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Stress, Resilience, and Well-Being in Undergraduate Nursing Students

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STRESS, RESILIENCE AND WELL-BEING IN
UNDERGRADUATE NURSING STUDENTS

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ABSTRACT

Undergraduate nursing students face numerous academic, financial, and
emotional challenges as they prepare for professional nursing practice. Although stress,
resiliency, and well-being have been studied individually in nursing students, the
relationship among these three concepts has not been well studied in the undergraduate
nursing student population. The purpose of this secondary analysis was to examine the
relationship of stress, resilience, and well-being in undergraduate nursing students.
Pender's Health Promotion Model guided the conceptual theory of this study and
development of the conceptual map. The primary study was conducted at a Midwestern
university with junior and senior nursing students. Students were predominantly white,
female, and 18-22 years of age. Primary investigators surveyed 261 students utilizing the
Perceived Stress Scale, Connor-Davidson Resiliency Scale 25, and Linear Analog Scale
Assessment prior to starting a brief program about how to alleviate stress. Data were
collected via survey. This secondary study used de-identified data from the 261 students
analyzed by linear regression and ANOVA. This study found that stress and well-being
were negatively correlated ($p < 0.0001$), stress and resilience were negatively correlated
($p < 0.0001$), and well-being and resilience were positively correlated ($p < 0.0001$).
Additionally, these concepts were compared to students' academic terms. Stress
decreased in students throughout their academic terms while well-being increased.
Resilience did not change in relation to academic term. Results of this study showed the
importance of the relationships among stress, resilience, and well-being. Nurse educators
can use the results of this study to build on their understanding of the concepts and guide
future intervention studies to alleviate stress and enhance resiliency and well-being
among their students.

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Undergraduate nursing students are highly stressed academically. Stressors for students include academics, such as workload and studying, and clinical situations, such as fear of unknown situations and mistakes during patient care (Pulido-Martos, Augusto-Landa, & Lopez-Zafra, 2011). Nursing students were studied to determine how stress, resiliency, and well-being, among other factors, interplay to lead to academic success. This exploration examined the relationship among stress, well-being, and resilience in undergraduate nursing students. This chapter examines the purpose of this study, proposes the research questions, and defines the concepts.

Problem Statement

Studies have found that reduced stress and increased resilience lead to increased well-being (Chow et al., 2018; Smith & Yang, 2017). With this information, nurse educators are in a unique position to aid undergraduate nursing students in achieving academic success through incorporation of resiliency or stress reduction in the curriculum.

Purpose of the Study

The purpose of this secondary analysis was to examine the relationship of undergraduate nursing students in relation to perceived stress, resilience, and well-being.

Research Question

Undergraduate nursing students were asked to complete a self-assessment of resiliency, perceived stress, and well-being. The objective of the study was to examine the concepts and how they compare to one another. The overall aim was to explore the relationship among resilience, perceived stress, and well-being at a Midwestern university. Questions guiding the study are the following:

Among baccalaureate nursing students in a Midwestern university:

What is the relationship between stress and resilience?

What is the relationship between stress and well-being?

What is the relationship between well-being and resilience?

What are the differences among the four academic terms of nursing students regarding stress, resilience, and well-being?

Definitions of Terms

Undergraduate Students

This study focused on nursing students in a baccalaureate undergraduate nursing program in a university setting in the Midwest. Conceptually, Term I students are in the junior year and first semester of the nursing program. Term II students are junior nursing students in their second semester of the nursing program. Term III students are senior nursing students in their third semester. Term IV students are in their senior year and final semester of the nursing program. Students' progress through the program by terms, or semesters. Operationally, the number of students in each term was determined by the number of nursing students who completed the surveys.

Stress

Three main concepts were examined in this study relating to undergraduate students. The first concept was stress. Lazarus and Folkman (1984) define psychological stress as a relationship between a person and their environment considered taxing or excessive of a person's resources. Stressors for nursing students include academics and clinical practice (Pulido-Martos et al., 2011). Stress was measured using the total score of the Perceived Stress Scale (PSS) (Cohen, Kamarack, & Mermelstein, 1983).

Resilience

Resilience is traditionally studied regarding trauma and tragedy (American Psychological Association, 2011). Stephens (2013) defines resilience relating to nursing students as "an individualized process of development that occurs through the use of personal protective factors to successfully navigate perceived stress and adversities" (p. 130). Resilience often influences well-being (Chow et al., 2018; Gibbons, Dempster & Moutray, 2010). Resiliency was measured using the total score of the 25 item Connor-Davidson Resiliency Scale (CD-RISC 25) (Connor & Davidson, 2003).

