



Jordan Journal of Nursing Research

Journal homepage: <https://jjnr.just.edu.jo/jjnr/>



Association between Stress in Clinical Training and Resilience among Nursing Students

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ARTICLE INFO

Article History:

Received: March 12, 2023

Accepted: April 29, 2023

ABSTRACT

Background: Previous literature illustrated that nursing students encounter different types of stress during their academic program. However, clinical education stress is the most important one. Few studies have addressed the association between clinical stress and resilience strategies. **Purpose:** The purpose of this literature review is to analyze previous research on stress degrees and types of clinical stressors that might be encountered by nursing students. **Methods:** The authors used the following databases: CINAHL, MEDLINE, PsycINFO and Google scholar. The forthcoming keywords were utilized: stress, nursing students and clinical practice. **Results:** It has been indicated that nursing students encountered the following clinical stressors: phobia of interactions with other healthcare providers and fear of committing mistakes. Nursing students utilize resilience for handling stressors successfully. **Conclusion:** The impact of using resilience on clinical education stress has received little attention in previous literature. This review highlights the relationship between clinical education stress and resilience. **Implications for Nursing:** The findings of this study give directions for practitioners, teachers and researchers in the nursing clinical education field so as to develop effective teaching programs.

Keywords: Clinical education, Jordan, Perceived stress, Resilience, Undergraduate nursing students.

What does this paper add?

1. Nursing students faced several stressors during their education.
2. Clinical stress is the most prevalent type of stress among nursing students.
3. Nursing students utilize resilience for encountering different stressors successfully.
4. Few studies have examined the impact of resilience on the clinical education stress.
5. Students' resilience is negatively associated with clinical stress.

Introduction

Stressful Nature of Nursing Profession

The main expectation or focus of any professional health education is to develop the sense of professionalism among college students (van Merriënboer & Sweller, 2010). In the nursing field, this requires making appraisal about the students' behaviors and a set of values, in addition to determining the learning motivation of those students (Gaberson & Oermann, 2010). Besides, assessing the public trust and opinion about the nursing education and profession is of importance (Donelan et al., 2008). Such kind of public image should be maintained and promoted throughout

the nurses' working life. Nurses should be prepared to handle high levels of responsibility and demand, tolerate hard work, be flexible and highly reactive to the changing dynamics of the healthcare system (including, but not limited to, organizational requirements, staff needs and patient-care demands), in addition to the escalating public hopes for better nursing care, while taking into consideration the regulatory agencies' (such as the nursing councils the Ministry of Health) standards for accredited nursing practice. Usually, these standards emphasize important issues, like patient safety, mutual support and supervision by administrators. However, most of the time, nurses who are working in different clinical positions and fields are at risk of having a high level of stress because of emotional demands of their jobs, possible adverse events, workload and the absence of supportive relationships from their organizations. Nursing students also suffer from high levels of clinical stress throughout their clinical training (Alzayyat & Al-Gamal, 2014). Therefore, investigating clinical stressors among nursing students is a highly imperative issue. This study is conducted to analyze previous research on stress degrees and types of stressors that could be encountered by nursing students during their clinical program.

Controlling of Clinical Stressors

There are several factors that could contribute to staff coping ability to such kind of clinical stressors. Examples of these factors might incorporate the nurses' capability of reacting appropriately to the challenging demands of clinical training or work, the nature of clinical practice, the nurses' previous preparation in terms of professional knowledge and clinical skills, as well as other factors that are associated with nurses' personality, such as resilience, self-esteem and the value system or the core of personality (McGowan & Murray, 2016).

Previous literature indicated that healthcare providers generally and nurses particularly should have good ability to take care of themselves and to be able to control clinical stressors, so that they can adhere to the standards of practice during their practice and provide optimal nursing services for the assigned patients in their clinical departments or units (Hall et al., 2016). Nevertheless, former studies on clinical stress in the nursing profession illustrated that nurses who are having high degrees of perceived clinical stressors could

develop what is called the burnout syndrome, eventually quit their profession as clinical nurses and leave the healthcare organizations (Christou & Farmakas, 2018). Moreover, previous research showed that healthcare organizations make huge investments in favor of the nursing force or human labor and considered them among the top organizational resources, including both the economy aspect of their presence as well as their own functioning and contribution to health organizations (Kingma, 2018).

The authors of this study recognized that former literature on the healthcare field paid little attention to explore the concept of resilience in nursing practice. Therefore, this study has been conducted to highlight the relationship between stress perception by students and their resilience ability. In this research paper, the authors intend to highlight the impact of resilience (using previous research on psychology and nursing), especially the long-term ability of the nursing student to thrive on adversity and survive in clinical settings. Moreover, the authors are trying to present and explore the possible value of resilience in the clinical education of undergraduate nursing students (Smith & Yang, 2017). Accordingly, the objective of the subsequent sections in the instruction part of this research project is to delineate the concept of resilience through summarizing significant results from previous relevant literature, as well as to concentrate on any obvious applicability to the clinical education of undergraduate nursing students (Yates et al., 2015).

What Does Resilience Mean?

Previous scholars indicated that the concept of resilience had been introduced in previous psychological research through several ways. These ways could be summarized as follows. One study reported that resilience might refer to a qualitative category, a process, a system, a continuum, as well as a trajectory that could have either a psychological or a physiological meaning or presentation (Maxwell et al., 2015). Another study showed that resilience might refer to the flexible adaptability of a person, especially in the times of encountering difficulties or challenges that can exist in either social groups or in the individual life (Carmichael, 2015). In addition to that, resilience can be defined as "a set of attributes demonstrated by an individual over a period of time as the ability to succeed, to live and to develop in a positive way ... despite stress

or adversity that would normally involve the real possibility of a negative outcome” (Howe et al., 2012). This is considered one of the most reflective and dynamic definitions for resiliences, as it categorizes resilience away from other associated psychological traits, including ‘mental toughness’, as well as ‘hardiness’ (Lin et al., 2017).

