



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 8.4
IJAR 2021; 7(2): 425-432
www.allresearchjournal.com
Received: 21-11-2020
Accepted: 08-01-2021

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Stress & coping strategies among nursing students of India: A systematic review

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DOI: <https://doi.org/10.22271/allresearch.2021.v7.i2g.8325>

Abstract

Background of the review: Stress is a prevalent aspect in daily life and is directly attributed to people in the nursing profession. As this concern is gaining attention as an important area of research and literature especially in the area of nursing education in India, a comprehensive review regarding stress and its coping strategies used by the nursing students is needed.

Aim: (a) to identify the level of stress, its sources, and (b) to explore coping methods used by student nurses during nursing education.

Methods: The narrative conceptual synthesis method was used to review quantitative studies reporting sources of stress in nursing students and their coping mechanisms. The search also was limited to studies conducted between 2010 and 2020 (10 years). The keywords include “stress”, “coping strategy”, “nursing students” and “clinical practice” in various combinations. Finally, 33 studies were identified, of which, 12 met the set criteria.

Results: Low to moderate level of stress was reported in all the studies and high/severe stress was comparatively low. All of the studies reported the significant stressors as Academic Stressors, Time balance Stressors, Interpersonal Stressors, Intrapersonal Stressors, Family Stressors, and Environmental Stressors. Majority studies reported the use of problem solving strategies, positive thinking/reappraisal of the problem/stressor and seeking relaxation strategies deal with stress. Other general coping strategies were of a mixture which included seeking alternative rewards, seeking social support, talking with friends or spiritual leaders or parents, living close to someone who cares, crying, ignoring the stress, day dreaming, referring to the past similar experiences/stressors to make solution, decision making, eating/dining and time management.

Conclusion: During nursing education, students face moderate to high levels of stress from multiple stressors (caring for patients, duties and workloads, unpleasant experiences with staff and faculty, loss of professional ability, and taking exams). Nurse educators may consider the use of formulation and implementation of empirically tested interventions to reduce stress while enhancing coping skills.

Keywords: Stress, coping strategy, nursing students, academic stress, clinical stress

Introduction

Stress is a prevalent aspect in daily life and is directly attributed to people in the nursing profession [1]. Lazarus & Folkman (1987) stated that stress is a “situation in which internal demands, external demands, or both, are appraised as taxing or exceeding the adaptive or coping resources of an individual or group”. Gorostidi *et al.* (2007) indicated that stress is caused by a variety of problems in nursing education, especially growing into the role of the nurse, meeting the role's demands, and coping with the uncertainties that the role creates. There can be several sources of tension. They include disease, pain, narcotics, traumatic or unexpected incidents, internal and external tensions, fear of the unknown, cultural and environmental problems, to name a few [2]. The main causes of academic tension are exams, grades, competitiveness, time requirements, teachers, class climate and anxiety about potential careers. The nursing learner can be impaired by all of these factors which can conflict with their success in all facets of the educational process. Nursing is a difficult profession that needs the capacity to deal with challenging circumstances such as death and emergencies [3] As well as commitment to the practice, it also needs sound academic knowledge and skills. In order to complete several tasks in a limited period of time, the work needs effective time management.

It also needs the ability to be on the feet when on service, to survive sleepless nights, to cope with crises, and to deal with stressful times by maintaining calm while presenting patients and their families with support and treatment. As these factors need to be acquired, during the student period, the training and education becomes very demanding and exhausting. Students are also subject to elevated levels of stress while in a nursing education program, compared to other students in other formalized programs [4]. Especially, the clinical training part of the nursing curriculum, which is aimed at preparing and developing the professional competence, decision making ability, critical thinking skills push the student to discomfort, anxiety and stress [5]. According to the current literature the two main stressors among nursing students are clinical and academic stressor and it is perceived intensely by the nursing students across the country [6]. The nursing students employ different coping mechanisms to deal with their stress. According to Lazarus & Folkman (1987) there are two ways of coping, ie, emotion based approach and problem based approach. Many studies have signified the importance of employing problems based approach in dealing with stress but many focus of emotion based approach as they seems to more easy and convenient. The same is observed among nursing students' too [4]. Though, mild level of stress can be motivating severe/chronic stress may affect the cognitive function and academic performance of the student. Improper stress management cause negative behavioral and emotional effects among students. It is evident from different studies that chronic stress can lead to psychosomatic problems. Studies have shown that nursing students are vulnerable to sleep disorders, eating disorders, and other psychosomatic illnesses [3]. Ability to handle stress is largely determined by the coping mechanisms used by the person. Improper coping skills could be barrier in achieving challenges of nursing profession.

