



## Levels of Stress and Coping Strategies Used by Nursing Students in Asian Countries: An Integrated Literature Review

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### ABSTRACT

**Introduction:** High-stress levels can directly or indirectly impede academic learning, performance, and health of the nursing students. There is ample literature reporting levels of stress and coping strategies used by the nursing students from within western world. However, this may not be applicable to Asian context. Therefore, there is a need to synthesize evidence regarding stress and coping of nursing students from Asia.

**Purpose:** The purpose of this paper was to critically review and appraise existing studies and identify data gaps regarding stress and coping strategies among nursing students in the Asian context.

**Methods:** Literature search was performed using keywords and different combinations of keywords such as “level of stress, stressors, coping strategies, nursing students, interns, undergraduate nurses” from PubMed, EMBASE, Cochrane, CINHALL, ASSIA, PsycInfo, Science Direct, and Google Scholar and other sources such as research gate, websites, reference lists, and Higher Education Commission of Pakistan’s Electronic Library. The search limit was focused on Asian countries and limited studies were found in this area. The review included nine studies published between 2007 and 2014 from India, Pakistan, Iran, Philippines, Hong Kong, and Jordan.

**Results:** The critical appraisal of the studies was done in terms of study population, purpose, methodology, and ethical considerations. The key findings of the studies were described under four themes; levels of stress, common stressors, coping strategies, and association among stress, coping, and the demographic variables. Most of the studies reported that the nursing students experience moderate stress levels. In terms of coping, students used more positive coping strategies than negative strategies.

**Conclusion:** This review underlined the strength and limitations of the studies identifying the levels of stress and coping strategies of nursing students in Asian context. A number of methodological limitations were found in these studies indicating that this topic has not been adequately investigated. Therefore, further research is needed to expand the literature in this area.

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**Keywords:** Levels of stress, coping strategies, nursing students, Asian countries, nursing education, nursing practice

#### 1. Introduction:

Stress is defined as a pattern of negative physiological states and psychological responses. It occurs in situations where individuals perceive threats to their well-being, which they may be unable to meet (Lazarus & Folkman, 1984). Stress affects individuals in different ways and is considered a cause of physical, emotional, and psychological ill health (Ortqvist & Wincent, 2008). Continuous stress may trigger both negative and positive responses. These responses depend upon the coping abilities of individuals (Schneiderman, Ironson, & Siegel, 2005).

Coping refers to the dynamic cognitive and behavioral efforts to handle both external and internal stressors (Lazarus & Folkman, 1984). It has been recognized as a stabilizing factor that may assist individuals in psychosocial adaptation during stressful events (Walton, 2002). The use of effective coping strategies enables the return to a stable state thereby reducing the negative effects of stress (Sheu, Lin, & Hwang, 2002).

Numerous studies identified levels of stress and coping strategies used by university students. It was reported that nursing students face more clinical

and academic stressors throughout their training period, as compared to students in other health-related disciplines, such as pharmacy, dentistry, physical therapy and medicine (Beck et al., 1997; Mohamed & Ahmed, 2012; Stecker, 2004). It has also been reported that the nursing students find the clinical component more stressful than the theoretical component of education (Eifried, 2003; Pulido - Martos, Augusto - Landa, & Lopez - Zafra, 2012; Sharif & Masoumi, 2005; Sheu et al., 2002).

High levels of stress not only compromise the delivery of patient care but also affect the health and clinical practice of nursing students. It could also result in inadequate coping mechanisms which could be an obstacle in dealing with the challenges of the nursing profession (Singh, 2011; Lewis & Shaw, 2007). Although stressors and stress cannot be avoided, the ability to cope with them plays a key role in achieving success as a nurse. On the other hand, failure to resolve stress in the long term could have potential professional and personal consequences (Nicholl & Timmins, 2005).

Determining stress and coping strategies among nursing students will have important implications for the nursing profession. It will help in creating supportive learning environments, improving student learning, and enhancing nursing practice and patient care (Del Prato et al., 2011; Pulido - Martos et al., 2012).

