

Original Article



# Academic stress and stress coping style in nursing undergraduates: Predictors of academic performance in a public tertiary institution in Nigeria

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## Article info

### Article History:

**Received:** August 10, 2022

**Accepted:** May 15, 2023

**published:** August 14, 2023

### Keywords:

Academic performance,  
Academic stress, Coping  
style, Nursing, Students

## Abstract

**Background:** The students' ability to withstand the effect of stress is significantly determined by their coping ability. Their inability to cope effectively with stress may lead to low academic performance. This study aimed to investigate academic pressure and coping style as predictors of the academic performance of nursing undergraduates.

**Methods:** This study adopted a cross-sectional descriptive research design. The target population was nursing undergraduates at the Federal University of Birnin-Kebbi. A sample size of 118 was selected as respondents. Data were collected and analyzed using Statistical Package for the Social Science (SPSS) version 26. Frequencies and percentages, Pearson product moment correlation, and multiple linear regression were used in data analysis.

**Results:** The respondents' mean age was 25.09 (SD=4.53). Females were 55.9%. There was a weak negative correlation between cumulative grade point average (CGPA) and mean academic stress (AS) ( $r=-0.141$ ,  $P=0.065$ ), a weak positive correlation between CGPA and mean stress coping style (SCS) ( $r=0.237$ ,  $P=0.005$ ), and a weak positive correlation between mean AS and mean SCS was 0.008 ( $P=0.466$ ). Mean AS was not a significant predictor of academic performance  $t(115)=-1.589$ ,  $P=0.115$ . Mean SCS was a significant predictor of academic performance  $t(115)=2.656$ ,  $P=0.009$ .

**Conclusion:** The mean AS was not a significant predictor of academic performance. However, the mean SCS was a significant predictor of academic performance with a positive and significant correlation.

## Introduction

Stress is a state in which demanding circumstances result in mental or emotional strain or tension.<sup>1</sup> It is the body's natural response to outside sources, pressures, or life events, a genuine physical and mental reaction to life experiences presented in varying degrees.<sup>2</sup> Stress occurs when individuals cannot resolve challenging situations,<sup>3</sup> stimulating the production of stress hormones for the body's fight or flight phenomenon. The consequences of stress can have lasting effects on the affected people's physical and mental health due to excessive exposure to cortisol and other stress hormones.<sup>4</sup> Academic stress (AS) means education-related stresses, the most common type and primary stress facing nursing students during their educational pursuit.<sup>5</sup> It is an unpleasant situation occurring secondary to several forms of student demands such as examinations, competing with peers, and meeting

academic expectations.<sup>6</sup> AS makes students unable to attain their needs, making stress a critical factor, however, it could be a constructive factor for students who balance their challenges and demands.<sup>7</sup>

Nursing as a course of study constitutes a stressful process in which nursing students encounter physical and psychosocial stress during the training period.<sup>5</sup> Studies have shown the source of nursing undergraduates' anxiety to include heavy course load, difficulties in finding time to study, general financial strains, and difficulties in maintaining social relationships.<sup>8-11</sup> The academic activities occur in an academic environment, and the educational environment is usually highly competitive for practical learning; students have to use their coping ability to handle school-related stress successfully.<sup>6</sup> Nursing students must manage an extensive course load and long clinical placement.<sup>12</sup> This predisposes nursing students

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to psychological disturbances and stress that could affect their academic performance.

According to Mustapha et al,<sup>1</sup> there are reports of poor students' academic performance in the Nigerian educational system; it is found across different fields of study, including nursing science. Moreover, the authors reported that nursing students had a higher level of academic and external stressors and higher overall stress levels than other professional students. Furthermore, it was asserted that nursing undergraduates experienced emotional and physical problems in the pursuit of their studies. The impact of stress confronted by nursing students in clinical and academic environments can be minimized by applying certain coping styles. Effective coping style helps students achieve better academic performance.<sup>5</sup>

King<sup>2</sup> postulated that due to the impact of stress on the human body, populations that experience high amounts of stress need to be studied for interventions. Moreover, Ella et al<sup>13</sup> indicated that studies addressing stress experiences among nursing undergraduates are limited in Nigeria. The scarcity is more pronounced in northern Nigeria, and in studying its effects on academic performance. Moreover, nursing undergraduates complained about a high level of AS diminishing their academic performance and uncertainty about their style which are everyday experiences to the researchers. Based on these, therefore, the researchers intended to study the AS and stress coping style (SCS) as predictors of academic performance of nursing undergraduates at Federal University Birnin-Kebbi, Kebbi State, Nigeria.

