

## Perceived Stress and Coping Strategies among Undergraduate Students in Lagos, Nigeria

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### Abstract

**Introduction:** The observed emotional distress among students of higher institutions was documented to be a common public health occurrence. The potential long-term negative implications on the academic and physical and mental health could lead to maladaptive behaviours that can make students to become unproductive in the university. This study aimed at evaluating the degrees of perceived stress and adopted coping strategies among undergraduate university students in Lagos, Nigeria.

**Methodology:** The study was a descriptive and cross-sectional one that was carried out among one hundred and forty-five students of the University of Lagos, Akoka, Lagos, Nigeria. The Perceived Stress Scale and Brief Cope Scale were administered to the respondents. The collected data was analysed using SPSS version 21.0. Descriptive and analytical statistics were presented as frequencies, percentages, means, and standard deviations. The Chi-square test determined associations and significant associations at  $P < 0.05$ .

**Results:** The findings of the perceived stress scale showed that majority of participants experienced a mild to moderate stress level. The Brief COPE revealed that the problem-focused coping, active coping, positive reframing, and planning were predominantly used by the students. Regarding emotion-focused coping, religion and acceptance were predominantly used while self-distraction, denial and behaviour disengagement were the avoidance coping strategies used the students.

**Conclusions:** This study demonstrated a high level of perceived stress among the surveyed undergraduate students. The results highlighted the need to carry out stress management and emotional resilience workshops for undergraduate students that will further help to strengthen the coping skills of students in the university environment.

### Keywords

Perceived Stress, Coping strategies, Undergraduate students, Nigeria.

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### Introduction

Stress has severally been reported to be associated with negative physical and mental health outcomes and could also lead to the exacerbation of common mental health symptoms such as

anxiety and depression [1,2]. The reported stressful factors in higher institutions include financial problems, poor support from parents, and psychological, social, academic, and relationship factors. Other identified factors include living far away from

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parents, being bullied by senior students or the pressure to join gangs and cults [1,2]. The literature showed that undergraduate students experienced a high prevalence rate of stress that ranged between 30% and 49.3% [3,4]. For example, one Canadian study that involved 7800 undergraduate students reported that 30% of the student experienced perceived stress [3]. Another similar but smaller study by Phang et al. [4] reported a prevalence rate of stress of 49.3% among their surveyed undergraduate students. Higher rates of stress were even recorded in some African countries compared to the Western world. For example, in Ethiopia, the stress rate among some surveyed undergraduates was 63.5% [5], while in Nigeria perceived stress was also found to be highly prevalent among undergraduate students. One Nigerian study showed that 72.5% of students experienced high levels of stress [6].

Regarding coping strategies, the use of coping techniques assists individuals in reducing the pressure of stressful circumstances when demands exceed individual resources and documented evidence indicates a coping process in terms of problem-focused, emotion-focused coping or avoidance coping styles [7]. Nonetheless, research established that coping is one of the best solutions for reducing stress as well as preventing psychological distress. The strategies of coping were observed to reduce the effects of the stress and found to produce long-term positive effects such as increased self-knowledge, stronger social bonds, mastery, self-esteem and as well as wisdom [8,9]. However, due to the crucial transitional stages that students face from the adolescent period to adulthood, the young adult is expected to become more responsible and live independent lives which make them vulnerable to emotional and physical stressors in the higher institution [8,9].

The reported common coping strategies utilised by students include problem-solving strategies such as developing objectives to resolve problems, adopting various strategies to solve problems, and finding the meaning of stressful events. Other observed coping skills were skills training development programmes, mindfulness exercises, physical exercise, support from friends, building self-esteem, addressing anger, and loneliness, emotional support from parents, social approach coping approaches; cognitive approach coping approaches; and approach coping strategies [10,11]. The commonly used coping strategies among the western college students include connecting with online friends, playing outdoors leisure and health-promoting activities, mindfulness exercises, building self-esteem; addressing anger, and loneliness; emotional support from parents, and problem-solving. While in Nigeria the popular coping adopted methods include screaming and swearing, playing out door games, physical exercises, watching television and movies, talking to classmates, talking to parents [12-14].

