

Prevalence of Stress, Sources and Coping Strategies among Nursing and Midwifery Students in Three Nursing Training Schools in the Buea Municipality, Cameroon

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Abstract

Background: Stress is a common human experience blamed for many ills. Nursing students experience high levels of stress and recent research on health care related fields and stress has indicated that nursing students experience higher levels of stress compared to students in the other health disciplines.

Objectives: This study was carried out to determine the prevalence of stress, identify its sources and coping strategies amongst nursing and midwifery students from three nursing training schools in the Buea Municipality.

Methods: A quantitative cross sectional study design was used to conduct the study for 6 months. The study population consisted of nursing and midwifery students from the Faculty of Health Sciences University of Buea, Biaka University Institute and Redemption Higher Institute of Biomedical and Management Sciences in the Buea Municipality. Purposive and a simple random sampling techniques were used to select the three nursing training schools and the participants respectively. The participants were undergraduate student nurses and midwives who had had previous clinical experience. Probability proportionate to size sample technique was used to determine the number of participants from each school. Data was collected from the participants regarding their stress levels, sources of stress, and the strategies they used to cope with stress. The data was collected using a self-administered questionnaire. Data collected was entered in to an excel spreadsheet version 2010 and analysed using SPSS Version 25. Inferential statistics was also used to describe association between variables (multivariate analysis and Pearson's correlation); a p-value < 0.05 was considered significant.

Results: A total of 342 nursing and midwifery students participated in the study. The findings revealed a very high prevalence [223 (65.2%)] of stress among participants. Age 32 years+, marital status and level of studies (3rd & 4th year) were significantly associated with stress with p values of 0.021, 0.022 and 0.001 respectively. The main sources of stress among students were from school work, from peers and personal life with mean values 2.13, and 1.96 respectively. Majority [201(58.8%)] of the students relied on problem-focused strategies as means to cope with stress, followed by the emotional-focused strategies [81(23.7%)].

Conclusion: The prevalence of stress among student nurses and midwives in the Buea Municipality was very high with the main sources of stress being school work, stress from peer and personal life. It is recommended that guidance counseling services be provided in all nursing training institutions and students be encouraged to utilise the services in order to reduce the prevalence of stress.

Key words: Stress, Nursing and midwifery students, Stressors, Coping strategies, Buea Municipality

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LIST OF ABBREVIATIONS AND ACRONYMS

B.Sc -	Bachelor of Science Degree
BUIB -	Biaka University Institute of Buea
CBI -	Coping Behaviour Inventory
FHS -	Faculty of Health Sciences
PSS -	Perceived Stress Scale
RHIBMS-	Redemption Higher Institute of Biomedical and Management Sciences
UB -	University of Buea
UNESCO -	United Nations Educational, Scientific and Cultural Organisation
WHO -	World Health Organisation

INTRODUCTION

Stress is a common human experience blamed for many ills. Stressors can be defined as situations or events that potentially affect a person's health outcome [1]. Stress is defined by Lazarus and Folkmans as "the result of interaction between the individual and the environment. "This implies that when persons feel that they cannot cope with the number of abilities and skills in their environment then they are experiencing stress [2]. Chrousos defines stress as the threat or perceived threat condition of homeostasis which is established through a complex web of behavioral and physiological responses of the body to adapt [3]. This means that the body is perceived to be experiencing stress when there is a threat on the internal conditions of the body causing an imbalance in the system. This causes the body to adapt to this perceived threat hence, leading to behavioral and physiological changes in the body.

Aristotle, Hippocrates, and the other Ancients were aware of stress and its adverse effects; however, according to Chrousos [3] Claude Bernard was the first to formally explain how cells and tissues in multicelled organisms might be protected from stress. Many years later Cannon discovered the concept of fight or flight, and he proposed that animals react to stimulus when there is a general discharge of the sympathetic nervous system. This response was later recognised as the first stage (acute stress response) of the General Adaptation Syndrome (GAS) postulated by Selye to be a universal stress response among vertebrates and other animals [4]. The acute response to stress occurs when a person reacts to

a stressful situation under the influence of the sympathetic nervous system causing fight or flight.