## Methods

The study was descriptive, and a cross-sectional design was adopted to investigate the AS and coping styles as predictors of academic performance of nursing undergraduates at Federal University Birnin-Kebbi, Kebbi State, Nigeria. The population of the study was nursing undergraduates in the Department of Nursing Science, Federal University Birnin-Kebbi. It includes 200, 300, 400, and 500-level nursing students. The total population was 126 nursing undergraduates in the department with 38 students at the 200- level, 34 students at the 300- level, 36 students at the 400 -level, and 18 students at the 500 -level. One hundred-level students and direct entry students in the 200-level group were excluded from the study as they do not have an established cumulative grade point average (CGPA) for academic performance. Students who were reluctant to participate in the study were also excluded. Census sampling was used to select the entire eligible nursing undergraduates as study subjects. Out of 126 students, 118 students responded and returned the questionnaire, making the response rate to be 93%.

Two instruments were used for data collection. The instrument to assess the students' AS was the academic

stress inventory (ASI), a 26-item, 5-option Likert scale self-administered instrument adapted from Lin and Chen.<sup>14</sup> The second instrument used to assess the students' coping styles was the stress coping style inventory (SCSI), a 27-item, 4-option Likert scale self-administered instrument adapted from Lin and Chen.<sup>15</sup> Furthermore, students' CGPA was obtained from the examination office of the department. The two instruments were validated using face and content validity. The instruments were validated by three experienced scholars in nursing education. Two of these scholars were from the school of nursing Birnin-Kebbi, while one was from Obafemi Awolowo University Ile-ife. The suggestions and corrections of the scholars were affected accordingly. Using the Cronbach reliability test, the original ASI overall  $\alpha$  value was 0.90. The Cronbach  $\alpha$  value of the actual overall SCSI was 0.83. However, since the instruments were adapted, the changes necessitated another reliability test using Cronbach's alpha. Ten percent of the study sample was selected from the school of nursing Birnin-Kebbi (A nursing school different from the study area) and used for pre-testing. The Cronbach's alpha for the 2 instruments was generated using the pre-test data. It was found that the ASI overall  $\alpha$  value was 0.84, and that of the coping style inventory was 0.77.

Permission to conduct the research was obtained from the nursing science departmental head, Federal University Birnin-Kebbi, Kebbi State, Nigeria. Nursing undergraduates in the various categories were contacted through their class coordinators. Verbal and written consent was obtained from the respondents, and the questionnaires were retrieved 1 hour after administering. Collected data were coded and entered into the Statistical Package for the Social Science (SPSS) version 26. Frequencies and percentages were used for descriptive analysis. Pearson correlation and multiple linear regression were used as statistical tools for inferential analysis. Students were allowed to withdraw their consent and drop out of the study at any time before data analysis. Anonymity was maintained through the research processes, and all the information obtained was treated with the utmost confidentiality.

## Results

Table 1 revealed that the mean age of the respondents was 25.09 (SD = 4.53). The respondents in the age bracket (20-24 years) had the highest (41.5%) percent, and only 8.5% were within the 15-19 year age bracket. Above average (55.9%) are female nursing undergraduates.

Table 2 shows that most respondents had low to moderate stress levels across all the factors. However, factor 3 had the lowest low-stress level (46.6%), and factor 2 had the highest low-stress level (90.7%). Factor 1 had the highest moderate level of stress. The factor with the highest high level of stress (20.3%) was factor 3.