It has been previously demonstrated that an acceptable amount of stress could inspire productivity and good grades in school, nonetheless, the degree of stress that exceeds the individual's capability to cope could be harmful and may negatively impact the psychological well-being of the individual. If a student's stress is not detected, it could lead to risky behaviours, substance use and

abuse, and ultimately low academic achievement [1-3]. Local data on perceived stress and stressors among Nigerian undergraduate students and the severity of stress-induced were observed to be lacking. When higher school authorities further get a clearer understanding of the stressors perceived by undergraduate students, it will assist in informing prompt, early and effective psychological interventions. The early management of students' psychological challenges will equip undergraduate students to cope better on the university campus. The benefits of such interventions will further enhance the psychological well-being of university students, and ultimately also enhance the ability to achieve the institution's learning objectives. This study was, therefore, designed to evaluate the degrees of perceived stress, their severities, and the adopted coping strategies for dealing with the encountered stressful situations among undergraduate university students in Lagos, Nigeria.

## Research Methodology

### Study Location and Design

The study was conducted at the Faculty of Social Sciences of the University of Lagos, Akoka, Lagos, Nigeria. The study was a descriptive and cross-sectional one. The data was collected in December 2023 by using a convenient and consecutive selection approach. Convenience sampling method was utilized to select the study participants. Hence, participants were recruited based on their availability and willingness to participate in the study.

### Study Population

The study was carried out among students of the faculty of Social Sciences of the University of Lagos, Akoka among the students from the first to the fourth year.

### The Inclusion Criteria

The student must be a current registered student of the faculty of social sciences; and those who were present in their classes at the time of the selection.

### Exclusion Criteria

Students that declared pre-existing medical conditions; those undergoing any other form of stress due to other life events and those who refused to give their consents.

### Measure Instruments

A self-administered questionnaire with a consent form was used to capture socio-demographic variables such as age, gender, marital status, and levels of education, religion, living on or off campus, family structure, monthly allowance as well as source of funding for the medical school.

The Perceived Stress Scale (PSS) [15] was also administered to the respondents to evaluate their degrees of stress. The PSS evaluates the respondents' perceptions of stress levels they experience in specific situations and the degrees to which life events are appraised as stressful. The PSS is one of the widely used validated psychometric psychological tools with ten variables on a five-point

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Likert scale ranging from 0 (never) to 4 (very often) including how often they have felt or thought a certain way within the past month. Scores range from 0 to 40 with higher scores indicative of higher stress. Scores  $\geq 20$  are considered a high level of perceived stress. The PSS has previously been validated for use in Nigeria [16] and had been previously used in Nigerian studies [17].

The Brief COPE [18] Scale consists of 28 items; each scale is rated on a 4-point Likert scale with 14 dimensions, 2 items for each dimension. Both cognitive and behavioural strategies of coping are included and are rated by the four-point Likert scale, ranging from “I haven’t been doing this at all” (score one) to “I have been doing this a lot” (score four). In total, this scale covers 14 dimensions. These are self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame. Every dimension has two items. The coping dimensions also can be divided into three major categories: problem-focused strategies (i.e. active coping, planning, and using instrumental support) and emotion-focused strategies (i.e. positive reframing, acceptance, religion, using emotional support, and denial). The students made their choices according to the coping tactic most frequently used to manage the stressful events experienced by them. A higher score indicates greater coping by the respondents. The instrument has been previously validated [19] and also used in previous Nigerian Studies [20].

### Study Procedure

The self-administered questionnaires were distributed to all students while waiting for their lectures. Just before the recruitment of the respondents, a brief explanation of the objectives of the study was carried out; it was followed with instructions for the proper process of filling out the psychometric tools. The instruments were filled individually and voluntarily with the consent of the respondents. The respondents were assured that all information gathered would be kept with the utmost confidentiality.