Problem Statement

Several psychosocial researchers conducted studies on stress using different target populations (Alzayyat & Al-Gamal, 2014). Stress can be defined from the English linguistic perspective as “an uncountable or countable pressure or worry caused by problems in someone’s life” (Oxford Learners Dictionaries, 2019). Conversely, using Lazarus and Folkman (1984) transactional model of stress, stress can be described as “a relationship involving an individual and the environment which is evaluated by the individual as demanding or beyond his or her available resources”. Recently, academic stress is regarded as the most significant stressor among several types of stressors faced by adolescents and young adults (Ismaile, 2017). Stress is typically significant in education and educational settings, since it can hinder human learning and functioning (Alzayyat & Al-Gamal, 2016). Furthermore, the inability to resolve long-standing student stress can lead to serious professional and personal outcomes (Labrague et al., 2018). In their review study, Alzayyat and Al-Gamal (2014) reported that nursing students face stress from three essential sources as follows. First, academic sources comprise examinations, assignment workload and fear of failure. Second, clinical sources comprise clinical settings, initial clinical experience, fear of conducting mistakes, death of patients and relations with other health team members, mainly negative attitudes from superiors. Third, personal/social sources comprise finances and issues concerning the home–college interface, for instance lack of free time. However, clinical sources of stress are considered the most stressful type for nursing students (Ismaile, 2017).

Bachelor of Science in Nursing in Jordan

After the high school, students who are interested in studying nursing sciences in Jordanian nursing schools/colleges and have a professional position in clinical settings should enroll in the 4-year Bachelor of Science Nursing program. Typically, this program

consists of 3 and a half academic years, in addition to one internship (or intensive clinical training) semester in clinical settings/hospitals. The first semester of the first year in the program incorporates basic sciences, such as biology classes, chemistry classes, computer science classes and language courses. On the other hand, students frequently enroll in basic medical courses in the second half of the first year of the program (like anatomy, physiology, pathophysiology and microbiology). The last two years of the program are the most important ones, as students will be prepared to deal with different patient populations. The third year of the program includes the most important courses in the nursing profession. These courses include medical/surgical nursing, maternity nursing, pediatric nursing, community health nursing and nursing administration. It is important to mention that each student will have both theoretical and clinical parts of the course. In this way, what the students receive in the class will be applied in the clinical setting. Each academic year in the program consists of two semesters each of which lasts for 17 weeks of study. There is a little variation concerning the number of days that students spend in the clinical placement for each target group of patient population. However, most of the clinical courses share the same vision and goal of training. Generally, the objective of clinical training incorporates applying the principles of the nursing process, attending medical rounds, attending nursing handovers, patient assessment and physical examination, performing several nursing procedures concerning direct and indirect patients’ care and lastly, reporting and documentation. The clinical instructors use a variety of strategies to evaluate the students’ performance during these clinical rotations. This evaluation might include a nursing care plan, assignments, presentations, pop quizzes and examinations. Based on previous literature, the Jordanian nursing students suffer from a number of clinical stressors that could harm their psychological well-being and deter their ability to provide optimal nursing care for their patients. Shedding light on resilience and clinical education stress among those students will add benefit to the literature, as it will contribute to more understating of clinical education stress among nursing students.

Significance

It has been reported that the psychological conditions of the nursing students can affect their performance, the quality of the nursing care provided

when they attend clinical settings, daily activities, academic achievements, as well as the stability of the clinical team (Luo & Wang, 2009). Therefore, in accordance to the recent research agenda, nursing students' psychological condition becomes a hot area of research (Luo & Wang, 2009). Several previous studies illustrated that there is a significant correlation between stress and psychological condition (Huang & Li, 2005; Luo & Wang, 2009).

Taking into consideration that a number of former studies signify that stress is strongly related to psychological condition (Alzayyat & Al-Gamal, 2014; Luo & Wang, 2009), it is a highly important matter for healthcare providers, especially psychologists and psychiatric nurses, to enhance their awareness of stress experiences among nursing students during their clinical training (Tully, 2004). Additionally, researchers should verify whether the nursing students are effectively equipped with positive resilience strategies so that they can handle clinical stressors properly (Dhar et al., 2009). Planning effective educational and training programs for nursing students will depend mainly on the knowledge acquired on the previous issue (van Rhyn & Gontsana, 2004). Therefore, nursing students will become more competent to use therapeutic tools especially in clinical settings, so that ultimately the patients' outcomes will be improved (Karimollahi, 2012).

Theoretical Framework

The authors of this study will utilize the transactional model of stress (Lazarus & Folkman, 1984) to guide the research process. This model is illustrated in (Figure 1), focusing on the disequilibrium between the perceived coping resources that could utilize environmental demands or stressors. Stress can be described as those demands (either internal or external) that go outside the individual's coping resources. The two basic strategies through which the individual can handle the disequilibrium status can be listed as coping and cognitive appraisals. Cognitive appraisal is usually used for the purpose of evaluating the environmental situation. The model specifies three types of cognitive appraisals: primary, secondary and re-appraisals. Primary appraisal refers to the evaluation part of the stimuli as irrelevant, benign-positive or stressful.

Secondary appraisal is defined as "decision regarding what might and can be accomplished". On the other hand, re-appraisal illustrates "the modified appraisal based on new data from the environment and/or data from the individual's own reactions".

Concerning nursing students (i.e., the sample of this study), during their education, those students usually encounter a wide range of unexpected as well as occasionally difficult situations while they commence their program, particularly regarding clinical aspects that present the stimulus for stress. Usually, those students have a group of coping strategies in addition to individuality traits that provide reactions to stressful circumstances in their educational program. Therefore, the transactional model is suitable for investigating the interaction between the nursing students' stressful situations and their coping efforts.

Aims

The purpose of this literature review is to analyze previous research on stress degrees and types of stressors that could be encountered by nursing students during their clinical program. Moreover, this review aims to highlight the relationship between students' stress perception and their resilience ability.