In India, there are only a few researches carried out on student nurses on this concern. There is a paucity of literature on stress and coping strategies among student nurses nationally. This review aims to create a national figure in the stress and coping behavior of nursing students.

Aim

The aims of this review were: (a) to identify the level of stress, its sources, and (b) to explore coping methods used by student nurses during nursing education.

Methods

The narrative conceptual synthesis method was used to review quantitative studies reporting sources of stress in

nursing students and their coping mechanisms. A two-part analysis is presented. Stress levels and its sources were the main focus of the first analysis. Identifying nursing students coping mechanisms were the emphasis of the second analysis.

Search strategy

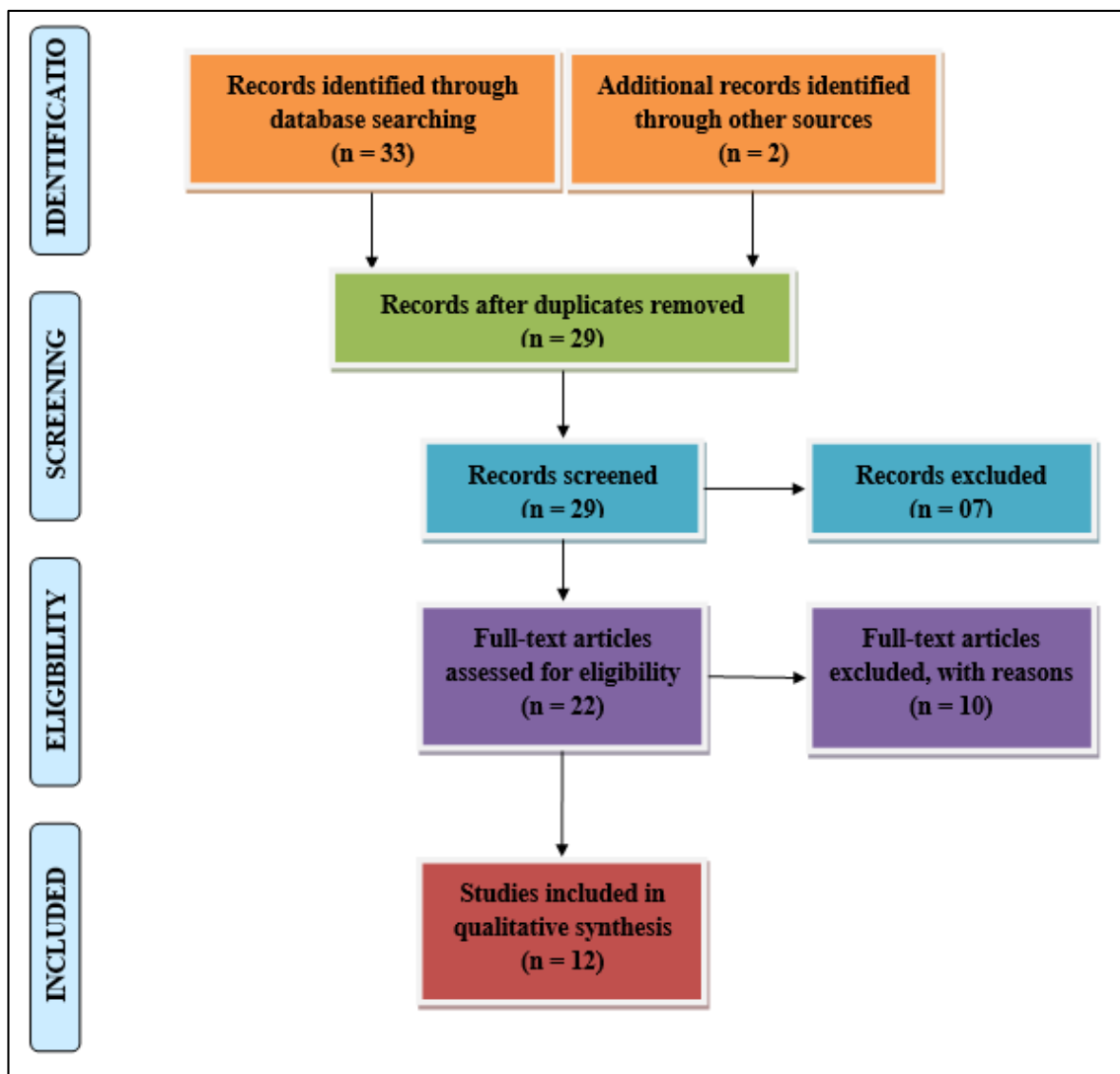
We searched the literature using different keywords and combinations of keywords (Boolean operators) in data bases such as PubMed, EMBASE, Cochrane, Science Direct, Google Scholar, and other sources such as Research Gate, other direct websites as they contained vast numbers of journals including nursing research journals. The search was limited to studies conducted in India. The search also was limited to studies conducted between 2010 and 2020 (10 years). The keywords include "stress", "coping strategy", "nursing students" and "clinical practice" in various combinations. In order to ensure the quality of the findings, a systematic method of appraising the article was utilized. The entire process was independently completed by two researchers.