Nursing students experience high levels of stress and recent research concerning health care related fields and stress has indicated that nursing students experience higher stress levels compared to students in other health disciplines [5]. A study carried out in India revealed that 82.4% of the nursing students reported moderate stress, followed by 12.6% who presented with mild stress [6]. Also, In Ireland a cross sectional study was undertaken among undergraduate nursing students and stress was found among 71.9% of the study sample. In addition, 125 Pakistani nursing students were screened for stress and majority (80.3%) reported having stress [7].

A study carried out in Ghana revealed that the majority of students (73.0%) were stressed with academic related work. Also, cognitive, behavioural and emotional symptoms were highly prevalent among the students [8]. Studies carried out by the United Nations Educational, Scientific and Cultural Organization (UNESCO) revealed that students commonly self-report experiencing ongoing stress relating to their education, which is referred to as academic related stress. This stress comes from pressure to achieve high marks and concerns about achieving poor grades [9].

Previous research indicates that academic stress can reduce academic achievement, decrease motivation and increase the risk of school dropout. The long term impacts of stress include reduced likelihood of sustainable employment [10]. Moreover, high stress levels in nursing students may affect students' memory, concentration, and problem solving ability and may lead to decreased learning, coping, academic performance and retention. [11].

However, studies show that early stress management can help control its effect as well as help students improve their wellbeing. These various health promotion activities such as stress management and healthy coping skills as well as life style modifications are required to empower nursing students as well as midwifery students to control their stress levels and stressors [12]. Coping strategies for stress refer to the specific efforts, both behavioural and psychological, that people employ to master, reduce, tolerate or minimize stressful events. In a study carried out in Malaysia it was revealed that the top five coping strategies of nursing students that participated in the study were religion, the use of instrumental support, acceptance, active efforts to cope and positive reframing, the majority

of which were emotion- focused coping strategies [13].

Numerous studies have been carried out in Cameroon on the stress levels of nurses in the clinical setting but there is little or no literature addressing the stress levels of nursing and midwifery students, and the various coping strategies they use to reduce stress. Hence this study seeks to fill this gap; specifically, we sought to estimate the prevalence of stress among nursing and midwifery students in three nursing training schools in the Buea Municipality, identify the sources of stress and the strategies used by nursing and midwifery students to cope with stress. Also, we determined the relationship between socio-demographic data and the level of stress of the students. Findings from this study could provide a framework which could be used as a guideline to establish ways of minimizing stressors in nursing schools in Buea in particular and Cameroon as whole. This might assist in reducing school drop outs due to academic stress.

METHODS

A quantitative cross sectional study design was used to conduct the study over a period of 6 months (December, 2022 to May 2023) in three Nursing schools in the Buea Municipality. Purposive and simple random sampling techniques were used to select the schools and participants respectively. The study population consisted of all nursing and midwifery students from Biaka University Institute, the Faculty of Health Sciences University of Buea and Redemption Higher Institute of Biomedical and Management Sciences. These schools were chosen because they have a curriculum that is recognised by the Cameroon Government. In addition, they were chosen because they

Table 1. Distribution of Participants According to Institution in Buea 2023

Institution	Total Number of Nursing and Midwifery Students eligible for the Study	Desired Sample size	Proportion Required (%)
University of Buea	200	40	11.7
RHIBMS	638	127	37.1
BIAKA	880	175	51.2
Total	1718	342	100

Data was collected from the participants regarding their stress levels, sources of stress, and the strategies they used to cope with stress. The Data was collected using a self-administered structured questionnaire. The questionnaire was adapted from the perceived stress scale (PSS) and the Coping Behaviour Inventory (CBI) questionnaires used in a related study [15]. The questionnaire consisted of a five points likert scale ranging from 0 (never) to 4(very often) which was used to assess the level of stress, sources

admit and graduate the highest number of students in Buea in particular, and Fako Division in general. Buea is the capital of the South West Region of Cameroon. Buea municipality is cosmopolitan in nature. The climate is very conducive for studies and as such attracts students from other towns of the South West Region and other regions of Cameroon.

The participants were 342 undergraduate student nurses and midwives who had had previous clinical experience. Those who gave their consent were included in the study, while those who were too ill or interrupted due to work during the data collection were excluded.