There is ample literature on this subject from within western countries. After a systematic review of 23 studies, Pulido - Martos et al., (2012) concluded that most of the studies on this subject have been done in Europe and England. However, there is limited literature in the Asian world. The studies conducted in western countries may not be applicable to Asia because of the context. Therefore, this paper will synthesize the evidence regarding stress and coping of nursing students from Asian countries.

## 2. Purpose:

The purpose of this paper was to critically review and appraise existing literature and identify data gaps regarding stress and coping strategies among nursing students in the Asian context. This integrated literature review will also suggest areas of future research.

## 3. Critical Appraisal:

High-stress levels can directly or indirectly impede students' academic learning, performance, and health (Kaur et al., 2009; Labrague, 2014). If the stress is not dealt with effectively, it may produce various detrimental effects on the emotional, physical, and social well-being of students (Nancy, 2011; Singh

et al., 2011). Understanding levels of stress and coping strategies of the nursing students in Asian countries is critical. This will help in recognizing their abilities to manage their overall health.

### 3.1. Data Sources and Searches

A comprehensive search of PubMed, EMBASE, Cochrane, CINHALL, ASSIA, PsycInfo, Science Direct, and Google Scholar databases using keywords and different combinations of keywords such as "level of stress, stressors, coping strategies, nursing students, interns, undergraduate nurses" was performed. Most of the studies determined the level of stress and coping strategies used by student and practicing nurses in western countries and were therefore excluded. The literature search was expanded to research gate, websites, reference lists of relevant articles, and Higher Education Commission of Pakistan's Electronic Library. The search limit was focused on Asian countries and limited studies were found in this area.

### 3.2. Article Selection

Initially, 25 articles were selected after reading the titles and abstracts. The inclusion criteria for final selection was: (i) the studies conducted in the Asian context (ii) the studies included nursing students or interns as samples, (iii) and the study included one or more data collection instruments. The final selection of these studies was done after critical reading of the complete article considering the identification of major themes and findings.

### 3.3. Overview of the Results

Nine studies conducted between 2007 and 2014 from India, Pakistan, Iran, Philippines, Hong Kong, and Jordan met the inclusion criteria. The summary of these studies is provided in Table I. The detailed findings and critique of these studies are reported in following subsections.

### 3.4. Study Purpose, target population and setting

Most of the studies determined the levels of stress and coping strategies among baccalaureate nursing students (Chan, So, & Fong, 2009; Kaur et al., 2009; Khater, Akhu-Zaheya, & Shaban, 2014; Nancy, 2011; Prasad et.al, 2013; Seyedfatemi, Tafreshi, & Hagani, 2007; Labrague, 2014; Sikander & Aziz, 2012) except one by Singh et al., (2011). The target population of this study was nursing interns of the Institute of Nursing Education in Chandigarh, India (Singh, S. Sharma, & R. Sharma, 2011).

Chan et al., (2009) and Labrague (2014) excluded the first year nursing students because of lack of clinical experience. Prasad et.al, (2013) only

conducted their study on first year nursing students at Yenepoya Nursing College, Mangalore, India.

Each of these studies clearly stated its purpose and setting. However, the inclusion and exclusion criteria for study samples was not explicitly stated. Seven studies identified both clinical and academic stress levels. Only Khater et al., (2014) and Chan et al., (2009) identified the clinical stress levels of nursing students in Jordan and Hong Kong respectively.

### 3.5. Conceptual/Theoretical framework

Kaur et al., (2009) based their study on Lazarus and Folkman's Stress, Appraisal, and Coping theory (1984). The rest of the studies did not use any conceptual/theoretical framework but clearly defined the study variables. Sikander & Aziz (2012) neither used any framework nor clearly defined the study variables.

