect were the major sources of stress to IMSU respondents. These findings may not be unrelated to the respondent's work-family conflict. The results in the table further showed that there is significant difference between the work-family conflict result between the students from IMSU and FUTO. This means that the work and family conflict of IMSU respondents exposed them greatly to distress. Family and work responsibilities affected IMSU students negatively. Academic stress is the significant cause of many physiological, psychological and mental illnesses. It can lead to occupational boredom, potential inhibition and professional burnout [18]. This was supported by the study conducted among 1,148 postgraduate students in University of Ibadan, Nigeria. The study showed that family and work had great effects on the students [19]. The urge to meet the often incompatible demands of family, work and academic may create family-work conflict with resultant poor academic performance. It was noted that working long hours prevented adequate performance of family and academic responsibilities. Family demands interfered with their work and studies.

These findings on the students' sources of stress were also consistent with the findings of a comparative study conducted between postgraduate students of a selected Federal and State University. The study was conducted among postgraduate students in University of Ibadan (UI) and OlabisiOnabanjo University (OOU) [20]. The students in the Federal University sampled, (UI), underwent more academic stress than the students in the State University sampled, (OOU). Though both schools had the same duration for MPhil/ PhD programme, but their Diplomas and Masters Programmes differed in the minimum durations. University of Ibadan (UI) had a minimum of 2-semesters for extensive course work and one-semester for thorough project work for Diploma and Masters Programmes, while OlabisiOnabanjo University (OOU) combined both course work and project within 2 semesters, which was not extensive. This showed that academic stress was more among postgraduate students in the University of Ibadan (Federal University) compared to those in OOU (State University) [20].

These findings were further supported by a study conducted among postgraduate students in University of Calabar [21]. University of Calabar is one of the Federal Universities in Nigeria. The students underwent extensive course work and thesis writing hence increasing their stress level. Their major source of severe stress was academic stress. From the study, it was noted that the supervisors were interested in ensuring that the students graduated with a sound knowledge of research irrespective of their stress level and this was in agreement with the findings of this research and the findings of Afolakemi Olasumbo [20].

Another aim of this research which is the prevalence of stress of the students was ascertained using GHQ-12. From the result of the analysis presented in Table 3, there is a significant difference in the level of stress between the students in the two Universities. The p-values were less than 0.05 ($p<0.05$) in eustress and distress, hence the alternate hypothesis was accepted and null hypothesis rejected. From the information presented in Table 3, majority (63.6%) of IMSU students were distressed compared to 21.4% of FUTO students under distress. Distress is the negative stress while eustress is the positive stress. Eustress provides challenges that motivate individuals to work hard and meet their goals, meanwhile, distress (negative stress) results from the stressful situations that persist over time and produce negative health outcomes [4]. Distress, unlike eustress, has wearing effect on people

and can become very serious health risk if it continues over a long period of time. It can lead to memory loss, damage spatial recognition and produce decreased drive of eating [22].

This finding was however contrary to some previous studies. From the study conducted among postgraduate students in University of Ibadan (UI) and OlabisiOnabanjo University (OOU), it was discovered that postgraduate students in the Federal University, (UI), were more stressed compared to the ones in State University (OOU) [20]. The researcher discovered that the postgraduate students of OOU did not undergo the various rigorous processes of research compared to students of UI, thus they graduated earlier with mild stress. The lecturers of UI sampled, argued that there was need for a minimum of 3 semesters to obtain postgraduate diplomas or Masters Certificate. Enough periods should be given to extensive course work, after which the project work can commence thoroughly. This would enable the supervisors to have time to supervise their students efficiently, unlike the students of OOU that lumped everything in two semesters.

It was also discovered that postgraduate study in most Federal Universities was very rigorous and stressful especially during thesis writing [23]. The researchers noted that in most cases, a student passed through the Departmental defence (proposal or pre-field) stage, the Faculty defense stage (post-field) and the external defense stage before the student could have a successful thesis completion, unlike students in some State Universities that undergo only faculty and external defence [23]. The difference between the results of level of stress of this study and results obtained from the study conducted by Agu and Oluwatayo; and AfolakemiOlasumbo may not be unrelated to the student's age and/or their mode of study. In this study, the mean ages were 35 and 45years for FUTO and IMSU respondents respectively, and the standard deviation was 9 and 11 for FUTO and IMSU students respectively. Younger students will likely be able to withstand stress better compared to older students. This was supported by the study conducted among eight hundred and forty (840) postgraduate students in the University of South Africa Pretoria using GHQ-12. From the study, it was discovered that the younger students performed significantly better than older students [24]. These findings were however contrary to the findings of Anjali and Garkal, whose study among fifty (50) postgraduate students in India showed a higher stress level in younger age group compared to the older ones [25]. The difference may be related to the varying number of the study populations.