The sample size was calculated using the following formula[14]:

$$n = \frac{z^2 p (1 - p)}{d^2}$$

Where,

n= Sample size

z= Statistic corresponding to level of confidence 95%

p= Prevalence of stress, 33.3% [66] gotten from a previous study.

$$n = \frac{(1.96)^2 (0.333)(1 - 0.333)}{0.05^2}$$

n=342 participants, sample size is 342 nursing and midwifery students

Probability proportionate to size sampling technique was used to determine the number of participants from each school (Table 1).

of stress and the coping strategies for stress. Before administering the questionnaire, it was pre-tested among nursing and midwifery students in Saint Jude and Mount Zion Nursing Schools Buea who were not part of the study population. Their responses confirmed the clarity and validity of the questions. Copies of the questionnaire were then administered to the study participants who completed the various sections of the questionnaire.

Data collected was entered in an excel spreadsheet version 2010 and analysed using SPSS Version 25. Inferential statistics was also used to describe association between variables (multivariate analysis and Pearson's correlation); a p-value < 0.05 was considered significant. Results were presented in tables and charts (Bar and Pie charts).

Ethical Approval and Consent

This study was authorised by the Department of Nursing, Faculty of Health Sciences University of Buea, Cameroon. Administrative authorisation Ethical Clearance was first obtained from the Institutional Review Board of the Faculty of Health Sciences, University of Buea. In addition, authorisation was obtained from Regional Delegation of Public Health (No. 282/304) and then from the authorities of the various training schools. Before responding to the

questionnaire each respondent gave consent by signing the consent form.

RESULTS

All 342 respondents enrolled participated in the study, giving a response rate of 100%. Slightly above half [187 (54.7%)] of the participants were in the age range 22 – 26 years old. Of the 342 nursing and midwifery students sampled, only [34 (10.0%)] were males. Majority [302 (88.3%)] of the participants were student nurses while [40 (11.7%)] were student midwives. Majority [288 (84.2%)] of the students were in their second year of schooling, and 28 (8.2%) were either married or cohabiting. About three quarter [246 (71.9%)] of the students had their main source of income from parents, 268 (78.4%) were HND students and 156 (45.6%) had a GPA of 2 – 2.9 in their previous semester examination (Table 2).

Table 2: Socio-demographic Characteristics of the Participants in Buea 2023

Variables	n(%)
Age(in years)	
17 – 21	127(37.1)
22 – 26	187(54.7)
27 – 31	24(7.0)
32+	04(1.2)
Total	342(100)
Gender	
Male	34(10.0)
Female	308 (90.0)
Total	342 (100)
Year of study	
2 nd	288(84.2)
3 rd / 4 th	54(15.8)
Total	342 (100)
Professional program	
Nursing	302(88.3)
Midwifery	40(11.7)
Total	342 (100)
Marital status	
Single	314(91.8)
Married	20(5.8)
Cohabiting	08(2.4)
Total	342 (100)
Source of income	
Private employee	38(11.1)
Parents	246(71.9)
Self-employed	58(17.0)
Total	342(100)
Program	

NAS	13(3.8)
HND	268(78.4)
SRN	03(0.9)
BSc	43(12.6)
SRM	15(4.4)
Total	342(100)
GPA	
3 – 4	162(47.4)
2 – 2.9	156(45.6)
1 – 1.9	24(7.0)
Total	342(100)
Training school	
UB	40(11.7)
BUIB	175(51.2)
RHIBMS	127(37.1)
Total	342(100)

Regarding the prevalence of stress among nursing and midwifery students, a total of 37 questions were asked to assess the stress level of the student nurses and midwives. The mean stress score of all the 342 student was $1.875 \pm$

0.112 on a scale of 4. The prevalence of stress (stress score more than the mean stress score) among student nurses and midwives was 65.2% (95%CI: 61.5 – 69.1) as shown in (Figure 1).