Methods

Review Process

A good literature review doesn't just summarize sources. It analyzes, synthesizes and critically evaluates those sources to give a clear picture of the state of knowledge on the research subject. In order to conduct a comprehensive and informative literature review, the researchers follow the following five key steps in this review paper:

1. Searching for relevant literature. Refer to the next two sections for more details.
2. Evaluating sources. The researchers appraise credibility to identify sources using established scientific appraisal tools.
3. Identifying themes, debates and gaps.
4. Outlining the structure.
5. Writing the results of the literature review. Refer to the results' section of this paper.

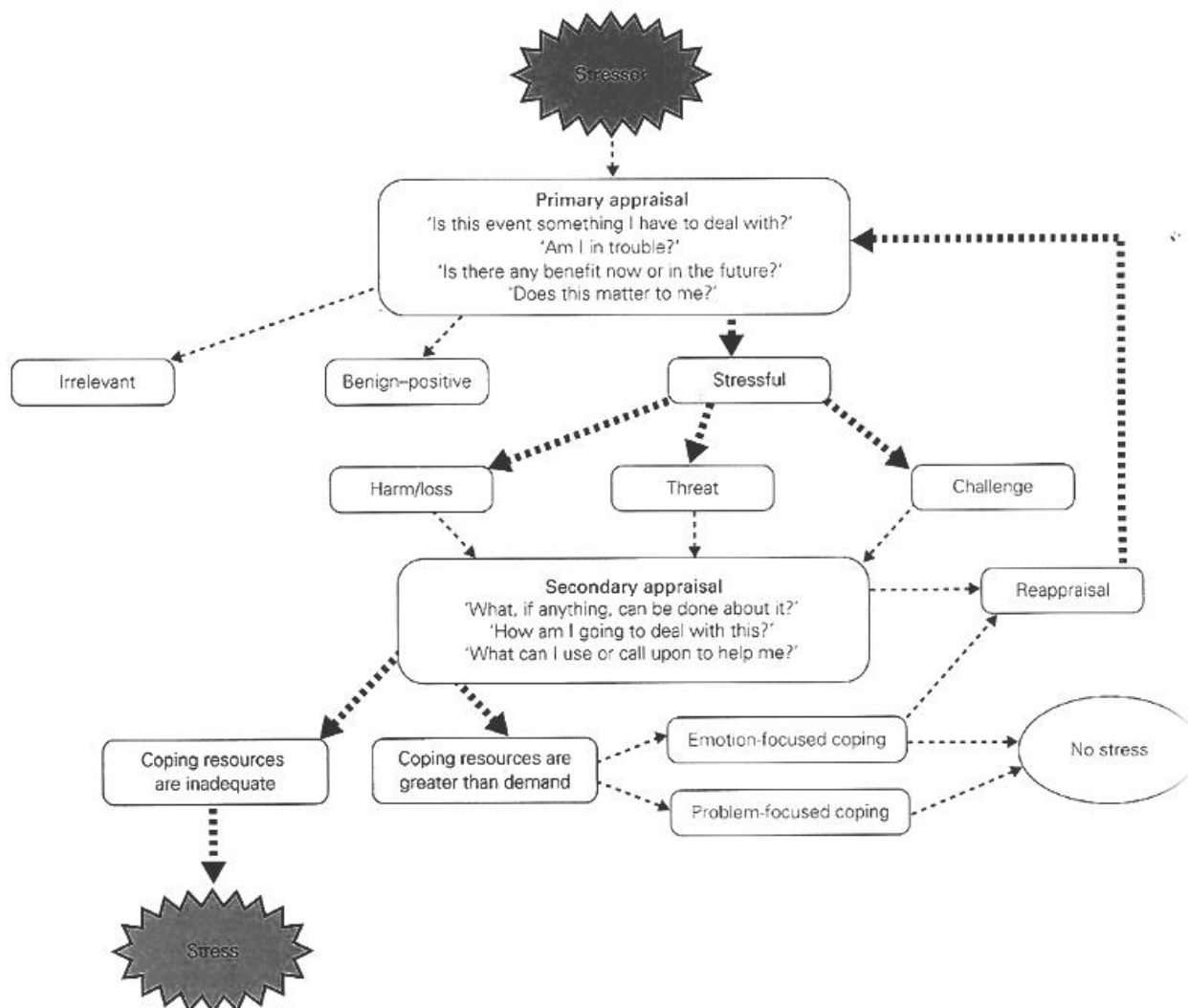


Figure 1. Lazarus and Folkman's model of psychological stress adapted by Regel (2011)

Search Strategy

Scholars in nursing sciences reported that researchers should include all the related studies to the intended research problem to increase the rigour of the systematic review (Hamer & Collinson, 2005). The authors used the following databases: CINAHL (Cumulative Index to Nursing and Allied Health Literature), MEDLINE (Medical Literature on-Line), PsycINFO (Psychology Information) and Google scholar scientific databases. The forthcoming keywords were utilized: stress (comparable terms like occupational stress, eustress and distress), undergraduate nursing students (equivalent terms like education as well as baccalaureate nursing students were involved too), in addition to clinical practice (incorporating the synonyms clinical education, clinical experience and clinical training) in diverse

arrangements.

Eligibility Criteria of This Review

The following eligibility criteria have been utilized for this literature review. For the purpose of selection of recent studies, the study should be published between 2009 and 2019; the study being published in English and no matter the country where it was conducted. The study should concentrate on clinical education experience of nursing students, address stress among nursing students and investigate the correlation between stress and resilience of nursing students. On the other hand, studies that contain information on stress among nurses were excluded, given that they are outside the scope of this review. Moreover, the authors considered all other resources in terms of those journals which are not electronically available, university library catalogues

and unpublished theses and dissertations to ensure comprehensiveness of all related arguments and themes

in the literature. Figure 2 illustrates the methodology utilized in this literature review.