### Data analysis

The collected data was analysed using Statistical Package for Social Sciences SPSS version 21.0. Data were examined for correctness and completeness and coded for statistical analysis. Observations with non-response, item omission, entry errors or logical inconsistencies were excluded. Descriptive statistics such as continuous variables were presented as mean  $\pm$  standard deviations, while categorical variables were presented as frequencies and proportions.

The respondents’ characteristics were also summarized by perceived stress scale categories into low, moderate and high. The Chi-square test was used to determine the relationship and statistical significance between the dichotomised categories of the perceived stress scale with socio-demographic variables. Univariate and multivariable logistic regression models were fitted to assess predictors of moderate and high psychological stress among the study participants. Univariate and multivariate analysis were performed to identify patterns and multiple relationships including nominal dependent variable; and independent variables.

Concerning the adopted coping strategies, a multivariate regression analysis was done to identify the factors associated with the avoidant, problem and emotion-focussed coping strategies. The results presented as odds ratios at 95% confidence intervals, at a level of statistical significance of  $p < 0.05$ .

### Results

The findings of the study indicated that the male respondents were 73 (50.3%) and females 72 (49.7%). Among the age categories, those below the age of 18 years were 29 (20%); the age range 18 to 25 years was 97 (66.9%) while those above the age of 25 years were 19 (13.1%). Regarding the religion of the participants, the majority of the respondents were Christians 86 (59.3%), 53 (36.6%) were of the Islam faith, while the rest of them with other faiths were 2 (1.4%). Concerning the ethnicity of the respondents, the preponderance of them was Yoruba 113 (77.9%); the Igbos were 11 (7.6%); the Hausas were 5 (3.4%). When the year of study was analysed, 32 (22.1%) were in the first year; 35 (24.1%) were in the second year of study, 38 (26.2%) were in the third year and 40 (27.5%) were in the final year. Their marital status showed that only 2 (8.3%) were married while 143 (98.6%) were single. Their monthly allowances showed that 4 (2.8%) received less than N10, 000; 43 (29.7%) received between N10, 000 and N20, 000; While those that received between N21, 000 and N50, 000 were 94 (64.8%) and those that got above N50, 000 were 4 (2.8%). About their source of funding in the university, 4 (2.8%) were self-sponsored; 139 (95.9%) were sponsored by their parents while only 2 (1.4%) were on scholarship. When asked about their family structure, those from monogamous families numbered 130 (89.7%); those from polygamous homes numbered 7 (4.8%); respondents from single parents numbered 6 (4.1%) and other family structures numbered 2 (1.4%). The students who were experiencing current health challenges were 6 (4.1%) and the majority 139 (95.9%) claimed that they enjoyed good health. All these are reflected in Table 1.

Table 2 shows the results from the Perceived Stress Scale that the majority of participants experienced a mild to moderate stress level (80.8%) followed by a high-stress level (19.2 %). Regarding gender, the findings between the males and females were not statistically significant. Using a P-value of 0.05, the only significant association ( $p= 0.000$ ) was between monthly allowance and perceived stress as earning between N10, 000 – N20, 000 was associated with high perceived stress as shown in Table 3. From the Brief COPE scale, the problem-focused category was  $2.65 \pm 0.62$  ( $p$  value= $0.006$ ); the emotion-focused coping mechanism category was  $2.39 \pm 0.051$  ( $p$  value= $0.718$ ) while the avoidant-coping mechanism category had a mean of  $1.95 \pm 0.53$  ( $p$  value= $0.363$ ) as reflected in Tables 4 to 7. Concerning the specific coping strategies of the participants, the study revealed that among problem-focused coping, active coping, positive reframing, and planning were predominantly used. Regarding emotion-focused coping, religion and acceptance were predominantly used while self-distraction, denial and behaviour disengagement were used to cope. The bivariate regression analysis only noted that planning ( $p=0.000$ ) was significantly associated with perceived stress as shown in Table 8.