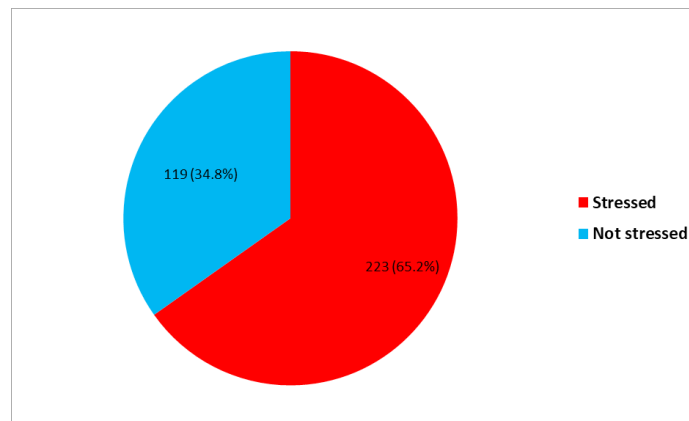


Figure 1. Prevalence of Stress among Nursing and Midwifery Students in Buea 2023

Concerning the factors associated with stress among nursing and midwifery students, results of a multivariate analysis revealed that age, marital status and year of study showed a significant association with stress among students. Students who were 32 years and above were 0.54 times less likely to experience stress than those who were younger (AOR = 0.54, 95% CI: 0.12, 0.96). Students who

were married were 2.01 times more likely to experience stress than their single counterparts (AOR = 2.01, 95% CI: 1.02, 3.99). Nursing and midwifery students who were in year 3 and 4 were 3.21 times more likely to experience stress than their second year counterparts (AOR = 3.21, 95% CI: 1.56, 7.99) (Table 3).

Table 3. Factors Associated with Stress among Student Nurses and Midwives in Buea 2023

Characteristics	Stress		AOR (95%CI)	p-value
	Yes	No		
Age group(years)				
17-21	70 (55.1)	57 (44.9)	1	
22-26	129 (69.0)	58 (31.0)	1.34 (0.91-2.30)	0.211

27-31	24 (100.0)	0 (0.0)	1.45 (0.88-2.41)	0.356
32+	0 (0.0)	4 (100.0)	0.54 (0.12-0.96)	0.021*
Gender				
Female	195 (63.3)	113 (36.7)	1	
Male	28 (82.3)	6 (17.7)	1.08 (0.23-4.65)	0.351
Marital status				
Single	199 (63.4)	115 (36.6)	1	
Married	16 (80.0)	4 (20.0)	2.01 (1.02-3.99)	0.022*
Year of study				
2 nd year	138 (47.9)	90 (39.5)	1	
3 rd / 4 th year	54 (100.0)	0 (0.0)	3.21 (1.56-7.99)	0.001*

Talking about the sources of stress (stressors) among students; the most cited stressors were school work (2.13), stress from peer and personal life (1.96), stress from lack of professional knowledge and skills (1.88)

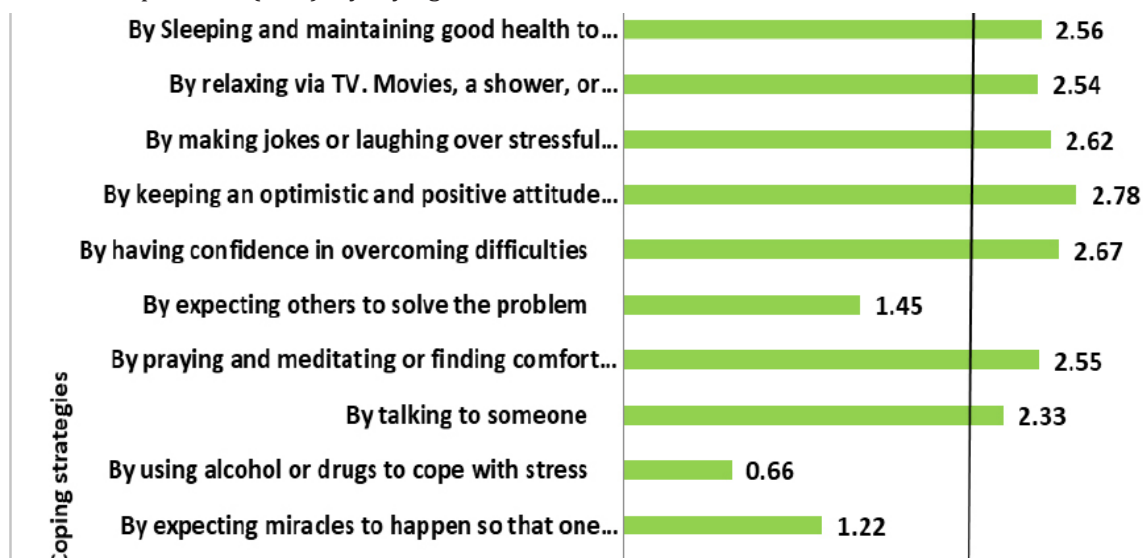
and stress from the clinical environment (1.85). The least reported stressors were teachers (1.75) and patient care (1.77) (Table 4).