In Table 3, most respondents had low levels of SCS in factor B and factor D, 88.1% and 62.7%, respectively. Most of the respondents (57.6%) had moderate levels of SCS in factor A. However, factor C had the highest (44.1%) level of SCS and the lowest (12.7%) SCS. The majority of the respondents in this study used active coping styles. Active emotional coping (factor A) had 57.6% and 28.8% in moderate and high levels, respectively. Active problem coping (factor C) had 43.2% and 44.1% respectively.

Table 4 shows a very weak negative correlation between CGPA and mean AS, ( $r = -0.141$ ,  $P = 0.065$ ), a very weak positive correlation between CGPA and mean SCS ( $r = 0.237$ ,  $P = 0.005$ ), and a very weak positive correlation between mean ASI and mean SCS was 0.008 ( $P = 0.466$ ). For every unit increase in AS, there was a corresponding decrease in academic performance by 0.141 units. However, the correlation is not significant.

Table 5 indicates that the multiple linear regression model was a significant predictor of academic performance. The model reveals that  $F(2, 115) = 4.756$ ,  $P = 0.010$ , indicating that the model significantly predict

the academic performance since  $P$  is less than 0.05.  $R$  was 0.276, and  $R^2$  was 0.076. Mean AS was not a significant predictor of academic performance  $t(115) = -1.589$ ,  $P = 0.115$ . Mean SCS was a significant predictor of academic performance  $t(115) = 2.656$ ,  $P = 0.009$ . With one unit increase in mean AS, the academic performance decreases by -0.150. With one unit increase in mean SCS, the academic performance increases by 0.373.

## Discussion

Unlike many studies on AS among nursing students, the findings of this study revealed that the majority of the respondents had lower to moderate levels of AS across all the factors of ASI. In a survey conducted by Nebhinani et al<sup>16</sup> to study Stress and coping strategies among undergraduate nursing students in India, it was found that most of the participants (82.4%) reported a moderate level of stress followed by mild (12.6%) and severe level of stress (5%). The authors used the Student Nurse Stress Index (SNSI) in data collection, which is different from the instrument of this study. This, together with the difference in the settings of the study, might be the cause of the difference.

Following the findings of this study, Nebhinani and colleagues<sup>16</sup> studies to assess stress and coping strategies among undergraduate nursing students found active coping (mean score  $6.1 \pm 1.4$ ) was the most commonly used coping style. Moreover, following the finding of this study (specifically factor C), a study by Alsaqri<sup>17</sup> on stressors and coping strategies of Saudi nursing students in clinical training, it was found that coping behaviors most commonly utilized by the study respondents were "problem-solving" ( $M = 3.35$ ;  $SD = 0.41$ ). However, the author did not specify whether active coping, passive coping, or both. Thus, the study's finding is contrary to the finding of this study in which the majority of the respondents had low levels of factor D (passive problem coping).

A non-significant correlation between mean AS and CGPA is in agreement with the finding of a study on the implications of stress and study habits on the academic outcome of undergraduate nursing students conducted by Mustapha et al,<sup>1</sup> where it was found that there is no

**Table 1.** Frequencies and percentages of respondents' socio-demographic variables

Variable	Frequency (n=118)	Percent
Age (y) (Mean=25.09; SD=4.53)		
15-19	10	8.5
20-24	49	41.5
25-29	35	29.7
≥30	24	20.3
Total	118	100
Gender		
Male	52	44.1
Female	66	55.9
Total	118	100
Level of study		
200	34	28.8
300	31	26.3
400	35	29.7
500	18	15.3
Total	118	100

**Table 2.** Levels of academic stress among nursing undergraduates

Variables	Factors						
	1	2	3	4	5	6	7
Levels	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)	F (P)
Low	63 (53.4)	107 (90.7)	55 (46.6)	86 (72.9)	89 (75.1)	90 (76.3)	65 (55.1)
Moderate	48 (40.7)	10 (8.5)	39 (33.1)	26 (22.0)	21 (17.8)	20 (16.9)	37 (31.4)
High	7 (5.9)	1 (0.8)	24 (20.3)	6 (5.1)	8 (6.8)	8 (6.8)	16 (13.6)
Total	118 (100)	118 (100)	118 (100)	118 (100)	118 (100)	118 (100)	118 (100)