**Table 1:** Social Demographic Characteristics of Respondents.

Variables	Frequency	Percentage (%)
<b>Gender</b>		
Male	73	50.3
Female	72	49.7
<b>Age</b>		
<18Years	29	20
18-25 Years	97	66.9
>25Years	19	13.1
<b>Religion</b>		
Christianity	86	59.3
Islam	53	36.6
Traditional	4	2.8
Others	2	1.4
<b>Ethnic Group</b>		
Yoruba	113	77.9
Igbo	11	7.6
Hausa	5	3.4
Others	16	11.0
<b>Year of Study</b>		
100	32	22.1
200	35	24.1
300	38	26.2
400	40	27.5
<b>Marital Status</b>		
Single	143	98.6
Married	2	1.4
<b>Residence</b>		
Campus	133	91.7
Off-Campus	12	8.3
<b>Monthly Stipends</b>		
< #10,000	4	2.8
#10,000 - #20,000	43	29.7
#21,000- #50.000	94	64.8
>#50,000	4	2.8
<b>Source of Funding</b>		
Self	4	2.8
Parent	139	95.9
Scholarship	2	1.4
<b>Family Setup</b>		
Monogamous	130	89.7
Polygamous	7	4.8
Single Parent	6	4.1
Others	2	1.4
<b>Treating Medical Condition Currently</b>		
Yes	6	4.1
No	139	95.9

**Table 2:** Perceived Stress Scale among Respondents.

Variables	Frequency	Percentage
Low stress	12	8.3
Moderate Stress	105	72.5
High Stress	28	19.3

**Table 3:** Relationship between Perceived Stress and Social-demographic Characteristics.

Variables	Low Stress (%)	Moderate Stress	High Stress	p-value
<b>Age Group</b>				
<18yr	1 (0.69%)	24 (16.55)	4 (2.75)	
18-25yr	9 (6.21%)	71 (48.96)	17 (11.72)	0.188
>25yr	2 (1.38%)	10 (6.89)	7 (4.83)	
Total	12 (8.3%)	105 (72.4%)	28 (19.3%)	
<b>Gender</b>				
Male	6 (4.14)	53 (36.55)	14 (9.65)	0.999
Female	6 (4.14)	52 (35.86)	14 (9.65)	
<b>Religion</b>				
Christianity	7 (4.83)	61 (42.1)	18 (12.41)	0.866
Islam	5 (3.45)	38 (26.2)	10 (6.89)	
Traditional	0 (.00)	4 (2.75)	0 (0.00)	
Others	0 (0.00)	2 (1.38)	0 (0.00)	
<b>Ethnic Group</b>				
Yoruba	7 (4.83)	80 (55.17)	26 (17.93)	
Igbo	3 (2.06)	8 (5.52)	0 (0.00)	0.088
Hausa	0 (0.00)	5 (3.45)	0 (0.00)	
Others	2 (1.38)	12 (8.3)	2 (1.38)	
<b>Year of Study</b>				
100	4 (2.75)	20 (13.7)	7 (4.3)	
200	3 (2.06)	33 (22.7)	9 (6.21)	0.128
300	4 (2.75)	41 (28.2)	7 (4.83)	
400	1 (0.69)	11 (7.59)	6 (0.17)	
<b>Marital Status</b>				
Single	11 (7.59)	104 (71.72)	28 (19.31)	0.091
Married	1 (0.69)	1 (0.69)	0 (0.00)	
<b>Residence</b>				
Campus	12 (8.3)	93 (64.14)	28 (19.31)	0.083
Off campus	0 (0.00)	12 (8.3)	0 (0.00)	
<b>Monthly Income</b>				
<#10,000	0 (0.00)	3 (2.06)	1 (0.69)	
#10,000-#20,000	0 (0.00)	29 (20)	14 (9.65)	0.000
#21,000-#50,000	9 (6.21)	72 (49.66)	13 (8.97)	
>#50,000	3 (2.06)	1 (0.69)	0 (0.00)	
<b>Source of funding</b>				
Self	0 (0.00)	4 (2.75)	0 (0.00)	
Parent	11 (7.59)	100 (68.97)	28 (19.31)	0.176
Scholarship	1 (0.69)	1 (0.69)	0 (0.00)	
<b>Family Setup</b>				
Monogamous	10 (6.89)	95 (65.52)	25 (17.24)	0.838
Polygamous	1 (0.69)	5 (3.45)	1 (0.69)	
Single Parent	0 (0.00)	2 (1.38)	0 (0.00)	
<b>Currently treating a medical condition</b>				
Yes	1 (0.69)	5 (3.45)	0 (0.00)	0.398
No	11 (7.59)	100 (68.97)	28 (19.31)	

