

ARTICLE INFORMATION

Received: September, 09, 2022

Revised: February, 22, 2023

Available online: February, 26, 2023

at : <http://ejournalmalahayati.ac.id/index.php/nursing/index>

Differences in academic stress and stress coping style by characteristics of nursing undergraduates

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Abstract

Background: The need to act against stress required effective coping strategies for students to cope with academic activities. However, the degree of stress and type of coping style differ between nursing students; and assessing the nursing program's level of stress for intervention planning is recommended to nurse educators.

Purpose: To examine the differences in academic stress and stress coping style by characteristics of nursing undergraduates.

Method: The descriptive study adopted a cross-sectional design with undergraduate nursing students as the population of the study. Census sampling was used, and the academic stress inventory and the stress coping style inventory were the instruments for data collection. The results were presented in means and standard deviations, and ANOVA was used for inferential analysis.

Results: There was a significant difference in peer stress across the age brackets, ($p = 0.004$). The male respondents have lower mean academic stress than female respondents except for peer stress. There was a significant difference between the mean academic stress between the two genders in teacher stress and peer stress, $p = 0.02$ and 0.04 respectively. The mean academic stress is higher at 300 and 400 levels except in studying in groups stress. Active problem coping is having the highest mean score across all age brackets. There is no significant difference in stress coping style across all the factors. Male respondents have higher mean stress coping style than female respondents in active emotional coping and active problem coping with a significant difference, $p = 0.011$ and 0.045 respectively. The 500-level respondents have the highest mean stress coping style across all the factors than respondents from other levels.

Conclusion: In planning interventions against academic stress for undergraduate nursing students, preference for test stress should be given to lower age brackets. Female students require more attention than male students. The 300 and 400-level students should be considered more than the other levels. Moreover, different methods of coping, where to apply them and the consequences of each should be taught to students irrespective of their age, gender, or level of study.

Keywords: Academic; Activities; Stress; Clinical; Coping; Nursing; Undergraduates

INTRODUCTION

Stress can be considered among the core problems of students in the 21st century (Gulzhaina et

al., 2018). It has become an issue of discussion and research in academia because of its academic

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consequences (Dimitrov, 2017). Stress involves worries due to overwhelming demands an individual cannot cope (Oduwaiye et al., 2017). It is defined as a reaction that is natural, mental and physical against difficult life experiences based on a person's social, genetic, and environmental background (Samantha, 2019). Psychological stress occurred due to an activated need to act and take steps toward resolution; while physical stress is a reaction to fears, circumstances and or perceived danger (Saqib & Rehman, 2018). Academic activities are complex and highly stressful (Adom et al., 2020) predisposing students to different levels of pressure, anxiety (Saqib & Rehman; 2018) and other negative consequences of high levels of stress.

It is well documented in the literature that nursing students are stressed by the nature of nursing programs (Baluwa et al., 2021). Varieties of literature, past and current showed evidence that globally stress is common among nursing students (Samantha, 2019). The stress levels cause students' upset, affecting their general health and academic performance (Labrague et al., 2018). In a study by Labrague et al. (2018) from three counties (The Philippines, Greece, and Nigeria), the exposure to a high level of stress among nursing students was frequent. This stress faced by nursing students is mostly caused by academic and clinical factors (Hamaideh et al., 2017). These occur due to a rigorous curriculum, longer hours of study period, voluminous workload and assignments (Quinn & Peters, 2017). Factors like inadequate clinical experience and seeing dying patients also intensify the stress level (Labrague et al., 2017; Bhurtun et al., 2021). Thus, the need to act against stress required effective coping strategies for students to cope with academic activities.

In the process of stress adaptation, coping style is important; they are behavioural and cognitive strategies used in controlling internal and external stressors. The positive coping style makes use of positive appraisal in controlling the stress; while the negative coping style control stress through negative thought and behaviours (Liu et al., 2022). The common adaptive methods of stress control used by nursing

students include active confrontation of the stress (Alshahrani et al., 2018), venting, social support and seeking advice (Chinga et al., 2020); positive thinking (Yasmin et al., 2018) and use of physical exercise (Thomas et al., 2012). Some of the maladaptive methods of stress control used by nursing students are avoidance and substance use. However, the types of coping styles used by nursing students are still partially understood (Chinga et al., 2020).

Liu et al. (2022) pointed out the constant need of determining influencers of stress and coping style among nursing students. Also, Baluwa et al. (2021) asserted that the sub-Saharan African countries have not investigated nursing students' stress and coping style adequately. Moreover, assessing the nursing program's level of stress for intervention planning is recommended to nurse educators (Labrague et al., 2017). However, the degree of stress and type of coping style differ among nursing students (Zhao et al. 2021). Research reports had it that gender and year of study are among the factors that affect the stress level of nursing students (Perng et al. 2020; Wu, 2021). Thus, this study examines the differences in academic stress and stress coping style (SCS) by characteristics of nursing undergraduates.

