



Perceived Level of Stress, Stressors and Coping Strategies among Undergraduate Health Professional Students during their Clinical Education: A Comparative Study

Nira Tamang^{1,2*}, Saroj Rai³, Ping Ni² and Jing Mao²

¹Department of Nursing, Norvic International Hospital, Kathmandu, Nepal

²School of Nursing, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

³Department of Orthopedics and Trauma Surgery, National Trauma Center, National Academy of Medical Sciences, Kathmandu, Nepal

*Corresponding Author: Nira Tamang, Department of Nursing, Norvic International Hospital, Kathmandu, Nepal.

Received: June 27, 2020

Published: July 30, 2020

© All rights are reserved by Nira Tamang, et al.

Abstract

Purpose: This study aimed to determine and compare the stress level, stressors and coping strategies and to investigate the relationship between stress, coping strategy and demographic characteristics among undergraduate health professional students.

Methods: In this cross-sectional, non-experimental and comparative study, a convenience sampling technique used to collect data from 280 students. We used a self-reported questionnaire including demographic characteristics of participants, Perceived Stress Scale, and Coping Behavior Inventory.

Results: Health professional students reported overall moderate level of stress while, nursing students showed mild stress whereas dental and clinical medicine students showed moderate stress. However, students were highly stressed by patient's care, assignment and workload, lack of professional knowledge and skills, and environment, and minimally stressed by peers and daily life and teachers and other staffs. Stay-optimistic was mostly used coping strategy by nursing students and transference by dental and clinical medicine students whereas avoidance was the least used by all. Significant correlation of stress was found with coping strategy and previous health training.

Conclusion and Clinical Implications: Students face varieties of stressors during their clinical education. Therefore, students should be encouraged and motivated to adopt effective coping. Additionally, health training found positive role in reducing student's stress so that medical courses are very necessary to the students before entering medical school.

Keywords: Stress; Stressor; Coping Strategy; Clinical Education; Health Professional Students

Introduction and Literature Review

Stress

Stress is a universal phenomenon and is inevitable [1,2]. It is known as a reaction towards some events such as an environmental condition that alters the physical or mental equilibrium [3]. Education is itself demanding, challenging and stressful. Psychological problems like stress, anxiety, depression have been reported all over the world among university students [4]. Stress is frequently associated with negative events, but it can also result from positive life incidence such as getting admission in the professional

program and starting of career [5,6]. Similarly, stress can lead to varieties of negative events however the minimal level of stress is regarded as motivating factors to enhance the student's creativity, learning ability and successful academic achievement [5,7-9].

University students are increasingly facing stress, and health professional students are more prone to stress than other university peers [7,10]. A professional career demands a great deal of hard work and persistence and brings new challenges for students in everyday life [11]. Most of the students don't understand these

demands and suffer from stress and anxiety [11]. Due to a negative impact on student's physical and mental health, the stress has received tremendous attention [10]. Thus, the stress-related studies have largely been conducted among health professional students [4,12-14]. However, a very few have focused on comparative study [15-19]. These studies have reported variances in the level of perceived stress, not only among the groups but also within the groups. These differences are because of differences in measurement tools, places, religion and cultural beliefs, sample size and sampling technique, lack of comparison and differences in authors. Some studies reported a higher level of stress in nursing students [20], some in dental students [17] and some in clinical medicine students [19,21,22].

Stressors

A stressor is an event or any stimulus that cause an individual to experience stress [23]. Stressors can be divided into various types such as; academic-related, clinical training related, psychosocial-related and health-related factors [24]. Academic-related stressors include work-load, frequent examination, assignments, fear of failure and not getting expected marks, vast syllabus, academic competition with peers [15,25]. Similarly, clinical training related stressors include clinical procedures, performance pressure, completion of clinical requirement, difficulty in managing difficult cases, poor learning environment and lack of patient's co-operation [15]. Moreover, psycho-social factors include worrying about future and high parental expectations, lack of recreation [24]. Health-related factors include lack of healthy diets, sleep problems, illness [24].