Well-Being

Well-being is a concept with varying conceptual definitions. In this study, well-being and quality of life are used interchangeably. Christopher (1999) notes that researchers focus on dimensions of well-being rather than a specific definition of the term. Dodge, Daly, and Sanders (2012) identify that the term well-being continues to be undefined, leading to difficulties in properly measuring and assessing well-being. The conceptual definition used in this study is that of Dodge and colleagues who describe it as

a state where the psychological, social, and physical resources equal the challenges an

individual encounters. In this study, the operational definition of well-being was the

response to question five of the Linear Analog Scale Assessment (LASA) (Locke et al.,

2007), a single item 0-10 rating of overall well-being in the past week.

Summary

Stress, well-being, and resiliency have been studied to determine the effects on

academic success, particularly in undergraduate nursing students. Conceptual and

operational definitions of terms were identified, including the tools used to measure each

concept: The PSS (Cohen et al., 1983), CD-RISC 25 (Connor & Davidson, 2003), and the

LASA (Locke et al., 2007). Stress management programs are being utilized to determine

their efficacy in decreasing academic burnout and improving academic success. The

purpose of this study was to examine the relationship among stress, resiliency, and well-

being in undergraduate nursing students in data collected in a previous study by Forsyth,

Smith, and Winrow (2015).

CHAPTER 2

REVIEW OF LITERATURE

This chapter discusses the search strategies utilized to research the concepts of

stress, resilience, and quality of life. The literature review explored each concept

individually and how each concept relates to others.   The focus of the literature review

primarily included nursing students. Pender's Health Promotion Model guided the

study's conceptual theory and influences the development of this study's concept map.

Conceptual Theory

The conceptual theory for this study was Pender's Health Promotion Model.

Pender's theory assumes people will regulate their own behavior by responding to

environmental and personal factors (Alligood, 2014). In a broad sense, the Health

Promotion Model indicates that health behavior is an outcome of individual

characteristics, their environment, and behavior-specific cognitions. People can change

their cognitions, affect, and their environment to create a health behavior change

(Alligood, 2014).

The three major concepts of Pender's Health Promotion Model are individual

characteristics and experiences, behavior-specific cognitions and affect, and behavioral

outcome. Individual characteristics and experiences relate to the person's prior related

behavior and personal factors (Alligood, 2014). For example, a person may follow an

unhealthy diet and poor exercise routine. These behaviors could be related to a life-long

lack of proper nutrition. The behavior could also be influenced by ethnicity, self-esteem, or perception of health.

Behavior-specific cognitions and affect are variables that can impact an individual's behaviors. Common variables are situational influences, interpersonal influence, and perceived benefits and risks (Alligood, 2014). For example, having a peer group that values fitness and health may cause one to improve his or her own diet and exercise routine.

Behavior outcomes are the result of individual characteristics and behavior-specific cognitions and are generally demonstrated as an individual making healthy behavior changes (Alligood, 2014). In this example, it would be observed as an individual recognizing their perception of health was incorrect, resulting in the use of a supportive peer group to successfully change their diet and maintain a healthy weight.

Pender's model was used to give context for the purpose of this study. Well-being is considered a health outcome; the researchers seek to know if stress and resiliency are factors that influence well-being. Should a relationship among these variables be found, it could be argued that programs designed to improve resiliency or minimize stress can lead to improved student well-being.

When reviewing literature, it was noted that undergraduate students have a variety of individual and environmental factors that impacted their well-being, resiliency, and stress. Additionally, a theme of academic outcomes emerged and became a secondary example of a behavior outcome. The concept map in Figure 1 shows how well-being,

resiliency, and stress relate to one another and are influenced by personal and

environmental factors. The three concepts have various impacts on student academic

outcomes.

Search Strategies

A variety of search engines were used when conducting the literature search for

this analysis. Included in those search engines were Cumulative Index to Nursing and

Allied Health Literature (CINAHL), PubMed, PyschInfo and ProQuest. Only articles in

English were reviewed. Search terms varied but included combinations of the following

words and phrases: undergraduate students, stress, resiliency, well-being, quality of life,

nursing students, Connor-Davidson Resilience Scale, Linear Analog Scale Assessment,

and Perceived Stress Scale. The literature search table is provided in Appendix A.