Factors: 1 = Teachers' stress, 2 = Results stress, 3 = Tests stress, 4 = Studying in groups stress, 5 = Peer stress, 6 = Time management stress, 7 = Self-inflicted stress

**Table 3.** Levels of stress coping strategy among nursing undergraduates

Variables	Factors			
	A	B	C	D
Levels	F (P)	F (P)	F (P)	F (P)
Low	16 (13.6)	104 (88.1)	15 (12.7)	74 (62.7)
Moderate	68 (57.6)	14 (11.9)	51 (43.2)	42 (35.6)
High	34 (28.8)	0 (0.0)	52 (44.1)	2 (1.7)
Total	118 (100)	118 (100)	118 (100)	118 (100)

Factors: A=Active Emotional Coping, B=Passive Emotional Coping, C=Active Problem Coping, D=Passive Problem Coping.

**Table 4.** Pearson correlation between the respondents' CGPA, mean academic stress, and mean stress coping style

Correlations		CGPA	Mean ASI	Mean SCS
Pearson correlation	CGPA	1.000	-0.141	0.237
	Mean AS	-0.141	1.000	0.008
	Mean SCS	0.237	0.008	1.000
Sig. (1-tailed)	CGPA	-	0.065	0.005
	Mean ASI	0.065	-	0.466
	Mean SCS	0.005	0.466	-

significant association between the perceived level of stress and academic performance. The result of this study shows a weak positive correlation between SCS and CGPA with a significant relationship. This finding is contrary to the Basith and colleagues<sup>18</sup> surveys in which the study results showed no significant relationship between coping style and academic achievement. However, the authors analyzed the factors of stress coping separately, unlike this study which analyzed them based on the general scores of the questionnaire. The Yazon et al<sup>19</sup> survey found that coping helps students improve academic performance.

This study revealed a very weak positive correlation between AS and SCS, and the correlation is not significant. In another study by Joseph et al,<sup>20</sup> to assess AS and its coping mechanisms among undergraduate medical students in a large Midwestern university, it was found that coping with stress in this study was better among participants with higher levels of AS. However, the authors have not shown whether the relationship is

significant. Furthermore, in agreement with the finding of this study, a study by Alsaqri<sup>17</sup> on stressors and coping strategies of Saudi nursing students in clinical training, it was found that there was no statistically significant correlation between levels of stress and coping strategies ( $r = -0.133$ ,  $n = 200$ , and  $P = 0.110$ ).

The prediction model was a significant predictor of academic performance. The  $R^2$  (the proportion dependent variable variance explained by the independent variables) is low. However, having a smaller  $R^2$  does not always mean a problem, especially when dealing with human behavior variables.<sup>21,22</sup> The mean AS was not a significant predictor of academic performance, though there is a weak negative correlation between the two variables. With one unit increase in Mean ASI, the academic performance decreases by -0.150. Using this finding, a study on stress and its association with academic performance among dental undergraduate students in Fujian, China, found that stress scores were inversely correlated with grade point average (GPA) ( $r = -0.119$ ,  $P = 0.029$ ). Unlike this study, stress scores were significantly correlated with GPA ( $P = 0.029$ ).<sup>23</sup>

In this study, the mean SCS was a significant predictor of academic performance with a positive and significant correlation. With one unit increase in mean SCS, the academic performance increases by 0.373 units. Contrary to this finding, a study by Hill<sup>24</sup> on school stress, academic performance, and coping in first-year College students. The regression analysis to predict GPA with emphasis and coping shows no significant correlation. Furthermore, Basith et al,<sup>18</sup> in their study on AS and coping style for academic achievement, found no significant relationship between coping style and academic achievement. The difference in this finding between this study and the two studies might be due to different scoring methods and analyses used.