RESEARCH METHOD

The descriptive study adopted a cross-sectional design, and the undergraduate nursing students (200-500 levels) of the department of nursing science, Federal University Birnin-Kebbi formed the population of the study. The sampling method used was census sampling, making the entire nursing undergraduates of the university the subjects of the study. The instruments for data collection were the academic stress inventory and the SCS inventory. The academic stress inventory was adapted from Lin and Chen (2009). It was a Likert scale instrument with 26 items and 5 points option. The SCS inventory was adapted from Lin and Chen (2010). It was a Likert scale instrument with 27 items and 4 points option.

Three experienced scholars validated the instruments using face and content validation. The reliability test of the instruments using Cronbach alpha

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were 0.84 and 0.77 for academic stress inventory and coping style inventory respectively. Data were collected with written permission from the department's management and informed written informed consent from the respondents. Statistical Package for the Social Science (SPSS) version 26 was used for data analysis. Means and standard deviations were used in

identifying the differences in academic stress and coping style among the respondents' characteristics respectively. Analysis of variance (ANOVA) was also used as statistical tool for inferential analysis. The ethical approval for the study was obtained from Kebbi State Health Research Ethical Committee.

RESULTS

Table 1: Frequencies and Percentages of Respondents' Characteristics (N=118)

Variable	Frequency	Percentage
Age (years) 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
Gender		
Male	52	44.1
Female	66	55.9
Level of study		
200	34	28.8
300	31	26.3
400	35	29.7
500	18	15.3

Table 1. shows the respondents' mean age was 25.09 (SD = 4.53). The age bracket with the highest per cent was 20-24 years (41.5%), and respondents within the age bracket 15-19 years were 8.5%. The majority of the respondents were female (55.9%), and the level of study with the highest per cent was 400 level (29.7%), with the 500 level as the least (15.3%).

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Table 2: Differences in Mean (M) Scores of Academic Stress By Age

Factors	Age				df	F	P	Post hoc
	15-19 M(SD)	20-24 M(SD)	25-29 M(SD)	≥30 M(SD)				
Factor 1	1.78(.44)	1.94(.65)	1.85(.74)	1.65(.68)	3	1.057	0.37	-
Factor 2	1.00(.00)	1.10(.31)	1.09(.28)	1.17(.48)	3	0.646	0.59	-
Factor 3	1.90(.94)	1.99(1.02)	1.63(1.07)	1.65(1.06)	3	1.078	0.36	-
Factor 4	1.15(.88)	1.40(.77)	1.46(.88)	1.17(.95)	3	0.829	0.48	-
Factor 5	0.70(.40)	1.15(.78)	1.26(.96)	1.78(.92)	3	4.730	0.004	.006*; .021**
Factor 6	1.40(1.09)	1.37(.93)	1.00(.90)	1.25(1.07)	3	1.125	0.34	-
Factor 7	1.90(.85)	1.62(.88)	1.80(1.12)	1.56(.92)	3	0.552	0.48	-

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. *Between 15-19 & ≥30; **between 20-24 & ≥30

Table 2 indicates that the mean academic stress across all factors and all age brackets was below 2.00. However, factor 3 has the highest mean academic stress (1.90 and 1.99) in the 15-19 and 20-24 year age brackets respectively. The factor with the lowest mean academic stress is factor 5 (0.70 and 1.15) in the 15-19 and 20-24 year age brackets respectively. Also, the mean academic stress of factor 5 is the only mean that increases with an increase in age. Factor 5 is the only factor that shows a significant difference in mean academic stress across the age brackets (P = 0.004). The differences exist between 15-19 and ≥30 age brackets; and between 20-24 and ≥30 age brackets. P = 0.006 and 0.021 respectively (post hoc).

Table 3: Differences in Mean (M) Scores of Academic Stress by Gender

Factors	Gender		df	F	P
	Male M(SD)	Female M(SD)			
Factor 1	1.68(.71)	1.97(.61)	1	5.551	0.02
Factor 2	1.08(.33)	1.12(.33)	1	0.520	0.47
Factor 3	1.63(1.09)	1.95(.98)	1	2.855	0.09
Factor 4	1.34(.77)	1.36(.91)	1	0.029	0.86
Factor 5	1.47(.92)	1.13(.83)	1	4.434	0.04
Factor 6	1.19(1.08)	1.27(.88)	1	0.169	0.68
Factor 7	1.61(1.12)	1.74(.81)	1	0.562	0.46

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.

In table 3, it is shown that male respondents have lower mean academic stress than female respondents except in factor 5. In factor 5, male respondents have higher mean academic stress than female respondents, 1.47 and 1.13 respectively. There was a significant difference between the mean academic stress between the two genders in factor 1 and factor 5, P = 0.02 and 0.04 respectively.