Inclusion and exclusion criteria

This review of the literature included articles based on the following criteria: (1) studies published from 2010 to 2020, (2) studies including only nursing students, (3) studies that explored stress and its sources along with coping strategies, and (4) studies with quantitative design. Finally, 33 studies were identified, of which, 12 met the set criteria.

Data Extraction

Using the predefined protocol, two researchers searched, collected, extracted, and evaluated the information from each individual study included in the review as per the inclusion criteria. The disagreements that occurred during the extraction of the data were resolved with mutual discussion and consultation with experts. The information extracted from the individual studies included; the name of the author including the year of publication, geographic location where the study was conducted, title of the study, sample size, research design of the study, the type of instrument uses for data collection, type of stressors observed, level of stress, and type of coping strategies. The primary purpose of this systematic review was to identify the level of stress, its sources, and to explore coping methods used by student nurses during nursing education. As described in Figure-1 a total of 12 studies were included for the review and 21 studies were excluded at different stages of evaluation. The details of the data extracted from the selected studies are given in Table 1.



Source: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Fig 1: Flow diagram of included and excluded studies

Table 1: Studies on Stress and Coping Strategies among nursing students of India: Included in the Systematic Review

Author Details & Year of the study	Geographical Location	Title of the study	N	Research Design	Instrument/Tool	Type of Stressors	Level of Stress	Type of Coping Strategies
Mr. Baba Vajrala, Ms. S Jasmin Debora [7] 2018	Guntur, AP	Level of Stress and Coping Strategies among B. Sc. Nursing Students	160	Non experimental descriptive survey design	Perceived stress scale	Clinical practice, Assignments, Workload	Low Stress: 60.30% Moderate Stress: 37.46% High Stress: 2.24%	Not Given
Aniket Shukla, Gurvinder Kalra, Abhijit Pakhare [3] 2012	Mumbai, MH	Understanding stress and coping mechanisms in Indian student nurses	59	Cross-sectional study.	Student Nurse Stress Index (SNSI), Moo's Coping Response Inventory	Academic load Interface worries Clinical Source Personal problems	The mean perceived stress level according to SNSI is 59.3 (95% CI 56.5-62.2) which indicated significant stress. Minimum score:22 Maximum Score: 110	Problem solving, Positive reappraisal Seeking alternative rewards
Nirmala Singh, Charu Kohli [8]	Delhi	Stress Reaction and Coping Strategies	139	Cross-sectional study.	Self Structured and administered	Interaction with clinical faculty, Interaction with	Low Stress: 19.42% Moderate Stress:	seeking social support, seeking