Coping strategy

It is a well-known fact that the coping abilities are different in every individual [11]. Regular contact with the stressors leads to handle or control the situation [2]. Students use varieties of coping strategies and are mainly divided into problem-focussed, and emotional-focused [25]. Problem-focused coping is positive and effective coping which includes identification of the problem, planning, and solving of the problem [25]. It can eliminate the existing problem and reduces stress [26]. Emotional-focused coping focuses on the emotion rather than a problem, where individual use different ways of coping [27]. Emotional-focused coping includes listening to music, doing exercises and talking with family, etc. [15]. It reduces stress only for short period because it does not eliminate the actual problem [27]. These coping are still positive but not

effective. Sometimes, students use negative and ineffective coping strategies such as smoking drinking, taking of medicine and even suicidal thoughts [5,9,10,28]. Similarly, some succeed to cope-up and results in positive consequences; whereas some fails and likely suffer from negative consequences [29]. It is proven that stress and coping are significantly associated [30]. Meanwhile, Students who adopt problem-focused coping suffer lower stress, whereas students who adopt emotional-focused coping experience higher stress [26,29]. However, the most commonly used coping strategies by these students are positive such as problem-solving, optimism, sleeping, meditation, instrumental support, and social support, etc. [1,11,13,15,25,27,31-33].

Objectives of the Study

This study aimed to determine and compare the level of perceived stress, to identify the different stressors, to explore the coping strategies, and to investigate the relationship between stress, coping and demographic characteristics among undergraduate health professional students.

Research Methodology

Research design

We conducted a cross-sectional, non-experimental, and comparative study to assess the perceived level of stress, stressors, and coping strategies adopted by undergraduate health professional students.

Research instruments

Research instrument included Demographic characteristics of participants, Perceived Stress Scale (PSS) and Coping Behavior Inventory (CBI) by She., *et al.*

Demographic characteristics

It included age, gender, marital status, previous health-related training, religion, involvement of family member in the medical field, interest in studying medical field and continuation of work.

Perceived stress scale (PSS) and coping behavior inventory (CBI)

We used PSS and CBI scales according to Sheu., *et al.* [25,34]. PSS consisted of 5-point Likert scale having 29-items grouped into 6 factors. These factors included stress from taking care of patients (8-items), stress from teachers and other staffs (6-items), stress from assignment and workload (5-items), stress from peers and

daily life (4-items), stress from lack of professional knowledge and skills (3-items), and stress from environment (3-items). Participants' response was from 0 to 4. Higher scores represented a higher level of stress. A score of 0 to 1.33 was rated as mild stress, 1.34 to 2.66 as moderate stress and 2.67 to 4 as severe stress. Similarly, CBI also consisted of 5-point Likert scale having 19-items grouped into 4 factors. These factors included avoidance (6-items), problem-solving (6-items), stay-optimistic (4-items), and transference (3-items). Higher scores in one factor indicated the frequent use of coping behaviors.

Participants, pre-testing and sampling technique

We performed pre-test among first 30 health professional students including 10 students in each group and adopted good reliability (Cronbach's alpha 0.96 for PSS, and 0.74 for CBI). After good reliability of the instruments, questionnaires were distributed to 320 students but only 305 questionnaires received back. Of them, 25 returned questions were incomplete and unclear so excluded from the study. Finally, 280 clinical years students were included in this study.

Out of 280 students, 90 were nursing students, 90 were dental students, and remaining 100 were clinical medicine students. Non-probability convenience sampling method was used for data collection. Non-clinical years or absent clinical years students.

Data collection/Ethical considerations

Data collection was performed on January 2018. Both Chinese and English version questionnaires were circulated to the participants during clinical posting. It took about 15 to 20 minutes to complete the form. Informed consent was taken from each participant. Participants were not forced to fill up, and allowed to reject any time if they feel discomfort. The study was approved by the University Ethical Committee.

Statistical analysis

We used Statistical Package for Social Sciences (SPSS) version 23 for data analysis. One way ANOVA and Chi-square test were used to analyze continuous data and categorical data respectively. Pearson correlation was used to investigate the relationship between stress, coping strategy and demographic variables. The descriptive statistical analysis was completed for demographic variables. Graphs were prepared using Microsoft Excel for data representation. Continuous data were presented as mean ± SD, whereas categorical data were presented as number (n) or percentage (%).

Results

Demographic characteristics

Demographic characteristics of the participants are well illustrated in table 1.

Parameters	Nursing Students (n = 90)	Dental Students (n = 90)	Clinical Medicine Students (n = 100)
Age (Years)	21.2 ± 1.0 (19-23)	21.5 ± 1.14 (20-24)	23.5 ± 2.25 (19-36)
Gender (Male/Female)	5/85	34/56	64/36
Marital Status (S/M)	90/0	89/1	94/6
Previous Health Related Training (Y/N)	41/49	23/67	31/69
Religion (Buddhist/Muslim/Christian/Others)	3/2/2/83	1/10/3/76	27/15/11/47
Family Member in Medical Field (Y/N)	30/60	24/66	32/68
Interest in Medical Field (Y/N)	73/17	86/4	88/12
Continue working in Medical Field (Y/N/Can't Say)	75/14/1	90/0/0	91/5/4

Table 1: Demographic parameters of health professional students (mean ± SD, n, %).

n: Sample size; SD: Standard Deviation; S: Single; M: Married; Y: Yes; N: No.