**Table 4:** Brief Cope by Category.

Avoidant	1.95 ± 0.53	0.006
Problem-Focused	2.65 ± 0.62	0.718
Emotion-Focused	2.39 ± 0.51	0.363

**Table 5:** Brief COPE Problem-focused Scores among Participants.

Brief COPE sub Scale	Scores	P-value
Active Coping	5.97 ± 1.79	0.620
Use of Informational Support	4.86 ± 1.76	0.389
Positive reframing	5.71 ± 1.67	0.623
Planning	5.99 ± 1.62	0.582

**Table 7:** Brief COPE Avoidance Scores among Participants.

Brief COPE sub Scale	Scores	P-value
Self-Distraction	5.28 ± 1.78	0.100
Denial	3.99 ± 1.78	0.053
Substance use	2.74 ± 1.51	0.242
Behavioural Disengagement	3.66 ± 1.59	0.165

**Table 6:** Brief COPE Emotional-focused Scores among Participants.

Brief COPE sub Scale	Scores	P-Value
Emotional Support	4.86 ± 1.76	0.763
Venting	4.58 ± 1.69	0.350
Humour	4.19 ± 1.84	0.398
Acceptance	5.77 ± 1.80	0.825
Religion	5.66 ± 1.91	0.316
Self-blame	4.23 ± 1.78	0.847

## Discussion

This study evaluated the degrees of perceived stress and the adopted coping strategies among undergraduate students in a university in Nigeria. The findings of this study showed that a majority of participants experienced a mild to moderate stress level (80.8%) followed by a high-stress level (19.2 %). Regarding gender, the findings between the males and females were not statistically significant. The results of this study aligned with the