The students' coping strategies were also assessed. The information on strategies the students were using to cope with stress was collected using Cope inventory and compared between the respondents in the two Universities. From the hypothesis tested using Chi-square and presented in Table 4, there is significant difference between the strategies the respondents in the two Universities were using to cope with stress. The p-value was less than 0.05 ($p<0.05$), hence the null hypothesis was rejected and alternate hypothesis accepted. From the data collected, it was noted that majority (80%) of the respondents from FUTO were using positive coping strategy such as active planning, focused problem solving, social support, positive re-interpretation and humor, while majority (64%) of the respondents from IMSU were using negative coping strategies such as escape from the problem e.g. attrition, giving lecturer/s money to pass exam, paying lecturers or another person to write project for them, denial, mental disengagement and exchange of grades for sex. These findings were supported by some previous studies which reported that postgraduate students in State Universities use more of negative coping strategies to cope with stress compared to those in Federal Universities. In a study conducted in Delta State University, it was discovered that the postgraduate students used more of negative coping strategies such as: being forced by their lecturers to give them "brown envelope" to pass exam, exchanging sex for mark, being mandated to buy textbook and handout in order to pass exam, being compelled to pay lecturers to write projects for them, drug abuse, stealing, while some resort to attrition in worst cases [26].

The study conducted among students of Cross River University of Technology, Calabar, further supported the assertion that postgraduate students in State Universities use more of negative coping strategy.[27] The researcher discovered that the most dishonest attitudes of the lecturers in the institutions were forcing students to buy textbooks with assignments attached to it, collection of money to change grades for students, exchange of grades for sex, writing project and seminar papers for students for money and leakage of examination question.

Table 1. Socio-demographic characteristics of respondents

	FUTO (n=832)	IMSU (n=121)
Demographic characteristics	**n (%)**	**n (%)**
Sex		
Male	546 (65.6%)	48 (39.7%)
Female	286 (34.4%)	73 (60.3%)
Age (years)		
16-25	92 (11.1%)	9 (7.4%)
26-35	433 (52.0%)	14 (11.6%)
36 – 45	218 (26.2%)	31 (25.6%)
46 – 55	53 (6.4%)	48 (39.7%)
56 – 65	36 (4.30%)	19 (15.7%)
Mean age($\bar{x}$)	35±	45±
Standard Deviation (σ)	9.23	11
Degree in view		
PGD	245 (29.4%)	22 (18.2%)
MSc.	495 (59.5%)	60 (49.6%)
Ph.D.	92 (11.1%)	39 (32.2%)
Mode of study		
Full Time	526 (63.2%)	20 (16.5%)
Part Time	306 (36.8%)	101 (83.5%)
Occupation		
Private Firm	320 (38.5%)	27 (22.3%)
Civil Servant	255 (30.6%)	66 (54.5%)
Unemployed	143 (17.2%)	7 (5.8%)
Trader	63 (7.6%)	10 (8.3%)
Farmer	51 (6.1%)	11 (9.1%)
Marital Status		
Married	330 (39.7%)	77 (63.6%)
Single	372 (44.7%)	29 (24.0%)
Cohabiting	52 (6.3%)	- -
Widowed	38 (4.6%)	11 (9.1%)
Separated	31 (3.7%)	4 (3.3%)
Divorced	9 (1.0%)	- -

Table 2. Comparative analysis of the respondent's sources of stress

	FUTO		IMSU			
Sources Of Stress	**Eustress(%)**	**Distress(%)**	**Eustress(%)**	**Distress(%)**	**Chi-square**	**p-value**
Poor job prospect	768 (92.3%)	64 (7.7%)	42 (34.7%)	79 (65.3%)	274.8	<0.001*
Poor relationship with colleague	640 (76.9%)	192 (23.1%)	86 (71.0%)	35 (29.0%)	1.99	0.158
Poor relation with superior	556 (66.8%)	276 (33.2%)	78 (64.5%)	43 (35.5%)	0.265	0.607
Bureaucratic constrains	485 (58.3%)	347 (41.7%)	61 (50.4%)	60 (49.6%)	2.68	0.102
Work-family conflict	455 (54.7%)	377 (45.3%)	29 (24.0%)	92 (76.0%)	39.89	<0.001*
Academic	332 (39.9%)	500 (60.1%)	78 (64.5%)	43 (35.5%)	25.84	<0.001*
Performance pressure	318 (38.2%)	514 (61.8%)	86 (71.0%)	35 (29.0%)	46.69	<0.01*

Asterisks (*) indicates statistically significant difference

Table 3. Comparative analysis of prevalence of stress journal

Level Of Stress	FUTO(%)IMSU(%)(χ^2)	p-value
EUSTRESS	654(78.6%)	44(36.4%)
DISTRESS	178(21.4%)	77(63.6%)
TOTAL	832 (100%)	121 (100%)
96.183;	=0.001*	