Abstracts were reviewed and any study that did not articulate how stress, resiliency, or

well-being was measured were excluded. Initially 124 journal articles were reviewed,

and 35 were included in the final literature review. Studies that did not include nursing

students were initially excluded, but in re-review of literature, some non-nursing student

studies were included if the LASA (Locke et al., 2007), CD-RISC-25 (Connor &

Davidson, 2003), or PSS (Cohen et al., 1983) were utilized.

Review of the Literature

Articles were categorized based on predominant concept and organized into three

tables. The concept literature review tables are provided in Appendices B, C, and D.

Stress, resiliency, and well-being were examined individually, discussing the factors

influencing and the observed outcomes for each concept.

Study populations, settings, sampling, and design were similar among the studies reviewed. Many of studies were conducted at colleges or universities with undergraduate nursing students. Convenience sampling was commonly utilized, and data were obtained through surveys administered on paper or electronically. Level of evidence for studies included ranged from I, III, IV, V, and VI, with the majority coming from descriptive cross-sectional studies.

Stress in Undergraduate Nursing Students

The study of stress in undergraduate nursing students falls into three main categories: measuring the stress this population experiences, identifying factors that are related to stress levels, and identifying outcomes of stress. Researchers are consistent in the definition of the concept of stress, with the basis in Lazarus and Folkman's Theory of stress, appraisal, and coping (1984).

Measuring Stress.

Although there is some variance in which tool is used, most researchers use a self-reported tool to subjectively measure stress, rather than objective biomarkers (such as salivary α-amylase, interleukin-6, cortisol levels, or heart rate variability). In the fifteen studies reviewed, the Perceived Stress Scale was used five times (Bodenlos, Wells, Noonan & Mayrsohn, 2015; Grobecker, 2016; He, Turnbull, Kirschbaum, Phillips, & Klainin-Yobas, 2018; Lee, 2014; Preto, Palomo Garcia, Gonçalves Araujo, Mendes Flauzino, Correia Teixeira et al., 2018). Chan, So, and Fong (2009) and Hsaing-Chu (2015) used a tool also titled *Perceived Stress Scale* created by Sheu, Lin, Hwang, Yu, and Lou in 1997.

Eight of the studies reviewed quantified the amount of perceived stress in undergraduate nursing students, concluding that they have a moderate to high level of stress (Bartlett, Taylor, & Nelson, 2016; Bosso, da Silva, & Costa, 2017; Chan et al., 2009; Galbraith, Brown, & Clifton, 2014; Hirsch, Devos Barlem, de Almeida, Tomaschewski-Barlem, Lunardi, & Ramos, 2018; Labrague, McEnro-Petitte, De Los Santos, & Edet, 2018; Murdock, Naber & Perlow, 2010; Preto et al., 2018). Bosso et al. (2017) and Hirsch et al. (2018) compared levels of stress among students in different terms and found students in later semesters had higher stress than students earlier in the program. When compared with non-nursing undergraduate students, nursing students have statistically significantly higher median scores for level of stress (Bartlett et al., 2016).

Factors Related to Stress.

Working from the concepts in Pender's Health Promotion Model, factors related to stress can be divided into three main categories: personal factors, environmental factors, and behavior-specific cognitions. Each of the studies reviewed addressed one or more of these categories.

Personal factors include demographic characteristics, knowledge, competence, and sense of belonging. Although Murdock et al. (2010) found female students have higher stress than male students, Preto et al. (2018) and Labrague et al. (2018) found no statistically significant difference in perceived stress scores among demographic variables such as sex, age, or marital status. Personal factors that have a negative relationship with stress, meaning as these characteristics increase, stress decreases, include: self-efficacy (Gibbons et al., 2010; He et al., 2018) dispositional control

(Gibbons et al., 2010), sense of belonging (Grobecker, 2016), resilience (He et al., 2018), and nursing competence (Hsiang-Chu, 2015). Chan et al. (2009) identified lack of knowledge of professional skills as a most common stressor in undergraduate nursing students in Hong Kong.

Workload, relationships with faculty, and caring for patients are environmental factors that impact a student's perception of stress. Workload was identified by multiple studies as a predominant source of stress (Chan et al., 2009; Clark, Nguyen, & Barbosa-Leiker, 2014; Labrague et al., 2018).   Perception of faculty relationships and perceived instruction quality both had negative relationships with stress levels (Hsiang-Chu, 2015; Hirsch et al., 2018). In a literature review of eleven studies, Labrague et al. (2018) identified caring for patients as a main source of stress.