Stress

The statistically significant difference among three groups was observed (P < 0.001) (Figure 1). However, no significant difference was observed between dental and clinical medicine (P > 0.05). According to evaluation criteria, nursing students reported a mild level of stress with an average of 1.31 ± 0.57, whereas dental and clinical medicine students reported the moderate level of stress with an average of 1.65 ± 0.51 and 1.73 ± 0.50 respectively. However, undergraduate health professional students reported overall moderate level of stress with an average of 1.57 ± 0.55.

Stressors

The highly reported stressors were patient's care, assignment and workload, lack of professional knowledge and skills and environment whereas peers and daily life and teachers and other staffs were less reported stressors. Detail information of the stressors are

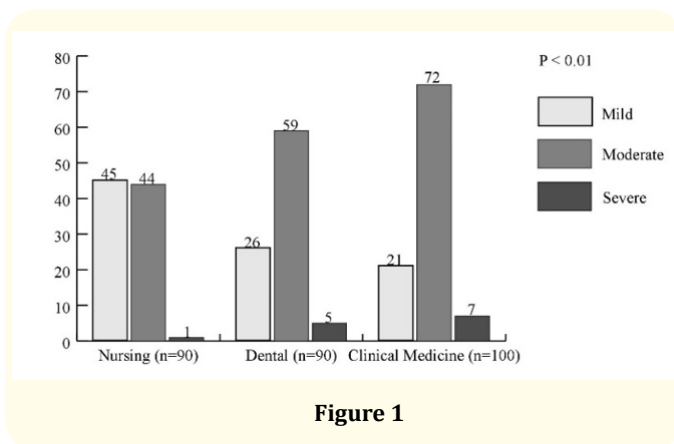


Figure 1

well depicted in table 2. In addition, table 3 shows top five and least five reported stressors among 29 items of PSS by all the students.

Coping strategies

The coping strategies used to overcome stress by nursing students was stay-optimistic (2.43 ± 0.64) followed by problem-solving (2.11 ± 0.85) and transference (2.09 ± 0.76). Whereas, dental and clinical medicine students used transference as the primary coping strategy (2.25 ± 0.62, and 2.10 ± 0.76, respectively) followed by stay-optimistic (2.24 ± 0.54, and 2.07 ± 0.60, respectively) and problem-solving (2.08 ± 0.57, and 1.95 ± 0.67, respectively). Avoidance was minimally used coping strategy by all the students. Ad-

S.N.	Nursing Students (n=90)	Mean ± SD	Dental Students (n = 90)	Mean ± SD	Clinical Medicine Students (n = 100)	Mean ± SD
1	Patient’s care	1.43 ± 0.71	Patient’s care	1.77 ± 0.62	Assignment and workload	1.86 ± 0.70
2	Lack of professional knowledge and skills	1.38 ± 0.76	Environment	1.75 ± 0.71	Patient’s care	1.78 ± 0.59
3	Assignment and workload	1.37 ± 0.70	Assignment and workload	1.73 ± 0.62	Lack of professional knowledge and skills	1.77 ± 0.66
4	Environment	1.31 ± 0.72	Lack of professional knowledge and skills	1.64 ± 0.77	Teachers and other staffs	(1.72 ± 0.68
5	Teachers and other staffs and	1.21 ± 0.63	Peers and daily life and	1.51 ± 0.61	Environment and	1.71 ± 0.74
6	Peers and daily life	1.16 ± 0.66	Teachers and other staffs	1.48 ± 0.59	Peers and daily life	1.51 ± 0.70

Table 2: Commonly reported stressors among health professional students in descending order (mean ± SD).

n: Sample Size; SD: Standard Deviation.

SN.	Nursing Students (n = 90)	Mean ± SD	Dental Students (n = 90)	Mean ± SD	Clinical Medicine Students (n = 100)	Mean ± SD
1	Experience discrepancy between theory and practice	1.77 ± 0.97	Experience discrepancy between theory and practice	2.26 ± 0.97	Experience pressure from the nature and quality of clinical practice	2.05 ± 0.96
2	Do not know how to help patients with physio-psycho-social problems	1.62 ± 0.89	Lack of experience and ability in providing care and in making judgments	2.02 ± 0.73	Worry about bad grades	2.04 ± 0.99
3	Lack of experience and ability in providing care and in making judgments	1.61 ± 1.01	Worry about bad grades	2.02 ± 0.90	Do not know how to help patients with physio-psycho-social problems	1.91 ± 0.79
4	Experience pressure from the nature and quality of clinical practice	1.53 ± 0.84	Experience difficulties in changing from the role of a student to that of a professional life	2.00 ± 0.94	Feel that one’s performance does not meet teachers’ expectations	1.91 ± 0.81
5	Worry about bad grades	1.52 ± 0.96	Experience pressure from the nature and quality of clinical practice	1.99 ± 0.88	Do not know how to discuss patients’ illness with teachers, medical and nursing personnel	1.87 ± 0.85