Table 4: Sources of Stress (stressors) among Student Nurses and Midwives in Buea 2023

Sources of Stress	Number of Items	Mean	SD
Lack of professional knowledge and skills	03	1.88*	0.02
Stress from patient care	09	1.77	0.03
Stress from school	08	2.13*	0.01
Stress from teachers and clinical staff	06	1.75	0.04
Stress from clinical environment	04	1.85*	0.02
Stress from peer and personal life	07	1.96*	0.01

With regards to coping strategies used by students against stress; the results reveal that mean coping strategy score for student nurses and midwives regarding stress was 2.077 ± 0.021 on a scale of 4. The most cited coping strategy used by student nurses and midwives for stress were being confident and optimistic (2.78), by trying to solve

the issue or adopting new strategies (2.51), by watching TV and movies (2.54), by praying and meditating (2.55) and by sleeping or getting enough rest (2.56) as shown in figure 2. The least reported coping strategy was by using alcohol and drugs.



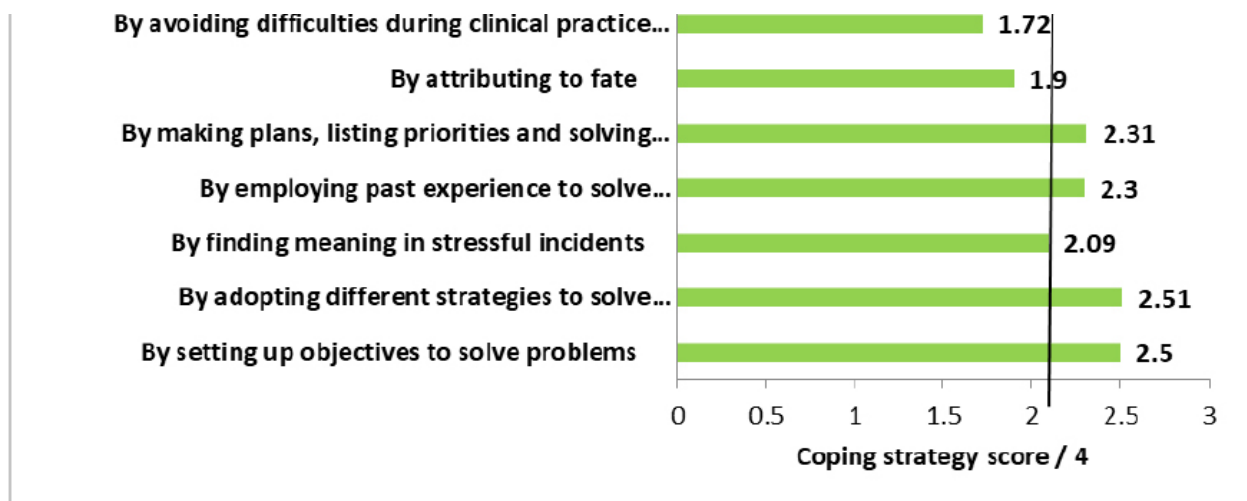


Figure 2. Coping Strategies used by Student Nurses and Midwives against Stress in Buea 2023

Overall, maturity [201(58.8%)] of the student nurses and midwives relied on problem-focused strategies of coping against stress, followed by the emotional-focused strategies [81(23.7%)], then dysfunctional coping strategy [35 (10.2%)] and religious coping strategy [25 (7.3%)] as shown on figure 3.