### 3.6. Study methodology

This review showed that the majority of studies were descriptive in nature. Only Sikander and Aziz (2012) used an analytical cross-sectional design. The commonly used instruments were Perceived Stress Scale (PSS), Adolescent Coping Orientation for Problem Experiences Inventory (ACOPE), Physio-Psycho-Social Response Scale, Stress and Coping Inventory of Lazarus and Folkman (1984) and Coping Behavior Inventory developed by Sheu et al., (2002). Seven studies used PSS (Chan, So, & Fong, 2009; Prasad et al., 2013; Nancy, 2011; Seyedfatemi et al., 2007; Labrague, 2014; Khater et al., 2014; Singh et al., 2011). Three studies utilized Physio-Psycho-Social Response Scale (Chan, So, & Fong, 2009; Labrague, 2014; Singh et al., 2011). Two studies used ACOPE (Nancy, 2011; Seyedfatemi et al., 2007) and one study used Stress and Coping Inventory of Lazarus & Folkman (Sikander & Aziz, 2012) and Coping Behavior Inventory (Chan, So, & Fong, 2009). Kaur et al., (2014) and Singh et al., (2011) also developed new self-administered questionnaires for measuring stress and coping. These two studies, in addition to Sikander and Aziz (2012), did not ensure the validity and reliability of the instruments and no pilot testing was done before the use of instruments. Some of the studies used Cronbach's alpha method for ensuring the reliability and expert opinion for validity of the instruments (Prasad et al., 2013; Labrague, 2014).

### 3.7. Data analysis

All of these studies used both descriptive and inferential statistics for data analysis. The commonly used statistical tests were T-Test, ANOVA, and Friedman test. The rationale for using these tests was

explicitly stated. However, none of the studies applied the normality test which should have been done because of the small sample size. Furthermore, some of the studies also applied correlation and regression analysis to find out the association among stress, coping, and the demographic variables (Khater et al., 2014; Labrague, 2014; Prasad et al., 2013; Chan et al., 2009)

### 4.8. Ethical considerations

The majority of the studies obtained ethical approval from their respective institutional review boards. Informed consent was obtained from the participants and necessary steps were taken to ensure their confidentiality and anonymity. Kaur et al., (2009), Singh et al., (2011), and Nancy (2011) did not obtain ethical approval.

## 4. Key findings:

It was challenging to compare results among these studies because of a great number of stressors, coping strategies, and use of different tools. Therefore, the key findings are reported in terms of subsequent themes such as levels of stress, common stressors, coping strategies, and association among stress, coping, and demographic variables.

### 4.1. Level of Stress

Most of the studies revealed that the nursing students and interns experience moderate stress during their academic and clinical studies (Chan, So, & Fong, 2009; Sikander & Aziz, 2012; Singh et al., 2011; Kaur et al., 2009; Labrague, 2014; Nancy, 2011; Khater et al., 2014). These studies employed a small convenient sample from a single nursing institution, thereby limiting the generalization of these findings. These researchers did not use any structured method such as power analysis for sample size estimation. Khater et al., (2014) used a large sample of 597 nursing students and applied power analysis for sample size calculation. However, the use of convenient sampling and data collection from only two institutions limits the generalization.

In contrast, Prasad et al., (2013) reported a mild level of stress among students of Yenepoya Nursing College Mangalore, India but did not provide any explanation for this finding. Kaur et al., (2009) utilized the stress and coping theory of Lazarus and Folkman (1984), but they used self-administered and non-valid and non-reliable data collection tools. These factors limit the generalization of these findings.

All of the reviewed studies used a self-administered questionnaire which could have led to reporting bias. Also, respondents could have

answered in a socially desirable manner. This limitation was acknowledged in all of the studies.

Most of the studies reported that first year nursing students experience more stress than senior students because of exposure to new and unfamiliar environments (Kaur et al., 2009; Khater et al., 2014; Nancy, 2011; Prasad et.al, 2013; Seyedfatemi et al., 2007). In contrast, Sikander and Aziz (2012) conducted their study at Shifa College of Nursing Islamabad, Pakistan and found that second-year students experience higher stress than other years due to an increase in both theory and clinical workload.