Least 5 stressors						
1	Cannot get along with other peers in the group	0.68 ± 0.75	Medical personnel lack empathy and are not willing to help	1.10 ± 0.75	Cannot get along with other peers in the group	1.37 ± 0.92
2	Feel that teachers do not give fair evaluation on students	0.90 ± 0.77	Cannot get along with other peers in the group	1.11 ± 0.69	Feel pressure from teachers who evaluate students' performance by comparison	1.46 ± 0.85
3	Medical personnel lack empathy and are not willing to help	1.01 ± 0.88	Feel that teachers do not give fair evaluation on students	1.18 ± 0.86	Experience competition from peers in school and clinical practice	1.47 ± 0.93
4	Lack of care and guidance from teachers	1.03 ± 0.79	Lack of care and guidance from teachers	1.27 ± 0.78	Feel stressed in the hospital environment where clinical practice takes place	1.59 ± 0.90
5	Do not know how to communicate with patients	1.18 ± 0.79	Feel that the requirements of clinical practice exceed one's physical and emotional endurance	1.32 ± 0.82	Feel that the requirements of clinical practice exceed one's physical and emotional endurance	1.60 ± 0.83

Table 3: Top five and least five stressors from 29 items of PSS reported by health professional students (mean ± SD).

n: Sample Size; SD: Standard Deviation.

ditionally, table 4 shows the top five and least five coping behaviors among 19 items of CBI adopted by all the students.

Stress, coping strategy and demographic variables

Details of correlations are illustrated in table 5. The overall stress was negatively correlated with stay-optimistic ($r = -.212, P = .001$) and problem-solving ($r = -.118, P = .048$) and positively correlated with avoidance ($r = .639, P = .001$), however no any association was found with transference ($P > 0.05$). It represented the lower level of stress among students who adopted problem solving and stay-optimistic, whereas higher stress who used avoidance. Moreover, we found statistically significant positive correlation between previous health-related training and stress level ($r = .182, P = .002$). It meant that students who received previous health-related trainings reported to have a lower level of stress.

Discussion

In our study, nursing students reported the mild level of stress, whereas dental and clinical medicine students reported the moderate level of stress. The most commonly reported stressors by nursing students and clinical medicine students were assignment and workload, patient's care and lack of professional knowledge and skills, whereas by dental students were assignment and workload, environment, and patient's care. Similarly, the least reported

stressors were peers and daily life by nursing and clinical medicine students and teachers and other staffs by dental students. Moreover, nursing students used stay-optimistic followed by problem-solving strategies to cope-up with the stress, whereas dental and clinical medicine students used transference followed by stay-optimistic. Avoidance was the least used coping behavior by all the students. Pearson correlation coefficient showed significant association between stress with coping and previous health related training.

Many studies have been performed to determine the level of perceived stress, type of stressors, and coping strategies among health professional students [15,16]. However, they all reported conflicting results [17,20,21]. It has been proven that the health care students are more prone to stress compared to other non-health related students during their study periods [10,28], especially when they are in their clinical years [7]. However, comparative studies among health professional students are still scarce [15-18,24]. Our result showed that the clinical medicine students reported a higher level of stress and the nursing students reported a lower level of stress. Racic, *et al.* [19] and Dutta, *et al.* [21] reported a similar result of clinical medicine students having a higher level of stress than dental and nursing students. In contrast, Zarifsanaiy, *et al.* [20] reported a higher level of stress in the nursing students com-