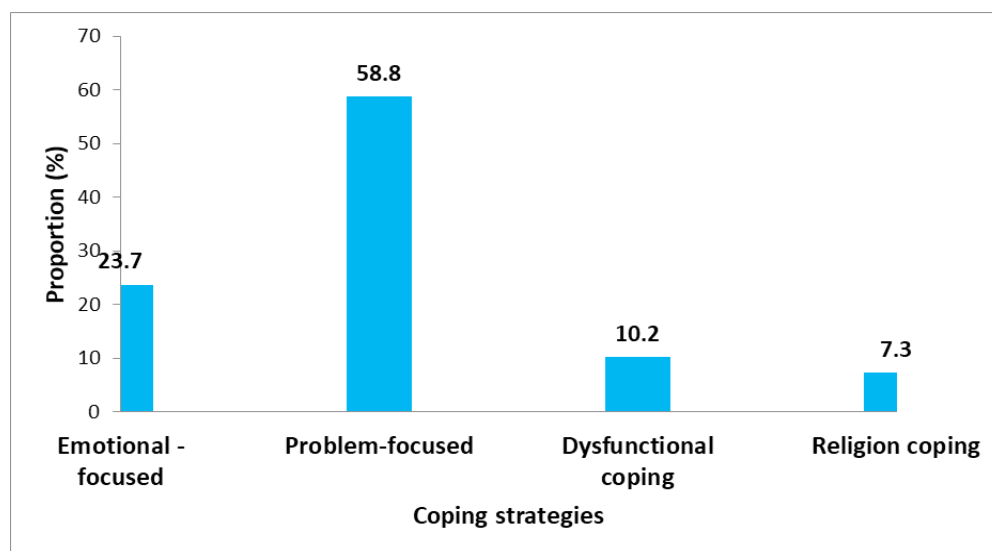


Figure 3. Coping Strategies for Stress used by Students in Buea 2023

This means that the higher the stress levels the higher the number of coping strategies used by students (Table 5).

Table 5. Correlation between Stressors and the Coping Strategies in Buea 2023

Correlations		Stress level	Coping strategies
Stress level	Pearson Correlation	1	.423**
	Sig. (2-tailed)		0.001
	N	342	342
Coping strategies	Pearson Correlation	.423**	1
	Sig. (2-tailed)	0.001	
	N	342	342

** . Correlation is significant at the 0.001 level (2-tailed).

DISCUSSION

This study determined the level of stress among nursing and midwifery students. This was in order to provide information that might guide the strategies to be employed in the management of stress. This could reduce the stress levels of nursing and midwifery students as well as the negative impact stress has on students' health, academic performance and quality of care they render to patients.

Prevalence of Stress among Student Nurses and Midwives

This study revealed that the prevalence of stress among student nurses and midwives was 65.2%. This high level of stress could be attributed to the school workload for student nurses and midwives and the fact that they have to go to school, then for internship and sometimes carry out research, in addition to the pressure from their personal life. This prevalence is higher compared to the finding of a previous study, which revealed a prevalence of 56% [16]. Also, this finding is very high when compared to the finding of a study conducted in Egypt where the prevalence of stress was 40.2% [17]. However, the prevalence from our study is lower when compared to other studies. For instance, the study conducted in Ireland revealed a prevalence of 80.3% [8]. The possible reason for this variation might be due to the tools used and study setting.

Again, the prevalence of stress in the current study is consistent with that observed in previous studies where similar results were found among medical students in the region [17], internationally [13], and among midwifery students [18]. The wide variability in the stress prevalence measures found in the different studies could be explained by differences in the tools used, the setting and characteristics of the participants, as well as the different periods during which the different studies were conducted. Also, the wide range of prevalence measures across all levels of stress could be explained by the limited sample size of the primary studies and representativeness of the selected students. Some evidence shows increased levels of stress as nursing students progress in their educational programme, whereas other studies states no change in the stress level between the academic years [19].

Sources of Stress Among Student Nurses and Midwives

The current study revealed that the most cited stressors were school work, stress from peer and personal life, stress from lack of professional knowledge and skills,

and stress from the clinical environment. Similar to our findings are studies conducted in North Africa and Ghana, which reported academic work as the most common stressors among nursing and midwifery students [15, 20]. In addition, our finding is consistent with that of Eta and Mbeng [21] who found that the clinical environment was a source of stress for nursing students. Also, Chabaane et al [22] reported academic stress to be the most common source of stress in their study. Similarly, UNESCO stipulates that students commonly self-report experiencing ongoing stress due to their education [9]. Moreover, according to the statistics published by the National Crime Records Bureau, India has the highest suicide rate and academic stress has been identified as the primary cause of these deaths [23].