Behavior specific cognitions addressed in these studies focused on stress management strategies. Transference and avoidance coping strategies were used frequently and avoidance coping style has a negative association with well-being (Chan et al., 2009; Gibbons et al., 2010). Bodenlos et al. (2015) and He et al. (2018) reported a negative association between stress and mindfulness. Self-reflection and spiritual well-being were also associated with lower perceived stress (Hsiang-Chu, 2015; Lee, 2014).

Outcomes of Stress.

Stress has a negative relationship with overall health, well-being, and academic success. In a study by Bartlett et al. (2016), nursing students had more stress-related issues and illnesses, such as anxiety, sleep disturbances, migraines, and upper respiratory tract infections, when compared with non-nursing undergraduate students. Regarding

academic outcomes, students with higher stress were more likely to consider leaving the

nursing program (Hirsch et al., 2018).

Implication for Research.

The current literature describes the individual concept and variables that are

related to stress. Identifying these variables can guide intervention studies to reduce

stress. Further research is needed on stress's impact on overall well-being and the extent

that resilience mediates stress.

Resilience in Undergraduate Nursing Students

Resilience is complex because of the many different factors associated with it. It

is argued that resilience is a process versus a characteristic by many researchers (Ahern,

2006; American Psychological Association, 2011; Reyes, Andrusyszyn, Iwasiw, Forchuk

& Babenko-Mould, 2015a, 2015b; Stephens, 2013). Resilience relates to adaptation and

is often used synonymously with self-efficacy and hardiness (McGowan & Murray, 2016;

Taylor & Reyes, 2012). Resilience has also shown variance across studies of

undergraduate students. Aloba, Olabisi, and Aloba (2016) researched Nigerian

undergraduate nursing students and found resilience was a moderate level. A study with

Spanish nursing students showed high levels of resiliency (Rios-Risquez et al., 2016).

Both of these studies utilized the CD-RISC 10 (Connor & Davidson, 2003).

Academics and Resilience.

In terms of clinical success of undergraduate nursing students, Kong et al. (2016)

found that emotional intelligence and resiliency improved communication ability in

students and suggested that increased resilience led to easier adaptation to the clinical

environment. Implementation of a stress management program by Pines et al. (2014) with

60 undergraduate nursing students showed that students improved their skill recognition. Additionally, Beauvais, Stewart, DeNisco, and Beauvais (2014) studied 124 students (73 of whom were undergraduate students and 50 graduate students) and found that resilience increased academic success significantly. Li, Cao, Cao, and Liu (2015) found resilience and well-being helped nursing students cope with adversity and enhanced social skills. This led to improved adjustment to the clinical environment. Important to note, academic burnout was reduced in resilient students in three studies (McGowan & Murray, 2016; Rios-Risquez, 2016; Smith & Yang, 2017). With burnout being a significant stressor on the nursing profession, further resilience research could help move the profession toward retention and reduced nursing shortages (Thomas & Revell, 2016).

Qualitative studies have also been conducted with undergraduate nursing students. Pine et al. (2014) found students changed their perceptions of the concept of necessitation, which is "the habit of focusing on commitment rather than choice in a situation, leading to the conclusion of no choice" (p. 87). This change in perception could indicate that students are no longer feeling "stuck" in a program but instead understand their choices in choosing nursing as a profession and enduring the rigorous academic preparation it takes to become a professional nurse. Reyes et al. (2015a) found a similar theme in qualitative research with nursing students. The theme of "pushing through" had several phases (p. 2625). In the "staying the course" phase, students utilized several different strategies to prevent themselves from becoming distracted or veering from their academic plans and success (p. 2626). Each of these researchers shows students taking ownership of their education and relying on resiliency to make it through their academic

courses. This combination of research data shows the important role resilience has in academics within nursing.

Factors Impacting Resilience.

Resilience is affected by both intrinsic and extrinsic factors. Evidence suggests resilience is a process versus a specific trait and is affected by multiple factors (Stephens, 2013). Thomas and Revell (2016) reviewed literature on resilience in nursing students and found common themes throughout. Intrinsic factors affecting resilience are traits such as optimism, hope, a sense of humor, effective coping, perseverance, and self-efficacy. A sense of determination also improves resilience. Resilient students are more apt to respond to challenges with positivity, have increased problem-solving abilities, and improved self-confidence (Stephens, 2013).

Extrinsic factors are related to support systems, the passage of time, and adversity. Resilience is improved by the ability to overcome adversity and stressors. Support systems for undergraduate nursing students include family, friends, and faculty (Thomas & Revell, 2016).

Implications for Research.