(*) indicates statistically significant difference

Table 4. Comparative analysis of the respondent's coping strategies journal

Coping Strategies	FUTO (%)IMSU (%)	(χ^2) p-value
POSITIVE	664(80.0%)	44(36.4%)
NEGATIVE	168(20.0%)	77(63.6%)
TOTAL	832 (100%)	121(100%)
135.87 <0.001*		

(*) indicates statistically significant difference

In summary, from this research it was discovered that FUTO Postgraduate students underwent more stresses which were from sources directly related to their academics, such as stress from academics and performance pressure, while IMSU students underwent stress mostly from sources which were not directly related to their academics. Majority (79%) of FUTO students were under eustress compared to 36% of IMSU students who were under eustress, hence FUTO students were assumed to be more productive compared to IMSU students. Eighty percent (80%) of students in FUTO used more of positive coping strategies compared to 64% of IMSU students that used more of negative coping strategies.

4. CONCLUSION

More than half (79%) of the postgraduate students in Federal University of Technology Owerri (FUTO) were under eustress as against 36% of the respondents in Imo State University (IMSU) who were under eustress. From the hypothesis tested using Chi-square, it was discovered that there is a significant difference in some of the sources of stress between the respondents in IMSU and FUTO, while the difference in some of the sources were not significant. Academic, Work-family conflict, Performance pressure and Poor job prospect were found to be the major sources of stress. Bureaucratic constraints, Poor relationship with superior and poor relationship with colleague were not sources of stress to the students. In the accepted alternate hypothesis, Academics and Performance Pressure were the major sources of stress to postgraduate students in FUTO, while work-family conflict and poor job prospect were the major sources of stress to IMSU respondents. Majority (80%) of the respondents in FUTO used more of positive coping strategies such as active planning, focused problem solving, social support, positive re-interpretation and humor, while majority (64%) of the respondents in IMSU were using mostly negative coping strategies such as escape from the problem e.g. attrition, giving lecturer/s money to pass exam, paying lecturers or another person to write project for them, denial, mental disengagement and exchanging sex for marks.

This study will immensely help to reduce the discrepancies in postgraduate studies in Nigeria and equally help the students to start making use of positive coping strategies. This will enable them to be more productive, healthier and finish their program as and when due. It was noted that the processes involved in Postgraduate programme varied substantially with institutions, hence the need for Federal government to improve the academic standard in all the institutions and make the whole processes uniform. This will enable the students to be conscious of the fact that they can only graduate with the aid of positive coping strategies.

CONSENT

A written informed consent was also obtained from the respondents before administering the questionnaires, ensuring the principle of anonymity and confidentiality (also attached in appendix).

ETHICAL APPROVAL

Ethical clearance was obtained from the Ethics Review Committee, Federal Medical Centre, Owerri, Imo State (attached in appendix).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

INFORMATION ON THE LEVEL/PREVALENCE OF STRESS USING GHQ-12. [15]

This GHQ-12 will be used to obtain information on the prevalence of stress.

Item-scale of the GHQ-12					
		Less than usual	**No more than usual**	**Rather more than usual**	**Too much more than usual**
1.	Not able to concentrate				
2.	Loss of sleep over worry				
3.	Not playing a useful part				
4.	Not capable of making decisions				
5.	Felt constantly under strain				
6.	Couldn't overcome difficulties				
7.	Not able to enjoy day-to-day activities				
8.	Not able to face problems				
9.	Losing confidence				
10.	Thinking of self as worthless				
11.	Not feeling reasonably happy				
12.	Feeling unhappy and depressed				

INFORMATION ON THE SOURCES OF STRESS USING PSQ.[12]

Rank	**Item**	**Causing no stress at all**	**Causing mild stress**	**Causing moderate stress**	**Causing high stress**	**Causing severe stress**
13.	Tests/examinations					
14.	Large amount of content to learn					
15.	Time pressures and deadlines to meet					
16.	Having to do work outside of my competence					
17.	Work overload					
18.	Unfair assessment from superior					
19.	Fear of making mistakes that can lead to serious consequences					
20.	My work is mentally straining					
21.	Work demands					

Rank	Item	Causing no stress at all	Causing mild stress	Causing moderate stress	Causing high stress	Causing severe stress
	affect my personal/home life					
22.	Lack of time to review what have been learnt					
23.	Absence of emotional support from family					
24.	Advancing a career at the expense of home/personal life					
25.	Feeling of being underpaid					
26.	Having difficulty understanding the content					
27.	Lack of promotion prospects					
28.	Working with uncooperative colleagues					
29.	Relationship problems with colleagues/ subordinates					
30.	My beliefs contradict with those of my superior(e.g. religious belief)					
31.	Cannot participate in decision making					
32.	Unable to make full use of my skills and ability					
33.	My life is too centered on my work					
34.	Lack of support from superior					
35.	Lack of authority to carry out my job duties					
36.	Working with poorly experienced colleagues					
37.	Competition among colleagues					
38.	Difficulty in maintaining relationship with superior					
39.	Feeling insecure in					