#### 4.2. Common Stressors

The most commonly stated academic stressor was assignment workload (Kaur et al., 2009; Khater et al., 2014; Nancy, 2011; Seyedfatemi et al., 2007; Labrague, 2014; Sikander & Aziz, 2012) whereas the commonly reported clinical stressors were lack of knowledge, inadequate training, and long clinical hours (Chan et al., 2009; Kaur et al., 2009; Labrague, 2014; Seyedfatemi et al., 2007; Sikander & Aziz, 2012). Singh et al., (2011) and Labrague (2014) reported that stress affected the emotional and behavioral health of the Indian and Filipino students. However, Sikander and Aziz (2012) reported that the stress mainly influenced the social life of the Pakistani students.

#### 4.3. Coping Strategies

The majority of studies reported that students used more positive coping strategies than negative strategies. The most common positive coping strategies were problem-solving, transference, optimism, seeking family and professional support, and leisure activities (Chan et al., 2009; Khater et al., 2014; Seyedfatemi et al., 2007; Sikander & Aziz, 2012;). The most commonly reported negative coping strategies were crying and isolation (Kaur et al., 2009; Nancy, 2011).

#### 4.4. Association among Stress, Coping, and Demographic Variables

Four out of nine studies determined an association of stress and the demographic variables. Nancy (2011), Sikander and Aziz (2012), and Prasad et.al, (2013) found no association among the demographic variables and levels of stress. However, Labrague (2014) and Khater et al., (2014) reported that student's age is negatively associated with the stress level.

### 5. Discussion: Direction for Future Research:

This review illustrated that the dynamic nature of stress has not been adequately investigated in the current literature. The overall strength of these studies

is weak because of the discussed limitations and the cross-sectional design. Although most of the studies used structured data collection tools, these structured measures may limit the in-depth understanding of stress and coping of nursing students. Therefore, more studies are required in the Asian countries particularly Pakistan, to address this problem.

Stress levels of nursing students may change over time or across situations due to the transitional nature of nursing education. Similarly, coping strategies change from one stage of a complex stressful experience to another (Lazarus, 1993). Most of the studies determined level of stress and coping strategies among nursing students at single point in time. There is limited evidence how these levels can change over time and under different conditions. Future studies should measure this phenomenon using a mixed-method design or a longitudinal design. A longitudinal study can also validate the findings concerning levels of stress across different academic years. This is consistent with the findings from some of these studies that stress and coping strategies might vary at different points in time because of the transitional nature of nursing students' life (Khater et al., 2014; Seyedfatemi et al., 2007).

There was variability in the use, structure, and content of data collection instruments. The instruments had 14-66 items for determining the academic and clinical stress levels and coping strategies among nursing students. This shows heterogeneity in the ways of reporting the stressors. Future research should establish or refine standardized instruments for measurement of stress and coping.

These studies reported that most of the demographic variables, except age, are not associated with the students' levels of stress. Future correlational studies for exploring the relationship of the demographic variables and levels of stress could be conducted to validate/refute this finding. Sample sizes were varied in these studies. This inferred that the generalizability of these findings is limited because greater power cannot be achieved. If future cross sectional study is desired, then it should use a larger and random sample. The sampling should be done from various nursing institutions of a particular country. It should also be based on a conceptual/theoretical framework in order to guide more structured inquiry of the variables.

### 6. Limitations of the review:

The heterogeneity of the reviewed studies in terms of sample characteristics, data collection tools, and the operational definitions of the study variables may have led to difficulties when attempting to generalize the results. Inclusion of only nine studies

from few Asian countries and four studies from India only may impede a comprehensive understanding of the subject in Asian context.

### 7. Conclusion:

This review underlined the strength and limitations of the studies identifying the levels of stress and coping strategies of nursing students in Asian context. A number of methodological limitations were found in these studies indicating that this topic has not been adequately investigated. Therefore, further research is needed to expand the literature in this area. The findings of this paper also presents suggestions for future research to the nursing researchers and educators.