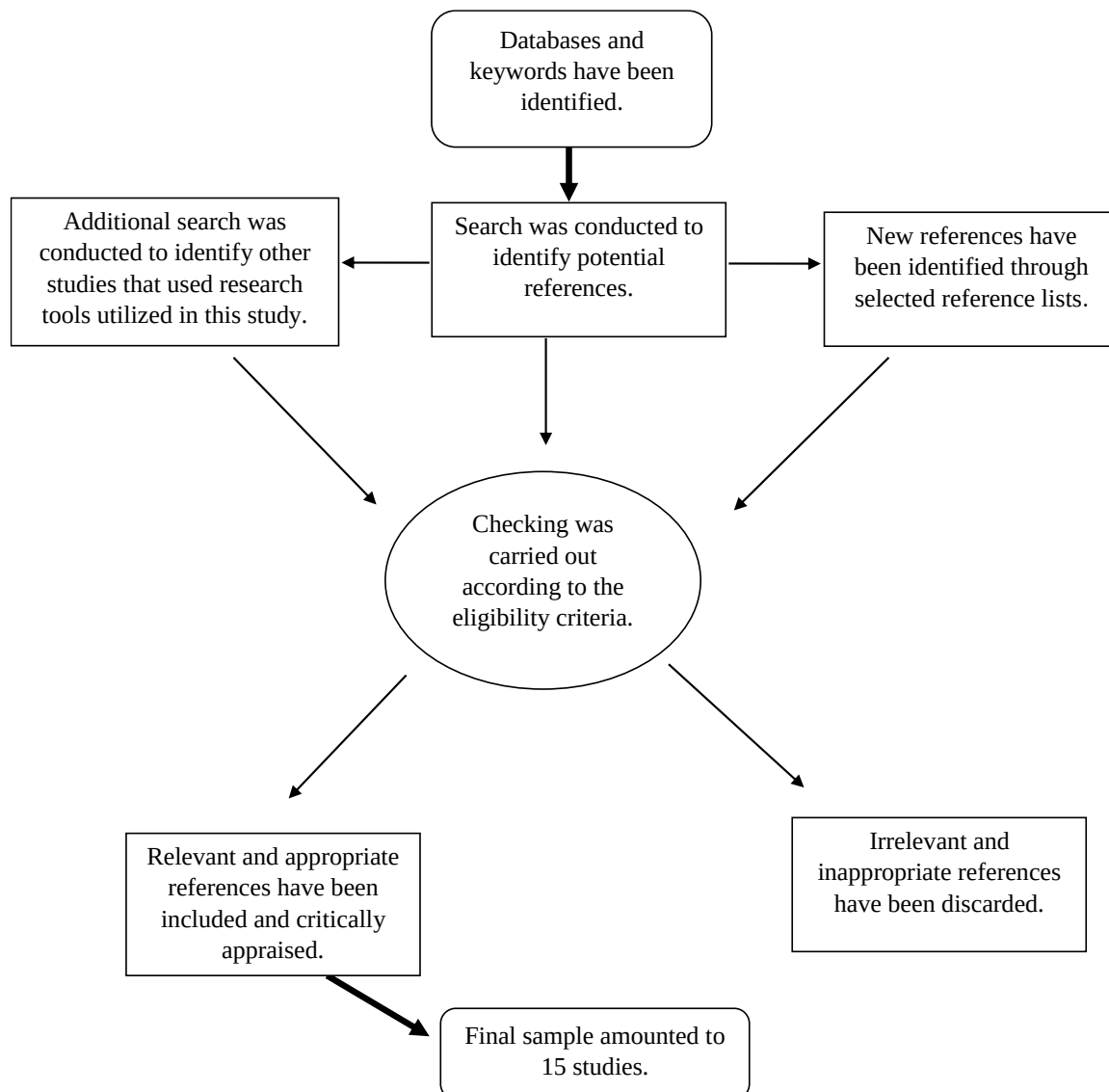


Figure 2. Search strategy

Results

Overview

The authors faced several barriers when trying to compare the results of the identified studies. These barriers can be mentioned as follows: variation in the recruited samples, differences in the utilized tools as well as differences in the operational definitions of stress and resilience among nursing students. Furthermore, the authors noticed that there are variations in clinical education programs or courses for nursing students internationally.

Several scholars have indicated that stress is the most dominant mental-health issue in the 20th century (Evans

& Kelly, 2004). There are three ways through which we can define stress; as response-based (resulting from the person's reaction to stimuli), stimulus-based (occurring as part of incident consequences) or as interactive (occurring because of the interaction between responses and stimuli) (Alzayyat & Al-Gamal, 2014). It has been reported in psychological literature that there are harmful as well as beneficial effects of stress on humans (Akhu-Zaheya et al., 2015; Varghese et al., 2015). The positive (or beneficial) aspect is called 'eustress' (Selye, 1976). This aspect motivates us toward having achievements (Akhu-Zaheya et al., 2015). On the other hand, the negative (or harmful) aspect is called 'distress'

and causes three major effects: behavioural manifestations, including drinking, smoking and weight loss; psychological manifestations, for example anxiety, low self-respect and anger and physical manifestations, for example infections and headache (Arnold & Boggs, 2006).

Clinical Stress among Nursing Students during Their Training

Several researchers have investigated stress among college students for several years across different countries (Al-Zayyat & Al-Gamal, 2014; Hamdan-Mansour et al., 2009; Pillay & Ngcobo, 2010). To illustrate, those researchers have reported that numerous stressors could be encountered by university students from different sources that could incorporate financial pressure (Pillay & Ngcobo, 2010), being away from home (Seyedfatemi et al., 2007), as well as academic demands (Elias et al., 2011). Typically, students respond (or react) to those stressors through utilizing a variety of coping strategies (Hamaideh, 2011). The issue of stress among nursing students has been intensively examined in professional literature (Nicholl & Timmins, 2005). The sources of stress (or stressors) for undergraduate nursing students are different. They can be listed as follows: social and personal sources, such as lack of leisure time as well as financial concerns; clinical sources incorporating phobia of interactions with other healthcare providers and fear of committing mistakes; in addition to academic stress that may include workload, fear of failure and examinations (Prymachuk & Richards, 2007).