Rank	Item	Causing no stress at all	Causing mild stress	Causing moderate stress	Causing high stress	Causing severe stress
	this job					
40.	Society does not think highly of my profession					

COPE INVENTORY

INFORMATION ON COPING STRATEGIES.[17]

Please tick (✓) in the method used

		Used often	Moderately used	Rarely used	Not used at all
1.	Active planning				
2.	Focused problem solving				
3.	Suppression				
4.	Behavioral disengagement				
5.	Sleeping				
6.	Denial				
7.	Mental disengagement				
8.	Substance use				
9.	Emotional social support				
10.	Engage in social activities like party, visiting a friend				
11.	Venting emotions				
12.	Positive reinterpretation				
13.	Restraint				
14.	Acceptance				
15.	Turning to religion				
16.	Humor				
17.	Escape from the problem e.g. attrition				
18.	Exchange of sex for mark				
19.	Giving your lecturer/s money to pass you				
20.	Paying your lecturer or another person to write project for you				
21.	Buying of exam question paper				

A	**B**	**C**	**D**
Active planning	**Sleeping**	**Suppression**	**Denial**
Problem-focused	Venting Emotion	Behavioural Disengagement	Mental Disengagement
Acceptance	Emotional Social Support	Social activity	Substance use
Humor	Religion	Avoidance coping	Escape from the problem Buying of exam question paper Paying someone to write project for you Giving your lecturer/s money to pass you Sleeping with lecturer to pass

No information given =x
Not included = X
Scales with the same letter had their dominant loading on the same factor.
A……..Recommended (positive strategies)
B……..Recommended (positive strategies)
C…….. Slightly recommended (positive strategies)
D…….Not recommended (negative strategies)

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1574

FMC/OW/HREC/157

August 3, 2017

Ezelote, Judith Chinelo,
Department of Community Medicine,
Faculty of Medicine,
Nnamdi Azikiwe University, Awka,
Nigeria.

Dear Ezelote,

ETHICAL APPROVAL

RE: "ACADEMIC STRESS AND COPING STRATEGIES AMONG POSTGRADUATE STUDENTS: A COMPARATIVE STUDY OF UNIVERSITIES IN IMO STATE"

The Ethical Committee has considered further corrections you made on your research proposal.

Sequel to this, ethical approval is hereby given for you to carry out the above study.

Note that you are to abide strictly by your methodology as stated in the proposal.

On completion of your study you are to submit a copy of your dissertation to this Committee.

Thank you.

DR. C.M. ANYAEZE
Chairman Ethical Committee

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Thank you.

DR. C.M. ANYAEZE
Chairman Ethical Committee

CONSENT FORM

Introduction: I, ezelote judith chinelo, a postgraduate student of community medicine department, nnamdi azikiwe university awka, wish to inform you that you have been selected to participate in a study on: academic stress and coping strategies among postgraduate students: a comparative study of universities in imo state. This study is based on the assumption that the findings will help the postgraduate students to know the positive strategies that will help to reduce stress and attrition rate.
Voluntary nature of participation: Participation in this study is completely voluntary. This means that although you have been selected, you are free to participate in the study or decide otherwise. If you decide to participate, you are free to withdraw form it at any stage of the study without incurring negative consequences.
Study procedure: You will be asked questions on your socio demographic profile (bio data) including religion and occupation. You will also be required to answer questions on academic stress, the sources of the stress, level of the stress and coping strategies you are adopting.
Confidentiality: Information obtained from you will be treated as confidential and will not be used against you in any form. You will not be required to write your name anywhere or present any information that will reveal your identity at any stage of the study. In addition, data analysis and presentation from this study will be aggregate, and will not in any way reveal your identity.
Feedbacks: The principal researcher will be at hand every time to answer any question(s) you may have concerning the study. Similarly throughout the course of the study, the researcher team will be available to answer any question(s) or deal with any problem that may arise. You can always reach the principal researcher on 08037911310 or at department of community medicine and primary healthcare, unizik/nauth nnewi.
Respondent: I have read and understood the above (or had someone read and explained the entire study to me). All the gray areas have also been clarified. I fully understand the nature, risk and benefits of the study and hereby consent to take part in it.

……	……
SIGNATURE OF RESPONDENT	**NAME AND SIGNATURE OF RESEARCHER**
DATE ……..	**DATE……**

Peer-review history:
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