SN	Nursing students (n=90)	Mean ± SD	Dental Students (n=90)	Mean ± SD	Clinical Medicine Students (n=100)	Mean ± SD
Top 5 coping behaviors						
1	To keep an optimistic and positive attitude in dealing with everything in life	2.84 ± 0.91	To relax via TV, movies, a shower, or physical exercises (ball playing, jogging)	2.79 ± 0.85	To relax via TV, movies, a shower, or physical exercises (ball playing, jogging)	2.35 ± 0.98
2	To see things objectively	2.84 ± 0.89	To see things objectively	2.62 ± 0.77	To keep an optimistic and positive attitude in dealing with everything in life	2.3 ± 0.97
3	To have confidence in overcoming difficulties	2.83 ± 0.93	To have confidence in overcoming difficulties	2.58 ± 0.73	To save time for sleep and maintain good health to face stress	2.2 ± 0.77
4	To relax via TV, movies, a shower, or physical exercises (ball playing, jogging)	2.56 ± 0.98	To keep an optimistic and positive attitude in dealing with everything in life	2.5 ± 0.77	To see things objectively	2.19 ± 0.91
5	To save time for sleep and maintain good health to face stress	2.28 ± 1.04	To save time for sleep and maintain good health to face stress	2.43 ± 0.92	To have confidence in overcoming difficulties	2.11 ± 0.93
Least 5 coping behaviors						
1	To attribute to fate	0.49 ± 0.69	To attribute to fate	0.72 ± 0.86	To quarrel with others and lose temper	1.19 ± 0.94
2	To quarrel with others and lose temper	0.52 ± 0.67	To expect miracles so one does not have to face difficulties	0.94 ± 0.83	To expect miracles so one does not have to face difficulties	1.22 ± 0.81
3	To expect miracles so one does not have to face difficulties	0.58 ± 0.67	To quarrel with others and lose temper	0.98 ± 0.79	To attribute to fate	1.25 ± 0.90
4	To avoid teachers	0.68 ± 0.80	To avoid teachers	1.11 ± 0.81	To expect others to solve the problem	1.32 ± 0.86
5	To avoid difficulties during clinical practice	0.76 ± 0.68	To expect others to solve the problem	1.17 ± 0.84	To avoid teachers	1.32 ± 0.92

Table 4: Top five and least five coping behavior adopted by health professional students (mean ± SD).
n: Sample Size; SD: Standard Deviation.

Factors	Avoidance		Problem-solving		Stay-optimistic		Transference	
	r	P	r	P	r	P	r	P
Total perceived stress scale	0.639**	0.000	-0.118*	0.048	-.212**	0.000	.002	0.975
Patient’s care	0.373**	0.000	-.007	0.902	-.066	0.273	.012	0.820
Teachers and other staffs	0.546**	0.000	-.065	0.277	-.151*	0.011	-.030	0.622
Assignment and workload	0.616**	0.000	-.196**	0.001	-.221**	0.000	.024	0.691
Peers and daily life	0.598**	0.000	-.171**	0.004	-.303**	0.000	-.130*	0.030
Lack of professional knowledge and skills	0.412**	0.000	-.051	0.394	-.100	0.095	.052	0.384
Environment	0.493**	0.000	-.070	0.240	-.165**	0.006	.067	0.262

Table 5: Correlation between stress, stressors and coping strategies.

** . Correlation is significant at the 0.01 level (2-tailed); * . Correlation is significant at the 0.05 level (2-tailed).

R: Correlation coefficient; P: Level of significance.

pared to medical students. While, Murphy, *et al.* [35] and Birks, *et al.* [17] found dental students to be stressed more than students of other faculties.

Both academic and clinical education acknowledged as very stressful for health professional students, as they are highly stressed by academic as well as clinical factors [15,36]. Students encounter varieties of stressor during their clinical placement. In our study, the most commonly reported stressors by nursing and clinical medicine students were patient's care, assignment and workload, and lack of professional knowledge and skills. Similarly, dental students reported patient's care, environment, and assignment and workload as frequently noticed stressors. Stressors faced by health professional students are consistent with previous studies [25,27,31]. Sheu, *et al.* [25], Chan, *et al.* [27], and Shaban, *et al.* [31] had conducted studies among undergraduate nursing students using the same tool. They found patient's care, assignment and workload, lack of professional knowledge and skills and the environment to be the most commonly reported stressors. Moreover, supporting our results, commonly reported stressors by dental and clinical medicine students were academic workload [36], frequency of examination [15,37], fear of failure or not getting expected marks [6,38], academic competition with peers, difficulty in managing difficult cases, lack of cooperation of the patients [39], performance pressure⁴⁰ and poor learning environment [36,37,41].

In our study, the least reported stressor was peers and daily life by the nursing and clinical medicine students, whereas teachers and other staffs by the dental students, and was similar with the reports by Sheu, *et al.* [25] and Gomati, *et al.* [15]. However, Zhao, *et al.* [32] and AL Gamal, *et al.* [42] reported these as the second most common stressors, as their participants reported feel pressure from their teachers who evaluate the student's performance by comparison (peers and daily life) and teachers do not give a fair evaluation of students (stress from teachers and other staffs). We know that comparison works somehow and sometimes but not always so a teacher should be aware of unnecessary comparison. Teachers cannot be right all the time; sometimes they also need to adopt some new behavior such as characteristics of a good teacher and should provide a fair evaluation. On the contrary, Labrague, *et al.* [12] reported patient's care as the least reported stressor in Nigeria and Greece compared to Philippines nursing students. The reason could be less clinical exposure. Similarly, Zhao, *et al.* [32]

and AL Gamal, *et al.* [42] found lack of professional knowledge and skills and environment as the least reported stressors. According to Zhao, all their participants had a former hospital posting for at least for three months [32]. Similarly, AL Gamal also included students who completed at least one clinical course [42]. Therefore, these students somehow mastered specific professional knowledge and skills and also became familiar with the clinical environment. In our study, we found these stressors to be highly reported because we included all the clinical year students even who had just started their clinical practice.