Al-Zayyat and Al-Gamal (2014) conducted a literature review to summarize previous international research work in the field of clinical education stress. The review included about 13 studies published in English language during the period from 2002 to 2013. The review results showed that undergraduate nursing students encountered the following themes of clinical stress internationally: initial clinical experience, comparison between different academic years, cross-cultural comparison and eustress aspects of clinical experience.

Another similar study was conducted by Pulido-Martos et al. (2012). The authors used a systematic review of scientific literature. The research included articles as recent as the last week of 2010. The main findings of the study indicated that clinical sources of

stress include fear of unknown situations, mistakes with patients and handling technical equipment. In order to identify the differences in novice and experienced nursing students' reports of stress, Jimenez et al. (2010) conducted a descriptive cross-sectional study. The data was collected over an 8-month period in 2004–2005. The sample consisted of 357 students from all 3 years of a nursing diploma programme at a Spanish nursing college. The results indicated that nursing students from all 3 years perceived moderate stress at similar levels. Experienced students perceived more academic stressors than novices. Moreover, students perceived clinical stressors more intensely than academic and external stressors.

Resilience among Nursing Students

The reader should know the fact that resilience is considered one of the widely spread topics in a wide range of disciplines within the literature (Luthar, 2015). Furthermore, several definitions are available for resilience (Schwarz, 2018). However, there are still a considerable ambiguity and a confusion surrounding this concept in literature (Rutter, 2015). Similar to other psychological concepts and constructs, the concept of resilience evolved over time and is currently associated with the pre-determined population and context (Schwarz, 2018). Nursing literature showed that nursing students utilize the concept of resilience for encountering different challenges and stressors successfully and progressing to the next stage (Thomas & Revell, 2016). Resilience phenomenon will be elaborated in relation to its antecedents, attributes and consequences (Rutter, 2015). The authors will discuss both the conceptual model and the operational definition. It has been recognized that the concept of resilience is of great importance for the nursing field, mainly for the educational part of the nursing profession. Moreover, this concept was investigated and reported by several researchers and published in numerous articles and periodicals (Thomas & Revell, 2016). The existence of great variations in the description of resilience creates barriers in front of those researchers who are interested in the development and advocating of such concept (Luthar, 2015). Accordingly, the clarification of resilience is a highly recommended issue so that nursing students will be able to identify approaches and design interventions for meeting the requirements of their academic programs.

Using a qualitative approach, Lopez et al. (2018) conducted a study to investigate whether building resilience in undergraduate nursing students happens through clinical placements. The findings showed that

gradually, students build resilience over time and are able to adapt to the ward culture through peer support and reframing coping strategies.

Table 1. Studies concerning clinical stress and resilience among nursing students

	Authors	Year	Title	Methods	Variables	Results
1	Alzayyat and Al-Gamal	2014	A review of literature regarding stress among nursing students during their clinical education	Literature review study	Degrees of stress and types of stressors among nursing students during their clinical education	Four themes were identified: initial clinical experience, comparison between different academic years, cross-cultural comparison and eustress aspects of clinical experience
2	Labrague, McEnroe-Petitte, Gloe, Thomas, Papathanasiou and Tsaras	2017	A literature review on stress and coping strategies in nursing students	A systematic review of studies conducted from 2000 to 2015	To identify the level of stress and its sources	Stress levels in nursing students ranged from moderate to high. Main stressors identified included stress through caring of patients, assignments and workload and negative interactions with staff and faculty
3	Pulido-Martos, Augusto-Landa and Lopez-Zafra	2012	Sources of stress in nursing students: A systematic review of quantitative studies	Systematic review of scientific literature	The main sources of stress for students of nursing and the evolution of stressors	Clinical sources of stress included fear of unknown situations, mistakes with patients and handling of technical equipment
4	Jamshidi, Molazem, Sharif, Torabizadeh and Najafi Kalyani	2016	The challenges of nursing students in the clinical learning environment: A qualitative study	Qualitative study using the content-analysis approach	Nursing students' challenges in the clinical learning environment	Three themes emerged after data analysis, including ineffective communications, inadequate readiness and emotional reactions
5	Liu, Gu, Wong, Luo and Chan	2015	Perceived stress among Macao nursing students in the clinical learning environment	A cross-sectional descriptive study	Perceived stress	Macao nursing students to some extent experienced stress in the clinical learning environment. The most common stressors were related to clinical and educational dimensions
6	Zhao, Lei, He, Gu and Li	2015	The study of perceived stress, coping strategy and self-efficacy of Chinese undergraduate nursing students in clinical practice	A quantitative, descriptive research design	Perceived stress, coping strategy and self-efficacy	During clinical practice, assignments and workload were the most common stress sources to students
7	Chan, So and Fong	2009	Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice	A retrospective study	Stress and coping strategies in Chinese clinical practice	Students perceived a moderate level of stress. The most common stressor was lack of professional knowledge and skills

8	Shaban, Khater and Akhu-Zaheya	2012	Undergraduate nursing students' stress sources and coping behaviours during their initial period of clinical training: A Jordanian perspective	A descriptive cross-sectional study	The level and types of stress perceived by baccalaureate nursing students	The findings show that the sources of stress for these students came mainly from assignment work and the clinical environment
9	Jimenez, Navia-Osorio and Diaz	2010	Stress and health in novice and experienced nursing students	A descriptive quantitative and cross-sectional design	The measured variables included stress and health	Nursing students from all 3 years perceived moderate stress at similar levels. Students perceived clinical stressors more intensely than academic and external stressors.
10	Hashem1, Al-Nagar, Eita and Alam	2019	Effect of nursing intervention on clinical training stress and self-control among faculty of nursing students	A quasi-experimental research design with two groups (experimental and control groups)	Clinical training stress and self-control	Nursing intervention had a great effect in reducing the levels of clinical training stress among faculty of nursing students
11	Smith and Yang	2017	Stress, resilience and psychological well-being in Chinese undergraduate nursing students	A descriptive, cross-sectional study	Stress and resilience impacts on psychological well-being	Nursing students in their final year reported the highest scores of stresses. Furthermore, moderate levels of resilience were noted across all four years of nursing training programmes. Resilience scores were negatively correlated with the total score of stress
12	Ozsaban, Turan and Hatice	2019	Resilience in nursing students: The effects of academic stress and social support	A descriptive and correlational research design	Psychological resilience, academic stress and social support	Levels of psychological resilience and academic stress among nursing students are moderate. No statistically significant correlation was found between the nursing students' resilience and stress scores
13	Lopez, Yobas, Chow and Shorey	2018	Does building resilience in undergraduate nursing students happen through clinical placements? A qualitative study	A qualitative design utilizing focus group interviews	Perceived stress and resilience	Students reported that they were stressed while facing challenges head-on during their first clinical placements, mainly due to a lack of peer and clinical support. Gradually, students built resilience over time and were able to adapt to the ward culture through peer support and reframing coping strategies