2015		among Nursing Students in Delhi			questionnaire	health team members, Clinical rotation and assignments, Nursing procedures, Interaction with peer group/senior students, Patients' disease condition and Interaction with patients and relatives	76.97% High Stress: 3.59%	relaxation, escaping.
Viji Prasad C., Amrutha Suresh, Dina K. Thomas, Pritty M. K, Sumaida Beebi, Vijapura Multazim ^[9] 2019	Mangalore, India	The level of stress and coping mechanism adopted by I Year B.Sc. nursing students	60	Descriptive approach	Perceived stress scale and structured coping scale	Stress due to academic, clinical, and other psychosocial factors.	Mild stress: 51.60% Moderate stress: 46.70% Severe stress: 1.70%	Mixture of coping strategies.
Dr. Kalpana Kamble ^[10] 2019	Mumbai, India	Stress and coping strategies among first year nursing students in selected nursing colleges of Mumbai city	200	Non experimental descriptive survey research design	Perceived stress scale and structured coping scale	Academic factor such as assignments, class presentations, low grade anticipation and language problems. Intrapersonal factors such as life pattern, personal health and home sickness. Environmental factors such as hostel facilities.	Mild Stress: 26% Moderate Stress: 60% Severe Stress: 4%	Talking with friends, doing spiritual practice and meditation, playing, talking with parents. Smoking also was used sometimes.
Rajesh Kumar ^[11] 2015	Amritsar, India	Experienced Stressors and Coping Strategies among Nursing Students – A Correlation with State Anxiety	199	Descriptive survey	The State Trait Anxiety Inventory (STAI), Perceived Stress Scale -14 (PSS-14) Adolescent Coping Orientation for Problem Experiences (ACOPE)	Not given	Remain upset: 55.3% Unable to cope: 49.2%, Feels that things were going away from him: 48.2% Able to control time they had spent: 47.2% Feeling on top of the things: 46.7%, and unable to control things 40.2%.	Talking to priest listening music or radio living close to someone who care, trying to help other people , and day dreaming substance abuse was least commonly used coping strategies
Mamta Nebhinani, Ashok Kumar, Aashish Parihar, Raj Rani ^[12] 2019	Rajasthan	Stress and Coping Strategies among Undergraduate Nursing Students: A Descriptive Assessment from Western Rajasthan	221	Descriptive study	Standardized Student Nurse Stress Index and brief coping scale (Brief-COPE)	academic load, clinical concern, personal problem, and interface worries	Mild Stress: 12.6% Moderate Stress: 82.4% Severe Stress: 5%	Active coping, positive reframing, and planning
Aparajita Dasgupta, <i>et al.</i> ^[13] 2019	Kolkata, West Bengal	Perceived Stress and Coping Behavior among Future Nurses.	182	descriptive cross-sectional study	Perceived Stress Scale (PSS), and coping behavior inventory (CBI).	Stress from taking care of patients, Stress from teachers and nursing	Observed total mean (SD) PSS score among respondents was 63.7 ± 14.3 .*	Problem solving, avoidance, to employ past experience to solve problems,