Undergraduate health professional students used varieties of coping strategies to handle the stressful situation [2,15,25]. Some students adopted positive coping strategies while others adopted negative [15,28]. Previous reports suggested that students who suffered higher stress used coping strategies such as avoidance and transference, whereas students who suffered lower stress used coping strategies, such as problem-solving and stay-optimistic [7,15,25,27,42]. The types of coping are also related to the place and the cultural beliefs. Gomathi, *et al.* [15] found praying or meditation in UAE. Ksiazek, *et al.* [23] reported listening to music and sleeping in Poland. Our study also supports the reports of the previous study that the nursing students used stay-optimistic as a primary coping strategy while the dental and clinical medicine students used transference. According to Chinese culture, Chinese students would keep calm even if they face difficulties [43] and adopt emotional oriented coping [27]. Similarly, clinical education is generally short course, so the students would suppose pointless to solve the problem instead they use transference, which is convenient and approachable [27]. On the other hand, avoidance was the least reported coping by all the students in our study. Similar results were reported by Zhao, *et al.* [32] and Shaban, *et al.* [31], whereas Sandover, *et al.* [33] and Gamal, *et al.* [42] reported commonly used coping strategy.

Correlational analysis of our study revealed that the students who adopted positive coping strategies such as stay-optimistic and problem-solving were suffered from lower stress. Supporting our results, Gamal, *et al.* [42] also reported significant positive correlation between stress and problem-solving which represented lower stress among those students who adopted problem-solving. In addition, there was a significant correlation between previous health-related training with stress level, which provided evidence that health training might be essential in reducing student's stress

level. Moreover, Labrague, *et al.* [44] also found significant association between only one academic year with stress level. Whereas, Gamal, *et al.* [42] found significant association between GPA with stress, age with problem-solving and stay-optimistic, and income with problem-solving.

Clinical Implications

Before hospital posting, students should be well prepared for their clinical education. Firstly, the students should get the prior orientation of clinical areas such as hospital situation, arrangements, ward facilities, rules, regulation and policy of the hospital. Prior orientation provides the students to be familiar with the clinical environment which reduces their stress level. Thus they will be able to deal with the patients confidently. Secondly, It is essential to finish theory and extra classes regarding the common and new problems, diseases, treatment protocol, medical terminologies before their clinical placement. Thirdly, students should have a thorough practice of common procedures on dummy under the direct teacher's supervision. Prior practice and exposure helps them to know the nature of clinical work and builds up the confidence to make the correct decision and to provide need-based care. During simulation in the laboratory, close supervision of a teacher is essential to correct the error and wrongful practice.

During the academic session, the majority of the students become unaware of their identity and professional life. They often become anxious when they face reality or become direct contact with the patients in the hospital. Therefore, students must be well informed about their roles and responsibilities before entering into actual professional life. Instructors should frequently arrange drama classes and involve the students regarding their roles and responsibilities. This helps the student to know "who they are" and further helps them to accept reality and understand the changing pattern of professional life.

Time management and problem prioritization is another crucial factor, which needs to be learned by the students. If they have good knowledge about it, they can formulate their schedules for their daily tasks so that they can finish their work on stipulated time and even have extra-time for the preparation of their exams. That further helps to gain the confidence and decreases the worry regarding the exams.

Communication also plays a vital role in establishing and maintaining a healthy learning environment. Open communication be-

tween the teachers and students helps to share each other's view and ideas. The teachers can ask students about their problems and help them to solve. Similarly, students also get time to know teacher's view on their problems and even the teachers can share their own experience during their clinical posting. A good communication helps not only to share information but also to understand the each other's opinion which eventually leads to a healthy learning environment fulfilling their expectations. Similarly, education programs like presentations, seminars, and workshops are necessary to enhance intercommunication techniques between teachers, students, and other hospital staffs. These programs help the student to be well prepared to handle the situation for a possible change in patient's condition.