14	Reyes andrusyszyn, Iwasiw, Forchuk and Babenko-Mould	2015	Resilience in nursing education: an integrative review	An integrative literature review study	Resilience	Three themes emerged from the analysis: (a) resilience is important in nursing education, (b) resilience is conceptualized as either a trait or a process and (c) resilience is related to protective factors
15	Shin and Park	2013	Emotional intelligence, ego resilience and stress in the clinical practice of nursing students	A descriptive, cross-sectional design	Emotional intelligence, resilience and stress	These findings indicate that there is a need to improve emotional intelligence and ego resilience to lessen stress in the clinical practice of nursing students.

The Relationship between Clinical Stress and Resilience

Clinical education stress is clearly addressed in literature (Alzayyat & Al-Gamal, 2014). However, few studies have examined the impact of resilience on clinical education stress (or at least the relationship between these two variables). Moreover, most of these studies addressed the general source of stress (i.e., not the clinical type of stress). Smith and Yang (2017) conducted a cross-sectional descriptive study to explore the relationship between stress and resilience and psychological well-being of 1538 Chinese nursing students. The results indicated that the students' resilience scores were negatively associated with both the stress total score ($r = -0.236$, $P < 0.01$) as well as the psychological well-being scores ($r = -0.411$, $P < 0.01$). These results signify the importance of coping strategies, especially resilience during clinical training, to maintain good psychological well-being. Similarly, Ozsaban et al. (2019) conducted a descriptive study using correlational design to identify the levels of social support, academic stress and psychological resilience available for undergraduate nursing students and determine the correlation between these variables. The sample consisted of 322 Turkish nursing students who were studying at Florence Nightingale Nursing Faculty/Istanbul University in the 2015/2016 academic year. The findings showed that Turkish students experienced moderate levels of stress and psychological resilience. Therefore, increasing the level of resilience is recommended for those students. Nursing school administrators, researchers and educators can utilize the findings of this study to build up stress-reduction programs for their undergraduate nursing students that incorporate clear organizational strategies, social

activities and group-education sessions.

Discussion and Implications

Clinical Stress among Nursing Students during Their Training

This review paper provides information on clinical stress degrees and types of stressors that could be encountered by nursing students. The researchers of this paper faced a challenge when they tried to compare the identified studies, as those studies used very different measures to reflect and identify clinical stressors among their samples. However, evidence derived from those studies illustrated that undergraduate nursing students suffered from a moderate level of stress during their clinical training (Chan et al., 2009; Labrague et al., 2017). This result gets along with previous research results (Chaabane et al., 2021; Hamaideh et al., 2017; Labrague, 2014). Minimal degrees of stressors are beneficial; however, further degrees of stress could hinder the individual capabilities. The identified studies in this paper also shed light on the types of clinical stressors among nursing students. The most commonly reported stressors could be summarized as follows: initial clinical experience, caring of patients, fear of the unknown, dealing with technical equipment and negative interaction with the nursing staff (Alzayyat & Al-Gamal, 2014; Labrague et al., 2017; Pulido-Martos et al., 2012).

The Use of Resilience among Nursing Students during Their Clinical Training

The findings of this literature review present information on the current state of knowledge of resilience throughout clinical education. The identified literature revealed that resilience is significant in clinical

training, because nursing students have to deal with different clinical stressors on an ongoing basis (Smith & Yang, 2017). This result is consistent with previous literature that indicated that resilience is one of essential features for success in nursing profession. The included studies also indicated that the use of resilience by nursing students evolved progressively during clinical training (Lopez et al., 2018). Finally, there are inconsistent findings across the included studies in terms of the impact of using resilience on clinical stress among nursing students. While some studies showed that the use of resilience decreases stress degrees (Shin & Park, 2013; Smith & Yang, 2017), other studies indicated that there is no correlation between stress and resilience (Ozsaban et al., 2019). Randomized control trial studies are needed to settle out this contradiction.

Methodological Considerations

Most of the revised studies were quantitative and descriptive in nature. Just two studies were qualitative, while one study was experimental. Nieswiadomy and Bailey (2018) indicated that the employment of quantitative tools (including self-reported questionnaires) could help in obtaining objective findings, mainly if these tools have good psychometric properties. On the other hand, the use of structured measures could impede the researcher's ability from understanding the deep students' responses and reactions to clinical education stress (Suresh, 2018). Accordingly, forthcoming research should be conducted using qualitative methodologies to assess clinical stress and resilience among nursing students. Sample sizes and nature were so varied in these studies; thus the generalizability of literature findings may be limited.

Implications of the Findings from This Review

Implications for Nursing Education

The findings of this literature review could be utilized by all nursing personnel involved in teaching undergraduate nursing students to guide their students during their clinical education. This personnel includes nursing staff from diverse hospital departments, preceptors, clinical instructors and nursing lecturers. In this way, the clinical component of nursing education will be improved and this will ultimately promote the psychosocial well-being of undergraduate nursing students and the quality of the provided patient care.