						Personnel, Stress from assignments and Workload, Stress from peers and daily life, Stress from clinical nursing training environment, Stress from lack of professional knowledge and skills.	*Significant stress	relaxation via watching television and movies.
Jancy Rachel Daisy ^[14] 2012	Tamil Nadu	A study to assess the level of stress and coping behaviours and to evaluate the effectiveness of selected coping strategies among Student Nurses in selected institutions of Tamil Nadu.	126	Experimental	Self structured scale for assessment of stress and coping strategies.	Academic Stressors, Time balance Stressors, Interpersonal Stressors, Intrapersonal Stressors, Family Stressors, Environmental Stressors.	Severe Stress: 79%. Moderate Stress: 21%	Time management Relaxation Positive thinking Problem solving Decision making Ventilation
Mr. Kevin Christian <i>et al.</i> ^[15] 2015	Vadodara, Gujarat	Assess the Level of Stress and Coping Strategies of Student Nurses During Their Initial Clinical Practice, With a View to Develop Self-Instruction Module	100	Non experimental descriptive research	perceived stress scale [PSS] and coping strategies assessment	Academic stressors Time balance stressors Interpersonal stressors Intrapersonal stressors Family stressors Environmental stressors	Mild Stress: Nil Moderate Stress: 70% Severe Stress: 30%	Time management Relaxation Positive thinking problem solving Decision making Ventilation
Rajesh Kumar, Nancy ^[16] 2011	Punjab	Stress and Coping Strategies among Nursing Students	180	Descriptive	Perceived Stress Scale -14 (PSS-14) was used to assess stress level and ACOPE was used to identify the coping strategies.	Academic stressors Time balance stressors Interpersonal stressors Intrapersonal stressors Family stressors Environmental stressors	Low Stress: 32.8% Moderate Stress: 34.4% High Stress: 32.8%.	Complaining to their friends and crying. Additionally they listen to music, stereo or radio, engaged in day-dreaming or hobby or eat food to divert their mind relax.
Dipti Singh, Monika Chaturvedi ^[17] 2019	Inodre, MP	Assess the Level of Stress among B.Sc. Nursing 1st Year Students in Selected Nursing Colleges of Indore	30	Descriptive	Self structured scale for assessment of stress	Not Given	Mild Stress: 30% Moderate Stress: 63.33% Severe Stress: 6.67%	Not Given

Results Setting

Twelve studies were included in this review (Table 1). All the studies were conducted in different states of India. Two studies each were from Maharashtra and Punjab. Other studies were taken from Andra Pradesh, Delhi, Karnataka,

Rajasthan, Gujarat, West Bengal, Tamilnadu, Madya Pradesh, and Gujarat.

Design and sample size

All the studies included in the review were Descriptive, Cross Sectional studies with sample sizes that ranged from 30 to 221 nursing students.

Instrument

For assessing the level of stress and identify specific stressors, most of the studies utilized the Perceived Stress Scale (PSS-14) developed by Sheu *et al.* (1997). Other instruments used to measure stress and stressors included the Student Nurse Stress Index (SNSI, Jones and Johnston, 1999), The State Trait Anxiety Inventory (STAI, Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and self structured scale for the assessment of stress and stressors. The Student Nurse Stress Index included assessment of academic load/stress, clinical concerns, personal problems leading to stress and other problems faced by the student nurses. The State Trait Anxiety Inventory is a psychological inventory developed on the basis of a 4-point Likert scale. It comprises of 40 self reporting questions to measure the anxiety and stress of health care professionals.

Coping strategies were measured primarily using the self structured scale for the assessment of coping strategies employed by the student nurses. Few studies had also used Brief-COPE (Carver *et al.*, 1989), ACOPE (Adolescent Coping orientation for Problem Experiences) (Seyedfatemi *et al.*, 2007) and Coping Response Inventory (CRI: Moos, 2004) and Coping Behavior Inventory (Litman GK. *et al.* 1983). The Brief-COPE is a self-report questionnaire comprising of 28 items for the measurement of coping strategies used by the people both effective and ineffective. The ACOPE (Adolescent Coping orientation for Problem Experiences) is a self reported questionnaire of 54 items to identify the coping strategies used by the adolescents. Coping Response Inventory is 44 items self reported questionnaire to identify the coping strategies used by adolescents (12-18 years). Coping Behavior Inventory is a 36 items self administered questionnaire for assessing coping strategies.