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Table 4: Differences in Mean (M) Scores of Academic Stress by Level of Study

Factors	Level of study				df	F	P	Post hoc
	200 M(SD)	300 M(SD)	400 M(SD)	500 M(SD)				
Factor 1	1.86(.59)	1.92(.71)	1.90(.59)	1.56(.84)	3	1.273	0.287	-
Factor 2	1.06(.24)	1.13(.34)	1.11(.40)	1.11(.32)	3	0.278	0.841	-
Factor 3	1.78(.98)	1.98(1.03)	1.83(1.09)	1.50(1.06)	3	0.838	0.476	-
Factor 4	1.22(.71)	1.43(.95)	1.31(.83)	1.54(.96)	3	0.697	0.556	-
Factor 5	.96(.77)	1.44(.87)	1.65(1.07)	.86(.68)	3	5.756	0.001	0.005*; 0.009**
Factor 6	1.13(.78)	1.49(.98)	1.29(1.12)	.93(.90)	3	1.545	0.207	-
Factor 7	1.69(.87)	1.85(.93)	1.72(1.03)	1.29(1.00)	3	1.323	0.271	-

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. *Between 200 & 400; **Between 400 & 500

The mean differences in table 4 show that the mean academic stress is higher at 300 and 400 levels except in factor 4. However, factor 5 is the only factor that shows a significant difference between the mean academic stress of the study levels, P = 0.001. The differences exist between mean academic stress of 200 and 400 levels and mean academic stress of 400 and 500 levels. The P = 0.005 and 0.009 respectively (post hoc).

Table 5: Differences in Mean (M) Scores of Stress Coping Styles by Age

Factors	Age				df	F	P	Post hoc
	15-19 M(SD)	20-24 M(SD)	25-29 M(SD)	≥30 M(SD)				
Factor A	2.75(.66)	3.20(.44)	3.09(.58)	2.99(.61)	3	2.259	0.085	-
Factor B	1.78(.47)	1.76(.56)	1.87(.49)	1.63(.58)	3	0.958	0.415	-
Factor C	3.00(.66)	3.27(.49)	3.08(.72)	3.39(.54)	3	2.003	0.118	-
Factor D	2.02(.38)	2.23(.42)	2.38(.44)	2.36(.59)	3	2.020	0.115	-

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

It is shown in table 5 that factor C of SCS is having the highest mean SCS (3.00, 3.27, 3.08, and 3.39) across 15-19, 20-24, 25-29, and ≥30 age brackets respectively. Also, the highest mean SCS (3.39) was found in factor C among the ≥30 age bracket. Factor B is found to have the lowest mean SCS (1.78, 1.76, 1.87, and 1.63) across 15-19, 20-24, 25-29, and ≥30 age brackets respectively. There is no significant difference across all the factors. P = 0.085, 0.415, 0.118, and 0.115 in Factors A, B, C, and D respectively.

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Table 6: Differences in Mean (M) Scores of Stress Coping Styles by Gender

Factors	Gender		df	F	P
	Male M(SD)	Female M(SD)			
Factor A	3.23(.43)	2.97(.61)	1	6.686	0.011
Factor B	1.73(.46)	1.79(.59)	1	0.434	0.511
Factor C	3.34(.58)	3.12(.59)	1	4.106	0.045
Factor D	2.23(.49)	2.32(.46)	1	1.083	0.300

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

Table 6 revealed that male respondents have higher mean SCS than female respondents in factor A and factor C with a significant difference, P = 0.011 and 0.045 respectively. However, female respondents have higher mean SCS in other factors (B and D with no significant difference, P = 0.511 and 0.300 respectively).

Table 7: Differences in Mean (M) Scores of Stress Coping Styles by Level of Study

Factors	Level of study				df	F	P	Post hoc
	200 M(SD)	300 M(SD)	400 M(SD)	500 M(SD)				
Factor A	3.01(.59)	3.04(.53)	3.06(.56)	3.37(.41)	3	1.933	0.128	-
Factor B	1.81(.48)	1.80(.72)	1.67(.43)	1.82(.49)	3	0.497	0.685	-
Factor C	3.27(.58)	3.13(.62)	3.12(.66)	3.44(.39)	3	1.540	0.208	-
Factor D	2.19(.43)	2.29(.54)	2.30(.40)	2.39(.55)	3	0.765	0.516	-

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

Table 7 had it that 500 level respondents have the highest mean SCS across all the factors than respondents from other levels with no significant difference. P = 0.128, 0.685, 0.208 and 0.516 for factors A, B, C, and D respectively.