Policy Implications for Stakeholders in Nursing

Education

Undergraduate nursing students should be equipped with effective coping strategies including resilience to handle clinical education stress encountered during their clinical training. This could be achieved through establishing a students' support system by administrators and educators of nursing students at nursing schools. Additionally, clinical educators should be engaged in the staff educational programs about communication strategies so that they can handle and work with undergraduate nursing students effectively. Such training courses might be developed by nursing school administrators. Hospital administrators should promote the hospital climate in which undergraduate nursing students perform their clinical training. Such climate should be supportive and form an inspiration for nursing students.

Implications for Future Research

It is highly recommended for future researchers to conduct methodological studies that aim at designing standardized tools for appraising clinical education stress among nursing students. Furthermore, additional research is required to investigate the advantages of clinical education stress among undergraduate nursing students. The perception of clinical educators regarding clinical education stress and resilience could be a fertile area for future research.

Limitations of the Review

The findings of this review should be interpreted carefully in light of the following limitations. Firstly, this review included studies that were published only in English and this may exclude important findings on clinical stress and resilience published in other languages. Secondly, there is some limitation on the generalizability of the findings taking into consideration that there are great variations in the included studies in terms of the operational definitions of clinical stress and resilience.

Conclusion

This paper adds worthy information to the available body of knowledge in the area of clinical stress and resilience among undergraduate nursing students. The results showed that nursing students faced several stressors during their clinical training, thus those stressors could have an impact on their learning process. Despite the importance of using resilience, this review

paper indicated the need for more research on resilience in the context of clinical nursing education. If more research is conducted, better understanding of the relationship between resilience and stress will be achieved by readers and nursing professionals. The findings of this literature review can be utilized to build up effective clinical teaching programs for nursing students, facilitate clinical education and recognize stressors facing them. Improving clinical teaching programs can help nursing students be more productive and provide high-quality care for patients.

REFERENCES

- Akhu-Zaheya, L.M., Shaban, I.A., & Khater, W.A. (2015). Nursing students' perceived stress and influences in clinical performance. *International Journal of Advanced Nursing Studies*, 4 (2), 44.
- Alzayyat, A., & Al-Gamal, E. (2014). A review of literature regarding stress among nursing students during their clinical education. *International Nursing Review*, 61 (3), 406-415.
- Alzayyat, A., & Al-Gamal, E. (2016). Correlates of stress and coping among Jordanian nursing students during clinical practice in psychiatric/mental health course. *Stress and Health*, 32 (4), 304-312.
- Arnold, E., & Boggs, K. (2006) *Interpersonal relationships: Professional communication skills for nurses*. 5th edn., St. Louis, Mo, Elsevier/Saunders.
- Carmichael, D.G. (2015). Incorporating resilience through adaptability and flexibility. *Civil Engineering and Environmental Systems*, 32 (1-2), 31-43.
- Chaabane, S., Chaabna, K., Bhagat, S., Abraham, A., Doraiswamy, S., Mamtani, R., & Cheema, S. (2021). Perceived stress, stressors and coping strategies among nursing students in the Middle East and North Africa: An overview of systematic reviews. *Systematic Reviews*, 10 (1), 1-17.
- Chan, C.K., So, W.K., & Fong, D.Y. (2009). Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice. *Journal of Professional Nursing*, 25 (5), 307-313.
- Christou, I., & Farmakas, A. (2018). Burnout syndrome among nursing staff of mental health. *Nursing Care & Research/Nosileia kai Ereuna*, (51).
- Dhar, R., Walia, I., & Das, K. (2009). A descriptive study to assess the causes of stress and coping strategies used by the newly admitted basic B.Sc. nursing students. *Nursing and Midwifery Research Journal*, 5 (1), 31-36. <http://nrfninechd.com/index.html>
- Donelan, K., Buerhaus, P., DesRoches, C., Dittus, R., & Dutwin, D. (2008). Public perceptions of nursing careers: The influence of the media and nursing shortages. *Nursing Economics*, 26 (3), 143-152.
- Elias, H., Ping, W.S., & Abdullah, M.C. (2011). Stress and academic achievement among undergraduate students in Universiti Putra Malaysia. *Procedia – Social and Behavioral Sciences*, 29, 646-655.
- Evans, W., & Kelly, B. (2004). Pre-registration diploma student nurse stress and coping measures. *Nurse Education Today*, 24 (6), 473-482.
- Gaberson, K.B., & Oermann, M.H. (2010). *Clinical teaching strategies in nursing*. Springer Publishing Company.
- Hall, L.H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D.B. (2016). Healthcare staff well-being, burnout and patient safety: A systematic review. *PloS One*, 11 (7), e0159015.
- Hamaideh, S. H., Al-Omari, H., & Al-Modallal, H. (2017). Nursing students' perceived stress and coping behaviors in clinical training in Saudi Arabia. *Journal of Mental Health*, 26 (3), 197-203.
- Hamaideh, S.H. (2011) Stressors and reactions to stressors among university students. *International Journal of Social Psychiatry*, 57 (1), 69-80.
- Hamdan-Mansour, A.M., Puskar, K., & Bandak, A.G. (2009) Effectiveness of cognitive- behavioral therapy on depressive symptomatology, stress and coping strategies among Jordanian university students. *Issues in Mental Health Nursing*, 30 (3), 188-196.

Acknowledgments

The authors would like to acknowledge the Deanship of Academic Research at The Hashemite University.

Funding or Sources of Financial Support

The study received no financial support from any source.

Conflict of Interest

The authors declare no potential sources of conflict of interest.