Specifically, we also found that patient care is a common stressor for nursing students during their clinical training. This finding is in accordance with studies conducted in Egypt, Alexandria and Saudi Arabia where the most common stressors were in relation to patient care [12, 17, 24]. Therefore, procedures related to patient care, examination frequency, and the amount of overall workload during clinical training could be revisited. Again, a global systematic review concluded that the most common stressors among nursing students are academic stressors (workload and problems associated with studying) followed by clinical stressors (such as fear of unknown situations, mistakes with patients or handling of technical equipment) [15]. This can be explained by the predominance of studies (nursing students inclusive) in the preparatory and preclinical years (years 1–2). These first two years are generally characterised by more academic workload than clinical years (years 3–4) [19].

Strategies used by Student Nurses and Midwives in Coping with Stress

The current study revealed that the most cited coping strategy for stress used by student nurses and midwives was problem focused strategy, which included being confident and optimistic, by trying to solve the issue or adopting new strategies. Similarly, emotion focused strategies such as watching TV and movies, praying and meditating as well as sleeping or getting enough rest were mostly used, these findings are similar to that of a study conducted by Theodoratou *et al.* [25]. Also, another study conducted in Israel found that problem focused strategy was the most coping strategy used by nursing students to cope with stress [26]. The wide variation found in coping

strategies utilised by nursing students in African countries and globally, can be explained by the differences in cultural, socio-economic, and geographic contexts [19].

However, other studies found that emotional (for example, expressions of empathy), instrumental social support (for example, tangible aid and service), and religion were identified as commonly used stress coping mechanisms by nursing students in Malaysia [13]. Other dysfunctional coping strategies, such as the use of alcohol or illicit drugs were cited by a few students in our study, which is consistent with the finding reported by Freire et al. [27]. The relationship between socio-demographic factors and stress levels or stressors showed that year of study and age were statistically significant. This implies that these factors can influence the level of stress of the students. This finding is similar to the findings reported from studies conducted in Taiwan, Cameroon and Nigeria which showed that age and year of study could influence the degree of stress, type of stressor and coping strategy utilised to cope with stress [28, 29, 30]. Also, their findings revealed that the country of origin had an influence on the level of stress, type of stressor and the coping strategy used. In addition, a study carried out in North India revealed that sex was significantly associated with stress levels and it was found that female nursing students had more perceived stress 31.33% than male students 26.01% [7] and Scatter et al [31] reported similar findings. Therefore, there exist a possible link between stress levels and sociodemographic factors, such as gender and living with family or alone.

CONCLUSION

The prevalence of stress among student nurses and midwives in the Buea Municipality was very high. The main sources of stress among students were school work and stress from peer and personal life. Most of the students relied on problem-focused strategies of coping with stress and emotional-focused strategies. Age, marital status and year of study of the students were significantly associated with stress. Based on the findings of the study administrators and lecturers are encouraged to provide a supportive learning environment and establish a strong support system to equip students with effective coping strategies for stress. In addition, Guidance Counseling Services should be provided in all nursing training institutions and students encouraged to go for counselling. Again, Parents and guardians should endeavor to provide financial, emotional and psychological support for their children. Furthermore, since most of the published works

focused on assessing academic and clinical stressors; studies on the importance and potential impact of stressors external to training periods, such as the physical environment and intrapersonal stressors could be carried out. Studies can be carried out to compare the stress level, sources and coping strategies amongst nursing and midwifery students in public nursing and private nursing training schools in Fako Division Cameroon.

Limitations of the Study

The main limitation of this study was that it targeted only renowned training schools with large numbers of students, it allowed the findings to be generalized since the schools were considered to be representative of nursing schools in Fako Division.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Authors' Contribution

The authors participated in the different stages of the study from commencement to writing. That is, conception and design, acquisition of data, analysis and interpretation of data as well as drafting and or revising and approving the final manuscript.

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