**Table 8:** Bivariate and Multivariate Analysis to Identify Factors Associated with Perceived Stress Level.

Variables	Perceived Stress Level		COR (95%CI)	p-value	AOR (95%CI)	p-value	
	Low (n=93)	High (n=52)					
Gender	Female	47 (50.5)	2517.2	-0.024 (0.86-0.87)	0.78	1.12 (0.51-2.46)	0.78
	Male	46 (31.7)	27 (18.6)				
Age	<18	21 (14.5)	8 (5.5)	0.115 (0.17-0.18)	0.167	1.60 (0.57-4.50)	0.38
	18-25	62 (42.8)	35 (24.1)				
	>25	10 (6.9)	9 (6.2)				
Religion	Christianity	51 (35.2)	35 (24.1)	-0.14 (0.90-0.10)	0.92	0.59 (0.30-1.16)	0.13
	Islam	36 (24.8)	17 (11.7)				
	Traditional	4 (2.8)	0 (0.0)				
Ethnic Group	Yoruba	71 (49.0)	42 (29.0)	-0.057 (0.49-0.51)	0.50	0.98 (0.65-1.50)	0.92
	Igbo	6 (4.1)	5 (3.4)				
	Hausa	5 (3.4)	0 (0.0)				
	Others	11 (7.6)	5 (3.4)				
Year of Study	100	20 (13.7)	10 (6.9)	0.094{0.27-0.29}	0.28	1.25 (0.55-2.88)	0.60
	200	24 (16.5)	11 (7.5)				
	300	40 (27.6)	22 (15.2)				
	400	9 (6.2)	9 (6.2)				
Marital Status	Single	91 (62.8)	52 (35.9)	-0.088 (0.53-0.55)	0.54	.0000	0.99
	Married	2 (1.4)	0 (0.0)				
Residence	Campus	84 (57.9)	49 (33.8)	-0.068 (0.53-0.55)	0.54	0.82 (0.12-5.54)	0.84
	Off campus	9 (6.2)	3 (2.1)				
Monthly Income	NGN10,000 or below	3 (2.1)	1 (0.7)	-0.225 (0.005-0.008)	0.006	0.44 (0.21-0.93)	0.031
	NGN10,000-#20,000	20 (13.8)	23 (15.9)				
	NGN20,000-50,000	66 (45.5)	28 (19.3)				
	>NGN50,000	4 (2.8)	0 (0.0)				
Source of Funding	Self	4 (2.8)	0 (0.0)	0.052 (0.46-0.48)	0.47	1.26 (0.17-9.50)	0.82
	Parent	87 (60.0)	52 (35.9)				
	Scholarship	2 (1.4)	0 (0.0)				
Family Setup	Monogamous	82 (56.6)	48 (33.1)	-0.077 (0.46-0.48)	0.47	0.61 (0.28-1.30)	0.20
	Polygamous	5 (3.4)	2 (1.4)				
	Single Parent	4 (2.8)	2 (1.4)				
	Others	2 (1.4)	0 (0.0)				
Variables	Perceived Stress Level		COR (95%CI)	p-value	AOR (95%CI)	p-value	
	Low (n=93)	High (n=52)					
1	Active Coping	6.04 ± 1.767	5.83 ± 1.833	-0.058 (0.48-0.5)	0.49	1.034 (0.81-1.33)	0.79

2	Use of Informational Support	4.84 ± 1.765	4.90 ± 1.774	0.021 (0.80-0.82)	0.82	1.058 (0.82-1.37)	0.67
3	Positive reframing	5.77 ± 1.764	5.62 ± 1.523	-0.74 (0.36-0.38)	0.37	1.072 (0.81-1.41)	0.63
4	Planning	6.31 ± 1.546	5.42 ± 1.601	-0.27 (0.00-0.001)	0.00	0.638 (0.47-0.86)	0.004
5	Emotional Support	4.78 ± 1.882	5.02 ± 1.527	0.082 (0.32-0.33)	0.33	1.066 (0.84-1.36)	0.61
6	Venting	4.47 ± 1.665	4.77 ± 1.733	0.090 (0.27-0.29)	0.28	1.084 (0.82-1.43)	0.56
7	Humor	4.13 ± 1.819	4.31 ± 1.895	0.041 (0.61-0.63)	0.62	1.030 (0.83-1.28)	0.79
8	Acceptance	5.99 ± 1.760	5.38 ± 1.827	-0.17 (0.04-0.05)	0.045	0.828 (0.65-1.05)	0.12
9	Religion	5.62 ± 2.010	5.73 ± 1.716	0.002 (0.978-0.984)	0.98	1.091 (0.87-1.37)	0.46
10	Self-blame	4.22 ± 1.768	4.37 ± 1.826	0.041 (0.623-0.642)	0.63	1.037 (0.80-1.35)	0.79
11	Self-Distraction	5.28 ± 1.844	5.29 ± 1.684	-0.003 (0.97-0.976)	0.97	1.148 (0.90-1.46)	0.27
12	Denial	3.84 ± 1.843	4.27 ± 1.658	0.079 (0.067-0.078)	0.073	1.060 (0.82-1.37)	0.66
13	Substance use	2.59 ± 1.424	3.02 ± 1.651	0.16 (0.047-0.056)	0.051	1.152 (0.90-0.71)	0.27
14	Behavioural Disengagement	3.60 ± 1.554	3.77 ± 1.652	0.047 (0.565-0.585)	0.57	0.935 (0.71-1.22)	0.63