- Hamer, S., & Collinson, G. (2005). Achieving evidence-based practice e-book: A handbook for practitioners.
- Howe, A., Smajdor, A., & Stöckl, A. (2012). Towards an understanding of resilience and its relevance to medical training. *Medical Education*, 46 (4), 349-356.
- Huang, Y., & Li, L. (2005). Stressors, coping styles and mental health of college students. *Chinese Mental Health Journal*, 19, 448-449. <http://www.oriprobe.com/journals/zgxlwszz.html>
- Ismail, S. (2017). Perceived clinical stressors among Saudi nursing students. *Open Journal of Nursing*, 7 (04), 463.
- Jimenez, C., Navia-Osorio, P., & Diaz, C. (2010). Stress and health in novice and experienced nursing students. *Journal of Advanced Nursing*, 66 (2), 442-455. <http://doi:10.1111/j.1365-2648.2009.05183.x>
- Karimollahi, M. (2012). An investigation of nursing students' experiences in an Iranian psychiatric unit. *Journal of Psychiatric and Mental Health Nursing*, 19 (8), 738-745.
- Kingma, M. (2018). *Nurses on the move: Migration and the global healthcare economy*. Cornell University Press.
- Labrague, L.J., McEnroe-Petitte, D.M., Gloe, D., Thomas, L., Papathanasiou, I.V., & Tsaras, K. (2017). A literature review on stress and coping strategies in nursing students. *Journal of Mental Health*, 26 (5), 471-480.
- Lopez, V., Yobas, P., Chow, Y. L., & Shorey, S. (2018). Does building resilience in undergraduate nursing students happen through clinical placements? A qualitative study. *Nurse Education Today*, 67, 1-5.
- Luo, Y., & Wang, H. (2009). Correlation research on psychological health impact on nursing students against stress, coping way and social support. *Nurse Education Today*, 29 (1), 5-8.
- Luthar, S.S. (2015). Resilience in development: A synthesis of research across five decades. *Developmental psychopathology: Volume three: Risk, disorder, and adaptation*, 739-795.
- Maxwell, S.E., Lau, M.Y., & Howard, G.S. (2015). Is psychology suffering from a replication crisis? What does "failure to replicate" really mean? *American Psychologist*, 70 (6), 487.
- McGowan, J.E., & Murray, K. (2016). Exploring resilience in nursing and midwifery students: A literature review. *Journal of advanced nursing*, 72 (10), 2272-2283.
- Nicholl, H., & Timmins, F. (2005) Programme-related stressors among part-time undergraduate nursing students. *Journal of Advanced Nursing*, 50 (1), 93-100.
- Nieswiadomy, R.M., & Bailey, C. (2018). *Foundations of nursing research*. Pearson.
- Oxford Learners Dictionaries. (2019). Resilience noun - Definition, pictures, pronunciation and usage notes. Oxford Advanced Learner's Dictionary at OxfordLearners Dictionaries.com. <https://www.oxfordlearnersdictionaries.com/definition/english/resilience>
- Oxford Learners Dictionaries. (2019). Stress_1 noun- Definition, pictures, pronunciation and usage notes. Oxford Advanced Learner's Dictionary at OxfordLearners Dictionaries.com. https://www.oxfordlearnersdictionaries.com/definition/american_english/stress_1
- Ozsaban, A., Turan, N., & Kaya, H. (2019). Resilience in nursing students: The effects of academic stress and social support. *Clinical and Experimental Health Sciences*, 9 (1), 71-78.
- Pillay, A.L., & Ngcobo, H.S.B. (2010) Sources of stress and support among rural-based first-year university students: An exploratory study. *South African Journal of Psychology*, 40 (3), 234-240.
- Prymachuk, S., & Richards, D.A. (2007) Predicting stress in pre-registration nursing students. *British Journal of Health Psychology*, 12 (1), 125-144.
- Pulido-Martos, M., Augusto-Landa, J. M., & Lopez-Zafra, E. (2012). Sources of stress in nursing students: A systematic review of quantitative studies. *International Nursing Review*, 59 (1), 15-25
- Regel, J. (2011). *Psychological responses to stress and Lazarus and Folman's transactional model*. <http://revisionforpsy4.wikispaces.com/Psychological+Responses+to+Stress+%26+Lazarus+and+Folman's+Transactional+Model>.
- Rutter, M. (2015). Resilience: Concepts, findings and clinical implications. *Rutter's Child and Adolescent Psychiatry*, 341-351.
- Schwarz, S. (2018). Resilience in psychology: A critical analysis of the concept. *Theory & Psychology*, 28 (4), 528-541.
- Selye, H. (1976). Forty years of stress research: Principal remaining problems and misconceptions. *Canadian Medical Association Journal*, 115 (1), 53.
- Seyedfatemi, N., Tafreshi, M., & Hagani, H. (2007) Experienced stressors and coping strategies among Iranian nursing students. *BMC Nursing*, 6 (1), 11.
- Shin, E. J., & Park, Y. S. (2013). Emotional intelligence, ego resilience and stress in clinical practice of nursing students. *Journal of the Korea Academia-Industrial*

- Cooperation Society*, 14 (11), 5636-5645
- Smith, G.D., & Yang, F. (2017). Stress, resilience and psychological well-being in Chinese undergraduate nursing students. *Nurse Education Today*, 49, 90-95.
- Suresh, S. (2018). *Nursing research and statistics*. Elsevier Health Sciences.
- Thomas, L.J., & Revell, S.H. (2016). Resilience in nursing students: An integrative review. *Nurse Education Today*, 36, 457-462.
- Tully, A. (2004). Stress, sources of stress and ways of coping among psychiatric nursing students. *Journal of Psychiatric and Mental Health Nursing*, 11 (1), 43-47. <http://doi: 10.1111/j.1365-2850.2004.00682.x>
- van Merriënboer, J.J., & Sweller, J. (2010). Cognitive load theory in health professional education: Design principles and strategies. *Medical Education*, 44 (1), 85-93.
- van Rhyn, W.J., & Gontsana, M. R. (2004). Experiences by student nurses during clinical placement in psychiatric units in a hospital. *Curationis*, 27 (4), 18-27. <http://www.curationis.org.za/index.php/curationis>
- Varghese, R., Norman, T.S., & Thavaraj, S. (2015). Perceived stress and self-efficacy among college students: A global review. *International Journal of Human Resource Management and Research*, 5 (3), 15-24.
- Yates, T.M., Tyrell, F.A.N.I.T.A., & Masten, A.S. (2015). Resilience theory and the practice of positive psychology from individuals to societies. *Positive Psychology in Practice: Promoting Human Flourishing in Work, Health, Education and Everyday Life*, 773-778.