Stress & Stressors

Of the 12 studies, all the studies reviewed, reported levels of stress in student nurses. Low to moderate level of stress was reported in all the studies and high/severe stress was comparatively low in all the studies except three studies which reported significant severe stress in students^[14, 15, 16]. The level of stress reported by different studies are highlighted in Table 1. Significantly high/severe levels of stress were reported in four studies^[9, 14, 15, 16] and low to moderate levels of stress was reported in all the studies listed in the review. All of the studies reported the significant stressors as Academic Stressors, Time balance Stressors, Interpersonal Stressors, Intrapersonal Stressors, Family Stressors, and Environmental Stressors. According to a study conducted in Guntur, Andhra Pradesh^[7] the lowest stress was reported for 60.30% students while 37.46% students reported to have moderate level of stress. According to Ankita Shulhla. *et al.*^[3] in 2012 the mean of perceived stress according to SNSI was 59.3%. The participants of this research expressed that the main stressors were academic load, interface worries, clinical training related worries and personal problems.

According to Nirmala Singh. *et al.*^[8] in 2015 the lowest stress was reported for 19.42% students while 76.97% students reported to have moderate level of stress. The stressors included interaction with clinical faculty and health care team members, clinical rotations and assignments, nursing procedures, interaction with peer or senior group

students and the condition of the patients and the interaction with patients' relatives. Viji Prasad. *et al.*^[9] found that the stress range from 51.60% (mild stress) to 46.70% (moderate stress) while 11.70% had severe stress. The stressors included academic, clinical and other psychosocial problems. Kalpana Kamble^[10] in 2019 found significant stress among nursing students of Mumbai where, 26% students perceived mild stress while 60% perceived moderate stress. The stressors identified were slightly different from that of other studies and included, fear of getting low grade, language problems, personal health, home sickness, hostel facilities and other environmental factors in addition to academic and clinical issues. Another study^[11] reported stress in terms of students remains upset, unable to cope, feels that things are going away from them and unable to control things in life. Mamta Nebhinani^[12] identified that mild stress was present among 12.6% students while majority (82.4%) of students perceived moderate level of stress. Only 5% students reported to have severe stress. Aparajita Dasgupta^[13] *et al.* reported the mean PSS score as 63.7 which indicates significant level of stress among nursing students. In addition to the stressors mentioned above the students also reported lack of professional knowledge and skills as one of their stressors. Jancy Rachel Daisy^[14] in 2012 reported severe stress among 79% students while moderate stress was reported for 21% students.

According to Kevin Christian^[15] *et al.* 70% students had moderate stress while 30% students reported severe stress. According to a study^[16] in Punjab low stress was reported for 32.8% students, moderate stress was reported for 34.4% students and high stress was reported for 32.8% students. According to Dipti Singh^[17] *et al.* 30% students had mild stress, 63.33% students had moderate stress while 6.67% students reported severe stress. Across all the 12 studies reviewed it is noted that the mild stress ranges from 12.6% to 60.3%, moderate stress ranges from 21% to 82.4% and severe stress ranges from 2.24% to 79%. The gross differences in the values may be due to difference in the scales of measurement.

Coping Strategies

The coping strategies used by the nursing students in order to deal with stressful life events were also reviews in this study. Majority studies (n=6) reported the use of problem solving strategies, positive thinking/reappraisal of the problem/stressor and seeking relaxation strategies deal with stress. Among these the latter one is emotion based approach and the others are problem based approach. It was also observed that the students with pre-exposure to similar stressors or have used similar coping strategies to deal with the stressors had adopted these techniques as the main coping strategies. Three studies also reported the use of transference approach to deal with stressors. The main transference techniques adopted were playing, performance of exercises, watching television, listening to music/radio, watching movies and so on. The authors strongly believe that these techniques must have been adopted by the students as they are easier and convenient to adopt. Further it was also observed in few studies the use of escaping and ventilation as the coping techniques. Other general coping strategies were of a mixture which included seeking alternative rewards, seeking social support, talking with friends or spiritual leaders or parents, living close to someone who cares, crying, ignoring the stress, day

dreaming, referring to the past similar experiences/stressors to make solution, decision making, eating/dining and time management. Though very few, the students also adopted the use of illicit drugs, alcoholism and smoking as coping strategy.