DISCUSSION

The result of this study revealed no statistically significant difference between the age of the respondents and all the factors of ASI except factor 5 (peer stress) which shows a statistically significant difference. The difference was detected between 15-19 and ≥30 age brackets; and between 20-24 & ≥30 age brackets. In a study conducted in Nigeria on perceived academic stress among undergraduate

students, the result reveals that there is no difference in the level of expressed academic stress between younger and older undergraduate students (Aihie & Ohanaka, 2019). However, the authors categorised the respondents into two categories of age groups, while this study categorised the respondents into four categories. Also, this study's analysis was based on different factors of the ASI, while the other study was based on a general analysis of the questionnaire.

Male students had lower mean AS than female students except in factor 5 (peer stress) in which male students have higher mean AS than female students. Factors 1 and 5 (teacher stress and peer stress) show significant differences in AS by gender of the respondents. This finding is in agreement with a study

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by Ebrahim (2016) who found that female students reported higher academic stress than male students. Contrary to this study Gonmei and Devendiran (2017), and Yikealo, Yemane and Karvinen (2018) in their respective studies asserted that sex does not have any influence on the reported experience of stress among students. In this study, there is a significant difference in mean AS in factor 1 and factor 5 (teacher stress and peer stress). This could be evidence of the influences of gender on stress among students.

The levels of study with the highest AS were 300 and 400 levels except in factor 4 (studying in group stress) in which the 500 level had the highest stress level. There were no significant differences in all the factors except in factor 5 (peer stress) in which there is a significant difference between 200 and 400 levels, and between 400 and 500 levels respectively. In contrast with this study, Aihie and Ohanaka (2019) found final-year students to have a significantly higher level of academic stress than middle and first-year students. The authors attributed their findings to increased workload including research work and project writing in the final year. In this regard, the case may be different in the nursing science program, since the final year students have most of their time in the clinical areas with fewer courses. However, Jia and Loa (2018) found that first-year students perceived a higher level of academic stress than students of other levels.

The mean value of SCS of factor C (active problem coping) is found to be high across all the age brackets. Therefore respondents across all age brackets resort to using active problem coping than any other coping strategy. However, respondents in age brackets 20-24 and age brackets 25-29 also had a high mean SCS in factor A (Active Emotional Coping). These two age groups also resort to active emotional coping in addition to active problem coping. In consonance with this, a finding by Basith et al (2021) suggested that students aged 20-30 years are superior in using various coping strategies to reduce academic stress. Also, in agreement with this study Alsaqri (2017) found that coping behaviours most commonly utilized by the study respondents were problem-solving. There were

no significant differences in coping strategy across all the factors of SCS inventory and age brackets. This is in agreement with the finding of a study by Joseph et al. (2020) in which there was no association between the participants' age with the level of adaptability to cope with academic stress.

In this study, male respondents had a higher mean score in active coping styles (factors A and C) than female respondents with a statistically significant difference. However, female respondents had the higher mean scores in passive coping styles (factors B and D) with no statistically significant difference. Contrary to this finding Joseph et al. (2020) found that the mean active emotional coping score among males was 21.5 ± 3.5 and among females was 21.8 ± 3.3 ($t = 0.613$, $p = 0.54$). The mean passive emotional coping score among males was 19.1 ± 5.0 and among females was 18.2 ± 4.1 ($t = 1.933$, $p = 0.054$). The mean active problem coping score among males was 12.8 ± 2.8 and among females was 13.5 ± 2.5 ($t = 2.711$, $p = 0.007$). The mean passive problem coping score among males was 19.1 ± 4.4 and among females was 17.7 ± 3.9 ($t = 3.412$, $p = 0.001$) (Joseph et al., 2020).

Among the respondents from different levels of study, those from the 500 level were having the highest coping strategies across all the factors of SCS. There are some elements of an increase in coping style with an increase in the level of study, especially in factors A and D (active emotional coping and passive problem coping). In line with this Lavoie-Tremblay et al. (2022) asserted that the older students learned academic stress coping strategies and what to expect in their program and therefore applied those learned coping strategies in the advanced level of study. The authors concluded that senior nursing students had first and second-year experiences that make them have more tactics in applying effective coping strategies.

CONCLUSION

Lower age brackets were affected more by test stress, while peer stress is found to have more effect on upper age brackets. Female respondents exhibit

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higher mean stress than male respondents. The respondents from 300 and 400 levels show higher mean stress. Most of the respondents use active problem coping across all age brackets. Male respondents mostly use active emotional coping and active problem coping styles, while female respondents mostly use passive emotional coping and passive problem coping styles. The 500-level students had the highest mean across all the coping styles. Thus, in planning interventions against academic stress for undergraduate nursing students, preference for test stress should be given to lower age brackets. Female students require more attention than male students. The 300 and 400-level students should be considered more than the other levels. Moreover, different methods of coping, where to apply them and the consequences of each should be taught to students irrespective of their age, gender, or level of study.

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