findings from other workers from other countries. For example, one Malaysian study reported that about 37.7% of the surveyed students experienced perceived stress [2]. In Ethiopia, 24.5% and 52% of perceived stress were reported in two different universities [21,22]. In the same vein, a high degree of 57% stress was reported among Saudi Arabian students [23]; even a higher rate of 61.4% was declared among Thai students [24]. Nonetheless, one large study from Turkey that involved 1617 university students aged between 17 and 26 years found a lower level of perceived stress (27%) among their respondents [25]. However, the literature from local studies indicated that Nigerian students experienced more stress compared to their foreign colleagues. For example, Roland et al. [26] reported that 79.6% of their observed students experienced high perceived stress. In the same vein, Ayodeji et al. [27] observed that 67% of the studied student experienced perceived stress.

When all these reported degrees of stress in undergraduate students were compared to the experience of stress in students in secondary schools, they were found to be higher. This revelation indicated that more factors generated stress in higher institutions than in secondary schools [28]. Many reasons were inferred from the literature be responsible for the high degrees of stress among the undergraduates of universities, they include financial constraints, fear of being able to graduate, living far away from homes, frequent strike actions by lecturers, high academic work and the frequency of examinations, unresolved family issues, poor or overcrowded classrooms, shortages of the needed academic books and when available, they were expensive, limited finances, fear of failing examinations, failure to initiate and sustain social relationships on while campus [2,5,14,25-27].

Empirical evidence indicated that when undergraduate students experience persistent stressors in their higher institutions, it could negatively affect their academic performance, resulting in more emotional distress which could generate fear of uncertainty, poor concentration, social withdrawal or isolation, and maladaptive behaviours of coping with drugs and alcohol [22,28-30]. Their physical and mental health indices may be affected thereby leading

to psychopathological morbidities such as anxiety, and depression [28-30]. Living on and off campus could be financially demanding for Nigerian students especially those living in Lagos, the former capital city of Nigeria. Similarly, students who do not get adequate financial support from their parents may even believe that their parents were not supportive of their education [1,27]. In light of these observed scientific revelations, it is however, worthy of note, that the prevalence of perceived stress among undergraduate students can vary across different student populations and institutions. Nonetheless, factors such as academic competitiveness, cultural differences, and support systems can influence the level of stress experienced by students [30,31].

Regarding the gender, the results of this study did not find any statistically significant difference between the stress perceived by the male and female respondents. However, some studies reported that gender was a significant determinant of perceived stress and that the female students were almost twice as likely to be stressed compared to the male students which suggested that the female undergraduates were more vulnerable to stress than their male fellow students [25,30,31]. Albeit, observed differences in the variations of prevalence rates could probably be due to different factors in different higher institutions such as cultural differences, the different populations of students, the psychometric instruments used and the socio-economic status of the country in the studies carried out.

Pertaining to the adopted coping skills of the participants, our findings showed that the coping strategies indicated that problem-focused coping category  $2.65 \pm 0.62$  (p value= 0.718) was the most utilised coping strategy adopted by respondents of this study. This coping style was characterized by positive reframing, planning, acceptance, seeking emotional support, and seeking informational support. Studies revealed that those who adopt this style of coping were found to have healthier responses to adversity, adaptive practical adjustment, better physical health outcomes, and more stable emotional responses [32,33]. The respondents also used the emotion-focused coping strategy  $2.39 \pm 0.51$  (p value= 0.363)