Discussion

This review explains the levels of stress, its origins, and examined coping mechanisms used during the nursing education phase by student nurses when dealing with stress. In the study, it is very clear that all the analyses were cross-sectional in nature. It is also worth noting that all studies except three studies^[10, 13, 14] utilized samples from one site/location only, and hence it limits the generalizability of findings. A more generalizable result could be there if the addition of other students from other locations has been focused. Future studies can also be done using representative samples from other locations. In addition, power analysis was not conducted to assess the sample size in many studies examined. Hence, the legitimacy of the findings is in doubt. This indicates that future research to ensure the validity of the research results should involve power measurement or sample size calculation. Considering the number of methods used to assess stress and coping in nursing students, comparing outcomes between research studied was a difficulty in the study. Most of the studies analyzed used instruments that differ in the amount of objects, material, and even form. In comparing and contrasting studies, this can obstruct researchers. Nevertheless, data from the findings examined indicated that during nursing training, the students encounter mild to moderate levels of stress. This finding is in keeping with the results obtained by Leodoro J. Labrague. *et al.* 2016. While stress in reduced levels can be helpful, stress can have profound consequences on the person above a receptive stage. All of the studies reported the significant stressors as Academic Stressors, Time balance Stressors, Interpersonal Stressors, Intrapersonal Stressors, Family Stressors, and Environmental Stressors. Further, most studies suggested that nursing students encountered multiple stressors such as caring for patients, assignments and workloads, negative interactions with staff and faculty, lack of clinical competence and professional knowledge, fear of getting low grades in examination, interaction with other peer/senior group members and many more. Special interventions such as clinical education program, time management skills, counseling, orientation programs and other support systems are required for the students to overcome this issue.

It is also apparent that the problem-solving approach was the most common strategy used by nursing students to deal with stress. This approach to coping is considered the most productive way to deal with stress, and requires habits that resolve the root source of the problem, such as: setting priorities to solve the problem, implementing new problem solving techniques, seeking meaning for challenging occasions, and using prior knowledge to solve the problem (Folkman & Lazarus, 1988). In comparison, few studies have identified student nurses using the emotion-focused process. This approach, perceived to be the least successful stress relief approach, does not address the source of stress, but only handles stress-related emotions.

Implications for nursing

This review was done to review and discuss stress and coping among nursing students during nursing education. Stress has deleterious consequences on the nursing

population during nursing school, as this can lead to a lack of nurses joining the nursing profession. Having said that, the nursing faculty is in a perfect position to help nursing students cope with their pressures and stressors. Findings from this analysis may provide advice in nursing education as it will provide nurse educators with useful knowledge in exploring and applying empirically tested stress avoidance, reduction and prevention approaches to promote maximum learning in both the theory and clinical environment. Furthermore, these results call for a greater challenge in planning plans for nurse educators to avoid recurrence of stress among nursing students while retaining them inspired to reach optimum awareness.

Conclusion

Mounting research indicates that stress has a negative impact not only on nursing students' physio-psycho-social fitness, but also on their well-being. This research is seen as a landmark in the field of nursing. For nurse educators, the study is useful as this is the first to objectively address stress and coping strategies among nursing students during the course of nursing education. It illustrates the need for further studies to relate particular coping mechanisms to stressors in nursing schools. Nursing programs will offer better instruction and care for nursing students once that connection is formed. In general, during nursing education, students face moderate to high levels of stress from multiple stressors (caring for patients, duties and workloads, unpleasant experiences with staff and faculty, loss of professional ability, and taking exams). The problem-solving technique was the most widely used method to deal with and cope with tension, an approach that was deemed the most suitable way to deal with stress. However, while this analysis presented recent observational evidence on stress and coping in nursing students, many methodological shortcomings, such as research architecture, scale or techniques used, sample size and methods of sampling, were found.

Conflict of Interest

The authors declare no conflict of interest.

Funding

None.

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