**Conclusion**

Nursing undergraduates at Federal University Birnin-Kebbi had lower to moderate levels of AS across all factors of AS. The coping style used mainly by the students was the active coping style (active emotional coping and active problem coping). There was a non-significant negative correlation between CGPA and mean AS. There was a weak significant positive correlation between SCS and CGPA. There was a very weak non-significant positive

**Table 5.** Multiple regression analysis of academic stress and stress coping style predicting academic performance

Model summary			ANOVA		Coefficients			
R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	P	B	t	Sig.	
0.276	0.076	0.060	4.756	0.010	Constant	3.219	8.137	0.000
					Mean ASI	-0.150	-1.589	0.115
					Mean SCS	0.373	2.656	0.009

correlation between AS and SCS. The mean AS was not a significant predictor of academic performance, though there is a weak negative correlation between the two variables. The mean SCS was a significant predictor of academic performance with a positive and significant correlation.

#### Acknowledgments

We extend our appreciation to the Head of the Department, of Nursing Science, Federal University Birnin-Kebbi for her support in conducting this research study. We also appreciate the secretary to the head of the Department, our research assistants, and respondents for their cooperation in providing all the requirements for the completion of the research.

#### Authors' Contribution

**Conceptualization:** Yahaya Jafaru.

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#### Competing Interests

The authors declare no conflict of interests.

#### Ethical Approval

The Kebbi State Health Research Ethical Committee provided ethical approval for this research with the ethical code of KSHREC 106: 43/2021

#### Funding

The authors provided the expenses for conducting the research.