Not only the students but also the teachers need to change certain behaviors and adopt good characteristics of a teacher. Instructors should encourage and motivate students to use positive and effective coping such as problem-solving. Similarly, a regular review of the curriculum is necessary as the majority of the students are reporting academic related stress. Curriculum makers should take the feedback from the students and make necessary changes.

Strength and Limitations

The strength of our study is a comparative study in 3 different groups using the same instrument. However, there are several limiting factors. Firstly, this is a cross-sectional study. According to Lazarus and Folkman², stress is dynamic construct and can change over time due to adaptation, effective coping and changes in personal skills. So, the longitudinal study is recommended to observe changes. Secondly, being a quantitative study, we could not get the participation views about stress, stressors and ways of coping. A qualitative study with a mixed method could have performed to know the participant's feeling. Thirdly, convenience sampling method in a relatively small size was used, randomization with larger cohorts could have provided different results with a higher level of evidence.

Conclusion

Our study concluded that health professional students reported overall moderate level of stress, whereas the nursing students reported a lower level of stress as compared to dental and clinical medicine students. However, they were mainly stressed by patient's care, assignment and workload and less stressed by peers and daily life, and teachers and other staffs. Meanwhile, stay-optimistic and transference were the most frequently used coping strategies by

all the students and avoidance was the least used. These adopted coping strategies were positive but not effective. Therefore, students should be encouraged and motivated to adopt effective coping strategy such as problem-solving. Correlation among variables showed previous health-related training to be responsible to reduce stress level.

Funding

None.

Conflict of Interest

The authors report no actual or potential conflicts of interest.

Acknowledgements

The authors would like to thank Asamaporn Kaosala, Yam Sharma, Ying Yang, Xu Zhang and Yi Li for their tremendous support during the data collection. The authors would also like to thank all the participants.

Bibliography

1. Wolf L., et al. "Predictors of stress and coping strategies of US accelerated vs. generic Baccalaureate Nursing students: an embedded mixed methods study". *Nurse Education Today* 35.1 (2015): 201-205.
2. Lazarus R and Folkman S. *Stress: Appraisal and Coping*. Stress, Appraisal and Coping. New York, NY: Springer New York (1984).
3. Abasmi E., et al. "The Experience of Stress among Nursing students in Nursing Training Colleges in Tamale, Ghana". *International Journal of Psychology and Behavioural Science* 5.2 (2015): 89-97.
4. Basols AMS., et al. "Stress and coping in a sample of medical students in Brazil". *Revista De Psiquiatria Clinica* 42.1 (2015): 1-5.
5. Rosiek A., et al. "Chronic Stress and Suicidal Thinking Among Medical Students". *International Journal of Environmental Research and Public Health* 13.2 (2016): 212.
6. Hayes A., et al. "Perceived causes of stress among a group of western Canadian dental students". *BMC Research Notes* 10.1 (2017): 714.
7. Alzayyat A and Al-Gamal E. "A review of the literature regarding stress among nursing students during their clinical education". *International Nursing Review* 61.3 (2014): 406-415.
8. Sharma N and Kaur A. "Factors associated with stress among nursing students". *Nursing and Midwifery Research Journal* 7.1 (2011).
9. Singh Charanjev SS and Sharma Ravinder Kumar. "Level of stress and coping strategies used by nursing interns". *Nursing and Midwifery Research Journal* 7.4 (2011).
10. de La Rosa-Rojas G., et al. "Level of stress and coping strategy in medical students compared with students of other careers". *Gaceta Medica De Mexico* 151.4 (2015): 443-449.
11. Hirsch CD., et al. "Coping strategies of nursing students for dealing with university stress". *Revista Brasileira De Enfermagem* 68.5 (2015): 501-508.
12. Labrague LJ., et al. "A cross-country comparative study on stress and quality of life in nursing students". *Perspectives in Psychiatric Care* (2017).
13. Rahimi B., et al. "Resilience, stress, and coping among Canadian medical students". *Canadian Medical Education Journal* 5.1 (2014): e5-e12.
14. Elani HW., et al. "A systematic review of stress in dental students". *Journal of Dentistry Education* 78.2 (2014): 226-242.
15. Gomathi KG., et al. "Causes of stress and coping strategies adopted by undergraduate health professions students in a university in the United arab emirates". *Sultan Qaboos University Medical Journal* 13.3 (2013): 437-441.
16. Amany SB., et al. "A cross-sectional study of stress and its sources among health professional students at Makerere University, Uganda". *Nursing Open* 5.1 (2018): 70-76.
17. Birks Y., et al. "Emotional intelligence and perceived stress in healthcare students: a multi-institutional, multi-professional survey". *BMC Medical Education* 9.1 (2009).
18. Omigbodun OO., et al. "Stressors and psychological symptoms in students of medicine and allied health professions in Nigeria". *Social Psychiatry and Psychiatric Epidemiology* 41.5 (2006): 415-421.