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## Appendix

Table I: *Summary of the Reviewed Studies*

Authors & location of research	Purpose	Sample size	Study design	Instrument	Strengths and Limitations
Sikander and Aziz (2012) Islamabad, Pakistan	Determine the stressors and coping strategies in nursing students studying at Shifa college of Nursing, Islamabad, Pakistan.	78	Analytical Cross-Sectional	Stress and coping inventory of Lazarus & Folkman (1984).	The study is considered one of the initial studies exploring stress among nursing students. Therefore, it serves as baseline for future studies. The sample size was small and convenient. The study variables were not explicitly defined. The psychometric properties of research instrument were not tested. There may be a conflict of interest as the researchers were the faculty members of the same institution.
Prasad, Suresh, Thomas, Pritty, Beebi, and Multazim (2013) Yenepoya Nursing College, Mangalore, India	The study aimed to determine the level of stress and coping mechanisms adopted by I Year B.Sc. nursing students.	60	Descriptive Cross-Sectional	Perceived stress scale, Structured coping scale, and Socio-demographic proforma.	The study was conducted by novice researchers (Fourth Year nursing students). The sample size was small and convenient. The Normality test was not applied before using parametric tests.
Nancy (2011) A private nursing institute of Punjab affiliated with Baba Farid University of Health sciences, Faridkot, India	To assess the stress level and coping strategies used by nursing students.	180	Descriptive Cross-Sectional	Perceived Stress Scale -14 and ACOPE.	The study was not approved from Ethical Review board. Permission was only taken from the college authority. The psychometric properties of research instrument were not tested and no pilot study was undertaken. The sample size was small and convenient. The study variables were not explicitly defined. The Normality test was not applied before using parametric tests.



Chan, So, and Fong, (2009) Hong Kong	To examine Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice.	205	Descriptive Cross-Sectional	Perceived Stress Scale, Physio Psycho–Social Response Scale, and Coping Behavior Inventory.	The sample size was small and convenient. The study variables were not explicitly defined. The Normality test was not applied before using parametric tests.
Singh, S. Sharma, and R. Sharma (2011) National Institute of Nursing Education in Chandigarh, India	To find out the level of stress and coping strategies used by nursing interns of National Institute of Nursing Education, PGIMER, Chandigarh.	44	Descriptive Cross-Sectional	Stress scale, Perceived Stress Scale, and Physio-psycho-social response scale	The study was not approved from Ethical Review board. The psychometric properties of research instrument were not tested and no pilot study was undertaken. Expert opinion was sought to ensure validity and reliability of data collection instruments. The sample size was small and convenient. The study variables were not explicitly defined. The Normality test was not applied before using parametric tests.
Seyedfatemi, Tafreshi, and Hagani (2007) Iran Faculty of Nursing & Midwifery	To identify sources of stress in nursing students and to determine how they cope with stressful events.	366	Descriptive Cross-Sectional	Student Stress Survey and ACOPE.	The sample size was small and convenient. The study variables were not explicitly defined. The Normality test was not applied before using parametric tests.
Labrague (2014) Philippines	The aim of the study was to identify the level of stress, common sources of stress, and physio- psycho-social responses to stress and to identify the determinants of stress among student nurses enrolled in a government nursing school.	61	Descriptive cross-sectional	Perceived Stress Scale and Physio Psycho–Social Response Scale.	The sample size was small and convenient. The Normality test was not applied before using parametric tests.
Khater, Akhu Zaheya, and Shaban (2014) Northern Jordan	The purpose of this study is to assess stress level and sources of stress among nursing students in Jordan, as well as identifying the coping strategies utilized by nursing students.	597	Descriptive cross-sectional	Perceived Stress Scale and Coping Behavior Inventory	Power analysis was used for sample size estimation. The study variables were not explicitly defined. The sample size was convenient. The Normality test was not applied before using parametric tests.



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Kaur, Das, Amrinder, Kanika, Meena, Gagandeep, and Arash, (2009). India	The purpose of the study was to identify the stressors and coping strategies of baccalaureate nursing students at one of the premier institutes of the country.	205	Descriptive cross-sectional	Newly developed self-administered questionnaire to assess stress and coping strategies	The study was based on Stress and Coping Theory of Lazarus and Folkman (1984). The study was not approved from Ethical Review board. The psychometric properties of research instrument were not tested and no pilot study was undertaken. The questionnaires used were not valid and reliable. The sample size was small and convenient. The study variables were not explicitly defined. The Normality test was not applied before using parametric tests.
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