#### References

- Mustapha S, Onibokun A, Abiodun OL. Implications of stress and study habits on academic outcome of undergraduate nursing students in selected universities in South-West, Nigeria. *J Educ Soc Behav Sci.* 2020;33(7):1-14. doi: [10.9734/jesbs/2020/v33i730239](https://doi.org/10.9734/jesbs/2020/v33i730239).
- King S. An Analysis of Stress in Undergraduate Nursing Students at the University of Maine [thesis]. Honors College; 2019. Available from: <https://digitalcommons.library.umaine.edu/honors/509>.
- Tankink M, Bubenzer F. Building sustainable peace through an integrated approach to peacebuilding and mental health and psychosocial support: a literature review. *Intervention.* 2017;15(3):199-214. doi: [10.1097/wtf.0000000000000165](https://doi.org/10.1097/wtf.0000000000000165).
- American Heart Association (AHA). Lower Stress: How Does Stress Affect the Body? AHA; 2017. Available from: <http://www.heart.org/en/healthy-living/healthy-lifestyle/stress-management/lower-stress-how-does-stress-affect-the-body>. Accessed March 27, 2021.
- Yasmin S, Hussain M, Parveen K, Gilani SA. Coping strategies of nursing student against academic and clinical stress at public sector Lahore. *Int J Soc Sci Manage.* 2018;5(3):209-18. doi: [10.3126/ijssm.v5i3.20613](https://doi.org/10.3126/ijssm.v5i3.20613).
- Aihie ON, Ohanaka BI. Perceived academic stress among undergraduate students in a Nigerian University. *J Educ Soc Res.* 2019;9(2):56-66. doi: [10.2478/jesr-2019-0013](https://doi.org/10.2478/jesr-2019-0013).
- Pender NJ, Murdaugh CL, Parsons MA. *Health Promotion in Nursing Practice.* 7th ed. Pearson; 2015.
- He FX, Turnbull B, Kirshbaum MN, Phillips B, Klainin-Yobas P. Assessing stress, protective factors and psychological well-being among undergraduate nursing students. *Nurse Educ Today.* 2018;68:4-12. doi: [10.1016/j.nedt.2018.05.013](https://doi.org/10.1016/j.nedt.2018.05.013).
- Labrague LJ, McEnroe-Petitte DM, Papathanasiou IV, Edet OB, Tsaras K, Christos KF, et al. A cross-country comparative study on stress and quality of life in nursing students. *Perspect Psychiatr Care.* 2018;54(4):469-76. doi: [10.1111/ppc.12248](https://doi.org/10.1111/ppc.12248).
- Senturk S, Dogan N. Determination of the stress experienced by nursing students' during nursing education. *Int J Caring Sci.* 2018;11(2):896-904.
- Turner K, McCarthy VL. Stress and anxiety among nursing students: a review of intervention strategies in literature between 2009 and 2015. *Nurse Educ Pract.* 2017;22:21-9. doi: [10.1016/j.nepr.2016.11.002](https://doi.org/10.1016/j.nepr.2016.11.002).
- Jimenez C, Navia-Osorio PM, Diaz CV. Stress and health in novice and experienced nursing students. *J Adv Nurs.* 2010;66(2):442-55. doi: [10.1111/j.1365-2648.2009.05183.x](https://doi.org/10.1111/j.1365-2648.2009.05183.x).
- Ella RE, Akpabio II, Samson-Akpan PE. Influence of study habits on undergraduate nursing students' academic performance in University of Calabar, Nigeria. *Am Res J Nurs.* 2015;1(3):1-6.
- Lin YM, Chen FS. Academic stress inventory of students at universities and colleges of technology. *World Trans Eng Technol Educ.* 2009;7(2):157-62.
- Lin YM, Chen FS. A stress coping style inventory of students at universities and colleges of technology. *World Trans Eng Technol Educ.* 2010;8(1):67-72.
- Nebhinani M, Kumar A, Parihar A, Rani R. Stress and coping strategies among undergraduate nursing students: a descriptive assessment from Western Rajasthan. *Indian J Community Med.* 2020;45(2):172-5. doi: [10.4103/ijcm.IJCM\\_231\\_19](https://doi.org/10.4103/ijcm.IJCM_231_19).
- Alsaqri SH. Stressors and coping strategies of the Saudi nursing students in the clinical training: a cross-sectional study. *Educ Res Int.* 2017;2017:4018470. doi: [10.1155/2017/4018470](https://doi.org/10.1155/2017/4018470).
- Basith A, Syahputra A, Fitriyadi S, Rosmayadi R, Fitri F, Triani SN. Academic stress and coping strategy in relation to academic achievement. *Jurnal Cakrawala Pendidikan.* 2021;40(2):292-304. doi: [10.21831/cp.v40i2.37155](https://doi.org/10.21831/cp.v40i2.37155).
- Yazon AD, Ang-Manaig K, Tesoro JF. Coping mechanism and academic performance among Filipino undergraduate students. *KnE Soc Sci.* 2018;3(6):30-42. doi: [10.18502/kss.v3i6.2372](https://doi.org/10.18502/kss.v3i6.2372).
- Joseph N, Nallapati A, Machado MX, Nair V, Matele S, Muthusamy N, et al. Assessment of academic stress and its coping mechanisms among medical undergraduate students in a large Midwestern University. *Curr Psychol.* 2021;40(6):2599-609. doi: [10.1007/s12144-020-00963-2](https://doi.org/10.1007/s12144-020-00963-2).
- Frost J. How To Interpret R-squared in Regression Analysis. 2017. Available from: <http://statisticsbyjim.com/regression/interpret-r-squared-regression/>. Accessed October 30, 2020.
- Dhokal CP. Interpreting the basic outputs (SPSS) of multiple linear regression. *Int J Sci Res.* 2018;8(6):1448-52.
- Lin XJ, Zhang CY, Yang S, Hsu ML, Cheng H, Chen J, et al. Stress and its association with academic performance among dental undergraduate students in Fujian, China: a cross-sectional online questionnaire survey. *BMC Med Educ.* 2020;20(1):181. doi: [10.1186/s12909-020-02095-4](https://doi.org/10.1186/s12909-020-02095-4).
- Hill C. School Stress, Academic Performance, and Coping in College Freshmen. *Ursidae: The Undergraduate Research Journal at the University of Northern Colorado.* 2014;4(2):9.