19. Racic M., et al. "Self-Perceived Stress in Relation to Anxiety, Depression and Health-Related Quality of Life among Health Professions Students: A Cross-Sectional Study from Bosnia and Herzegovina". *Zdravstveno Varstvo* 56.4 (2017): 251-259.
20. Zarifanaiey N and Pakdel F. "A Comparative Study of Stressors in Medical and Nursing Students of Shiraz University of Medical Sciences and how they Correlate with Their Academic Progress: A Cross-Sectional Study". (2015).
21. Dutta AP, et al. "Stress in health professions students: myth or reality? A review of the existing literature". *Journal of the National Black Nurses Association* 16.1 (2005): 63-68.
22. Almojali AI, et al. "The prevalence and association of stress with sleep quality among medical students". *Journal of Epidemiology Global Health* 7.3 (2017): 169-174.
23. Książek P, et al. "Stress and methods of coping with it among students of the Medical University of Lublin". (2015).
24. Gomathi KG, et al. "Psychological health of first-year health professional students in a medical university in the United Arab Emirates". *Sultan Qaboos University Medical Journal* 12.2 (2012): 206-213.
25. Sheu S, et al. "Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors". *International Journal of Nursing Studies* 39.2 (2002): 165-175.
26. Watson R, et al. "A study of stress and burnout in nursing students in Hong Kong: a questionnaire survey". *International Journal of Nursing Studies* 45.10 (2008): 1534-1542.
27. Chan CK, et al. "Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice". *Journal of Professional Nursing* 25.5 (2009): 307-313.
28. Dyrbye LN, et al. "Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students". *Academic Medicine* 81.4 (2006): 354-373.
29. Gherardi-Donato EC, et al. "Association between depression and work stress in nursing professionals with technical education level". *Revista Latino-Americana de Enfermagem* 23.4 (2015): 733-740.
30. Al-Dubai SA, et al. "Stress and coping strategies of students in a medical faculty in Malaysia". *Malaysian Journal of Medical Sciences* 18.3 (2011): 57-64.
31. Shaban IA, et al. "Undergraduate nursing students' stress sources and coping behaviours during their initial period of clinical training: a Jordanian perspective". *Nurse Education Practice* 12.4 (2012): 204-209.
32. Zhao FF, et al. "The study of perceived stress, coping strategy and self-efficacy of Chinese undergraduate nursing students in clinical practice". *International Journal of Nursing Practice* 21.4 (2015): 401-419.
33. Sandover S, et al. "Graduate entry and undergraduate medical students' study approaches, stress levels and ways of coping: a five year longitudinal study". *BMC Medical Education* 15 (2015): 5.
34. Sheu S. "The development and testing of perceived stress scale of clinical practice". (1997) 341-351.
35. Murphy RJ, et al. "A comparative study of professional student stress". *Journal of Dental Education* 73.3 (2009): 328-337.
36. Fonseca J, et al. "Perceived sources of stress amongst Chilean and Argentinean dental students". *European Journal of Dental Education* 17.1 (2013): 30-38.
37. Ben Loubir D, et al. "Prevalence of stress in Casablanca medical students: a cross-sectional study". *Pan African Medical Journal* 19 (2014): 149.
38. Qamar K, et al. "Factors associated with stress among medical students". *Journal of Pakistan Medical Association* 65.7 (2015): 753-755.
39. Harikiran AG, et al. "Perceived sources of stress amongst final year dental undergraduate students in a dental teaching institution at Bangalore, India: a cross sectional study". *Indian Journal of Dental Research* 23.3 (2012): 331-336.
40. Polychronopoulou A and Divaris K. "Dental students' perceived sources of stress: a multi-country study". *Journal of Dentistry Education* 73.5 (2009): 631-639.

41. Oku A., *et al.* "Prevalence of stress, stressors and coping strategies among medical students in a Nigerian medical school". (2015): 29-34.
42. Al-Gamal E., *et al.* "Stress and coping strategies among Saudi nursing students during clinical education". *Perspective Psychiatry Care* 18 (2017).
43. Evans W and Kelly B. Pre-registration diploma student nurse stress and coping measures". *Nurse Education Today* 24.6 (2004): 473-482.
44. Labrague IJ. "Stress, stressors and stress Responses of student nurses in a Government Nursing School". *Health Science Journal* 7.4 (2013).

Assets from publication with us

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

Website: www.actascientific.com/

Submit Article: www.actascientific.com/submission.php

Email us: editor@actascientific.com

Contact us: +91 9182824667