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characterized by the facets of venting, use of emotional support, humour, acceptance, self-blame, and religion. The findings of this study also indicated that religion was one of the sub-scale of the emotion-focussed coping strategies. The avoidant coping category was  $1.96 \pm 0.53$  ( $p$  value= 0.006). This type of emotion-focussed coping allows individuals to take charge of their emotional state and regulate them so that they can experience lowered mood, anxiety and stress. The strategy also employs strategies such as deep breathing techniques and meditation to reduce their experienced stress to further regulate their emotions. The literature also noted that one of the most frequently adopted emotional-focussed strategy was spirituality [34]. Furthermore, studies noted that students who deployed emotion-focused coping strategies were better at tackling stress compare to those who are used problem-focused strategies [34]. In the same vein, the avoidant coping that was characterized by denial, substance use, venting, behavioural disengagement, self-distraction, and self-blame was the least adopted strategy by the respondents. Studies also showed that those who mainly use the avoidant strategies were observed to manifest with poorer physical and mental health. The findings of our study were observed to be in consonance with the findings of other workers in this field. Studies indicated that most students in higher institutions adopted the problem-focused coping strategies followed by the emotion-focused coping style [35-37].

Part of the implications of this study could be due to the period of the collation of the data for this study. It was the period that Nigeria was undergoing serious economic depression due to the removal of the fuel subsidy and devaluation of the Nigerian currency; that might have affected the Nigerian students especially regarding their monthly stipends from their parents and guardians. For those who do not have adequate adopted coping strategies the outcome could result to the development of physical and mental disorders such as anxiety disorders, substance use disorder, depression suicidal thoughts even attempting suicide. However, the specific adapted coping strategies used by respondents of this study were active coping, positive reframing, planning, and religion, acceptance while self-distraction, denial and behaviour disengagement. Empirical evidence demonstrated that students who developed adequate coping skills were noted to be less affected with psychological morbidity than those who were less resilient when put under the same campus stressor levels. Those who find it hard to cope with higher institution stressors would probably develop maladaptive coping strategies such as the use and abuse of alcohol, tobacco and other psychoactive substances to cope with stressful situations [22,30].

## Recommendations

From the findings of this study, the Nigerian university authorities should take note of the increasing prevalence of perceived stress among undergraduate students. It is hereby suggested to the university authorities that guidelines and specifically designed programmes geared towards enhancing effective emotional resilience and stress coping strategies should be put in place for

students. It will be also helpful if corroborative intervention with public mental health experts is sought to help student develop personal coping skills and reduce stress on our campuses to enhance the emotional wellbeing of undergraduate students as part of the health-promoting initiatives. Nonetheless, some evidence-based psychological intervention strategies adopted by the Nigerian undergraduate students include diet regulation, spiritual devotion, physical fitness education, skills counselling, problem solving skills, recreation and tourism [17,38]. In the same vein, the student affairs directorates of Nigerian universities should frequently organise counselling services, stress management and emotional resilience workshops and programmes to help students develop various choices of coping with stress and ultimately promote their overall physical and mental health well-being.

## Limitations

This study has some limitations, and the findings should be interpreted with some caution. There was a possibility of recall and selection bias since data collection was self-administered. In that wise, the findings cannot be generalised to the entire nation because it was limited to samples only in one state in Nigeria. Additionally, the findings in this study do not provide direct causality between independent and independent variables. Again, the study did not explore the specific types of stressors the students faced for their adopted coping strategies. It is hereby suggested that future studies should explore the role of specific stressors as contributory factors to poor coping strategies among Nigerian undergraduate students. Lastly, research with multi-centred representative should be considered to provide a generalisable finding among Nigerian undergraduate students.

## Conclusion

The majority of the respondents experienced moderate degrees of stress. The respondents adopted problem and emotional focussed coping strategies to mitigate their perceived campus stress. It is recommended that university policymakers should adopt holistic psychological intervention initiatives to help undergraduate students cope with their experienced perceived stress. There is a critical need to further design future studies to ameliorate the perceived stress experienced by Nigerian undergraduate students.

## Author Contributions

Conceptualization, Coker AO Odulate-Ogunnubi B, Methodology, Adelayo AY and Odulate-Ogunnubi B; Formal analysis, Adelayo, AY, Coker AO, Writing – Coker AO, Odulate-Ogunnubi B; Writing—review and editing, Coker AO, Odulate-Ogunnubi B, Adelayo, AY. All authors have read and agreed to the manuscript to be published.

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