Extrinsic and intrinsic factors have been identified in research, but there is a gap in research of the application and development of these factors. There is evidence that increased resilience improves academic outcomes (Beauvais et al., 2014; McGowan & Murray, 2016; Rios-Risquez et al., 2016; Smith & Yang, 2017).

Well-Being in Undergraduate Nursing Students

There are a variety of ways to quantify well-being in nursing students, and no consistency was found in tools used to measure well-being. Chow et al. (2018) measured

total well-being by the combination of positive mood, vitality, and interest in things. Mendes Souza, Martins da Silva Paro, Morales, Costa Pinto, and Martins da Silva (2012) evaluated well-being across eight domains: physical functioning, general health perceptions, bodily pain, role limitations caused by physical problems, mental health, vitality, social functioning, and role limitations caused my emotional problems. Moritz et al. (2016) evaluated well-being based on four domains: physical, psychological, social relationships, and environmental. The diversity in quantifying well-being makes it difficult to compare results between studies as well as determine if relationships exists between well-being and other variables. Using the LASA (Locke, et al 2007) tool can help quantify well-being as this tool allows respondents to subjectively rate their overall well-being, an item previously not seen with other scales. The LASA (Locke, et al., 2007) also measures well-being across four domains: physical, emotional, spiritual, and intellectual. These domains are diverse and can encompass a broad view of well-being, even though the questionnaire is brief (Locke, et al., 2007).

    Factors Impacting Well-Being.

    A student's year in school has a varying impact on overall well-being. Some studies showed that fourth year students had the highest level of well-being (Chow et al., 2018; Moritz et al., 2016; Moyle, Park, Olorenshaw, Grimbeek, Griffiths, & Murfield, 2007), followed by first year students (Moritz et al., 2016). However, Mendes Souza et al. (2012) found that fourth year students had lower scores in physical functioning, vitality, and social functioning compared to students in other terms.

    Personal factors, such as depression and anxiety, could have a negative impact on overall quality of life (Fabbris, Mesquita Caldeira, Carvalho, & Campos de Carvalho

2017; Mendes Souza et al., 2012). Gender and sociodemographic factors have had no

consistent impact on overall quality of life (Frost et al., 2013; Mortiz, et al., 2016;

Mendes Souza et al., 2012; Singh, Satele, Pattabasavaiah, Buckner, & Sloan, 2013).

Implications for Research.

This will be the first use of LASA (Locke, et al., 2007) to measure well-being in

undergraduate nursing students. This tool could be used to standardize future studies, as

well-being is not consistently measured throughout literature. Developing a consistent

measurement of well-being can further assist researchers in determining what factors

impact and influence well-being. The use of a one-item measure for well-being could be

important for further research, as there is currently no way to subjectively measure well-

being. Studies have measured well-being using different methods, but no studies have

focused on what the individual believes is important to their well-being

Stress and Well-Being in Undergraduate Nursing Students

The relationship between stress and well-being is inadequately studied in

undergraduate nursing students. Fabbris et al. (2017) evaluated spiritual well-being and

anxiety, finding that students with higher levels of spiritual well-being had lower levels

of anxiety. The focus of this study was solely on spiritual well-being, so other factors

that could contribute to one's perceptions of well-being may have an unmeasured effect

on anxiety.

Bodenlos, et al. (2015) used the Medical Outcomes Short-Form Health Survey to

measure emotional-wellbeing in overall undergraduate students. The authors found

positive well-being was associated with lower levels of perceived stress.

Resilience and Well-Being in Undergraduate Nursing Students

Because of the demands of the nursing profession, it is important to understand how factors, such as resiliency and well-being, affect each other. Chow et al. (2018) examined how these two concepts interacted in nursing students in Hong Kong. The study included both undergraduate and post-graduate nursing students and utilized the CD-RISC 10 and World Health Organisation-5 Well-Being Index (WHO-5). Of 678 students, resilience levels of undergraduate nursing students were lower than post-graduate students. However, there was no difference between perceived well-being in the groups. Interestingly, there was a significant difference between perceived well-being of junior nursing students and senior nursing students. Further statistical analysis of this study revealed that self-reported resilience predicted perceived well-being. Overall, this study showed that higher levels of resiliency led to improved perceived well-being.

Rios-Risquez, et al. (2016) studied well-being and resiliency. This study was conducted in Spain with 113 senior nursing students. Instruments used were the CD-RISC-10 to measure resiliency, the Maslach Burnout Inventory Student Survey (MBI-SS) to measure academic burnout, and the General Health Questionnaire (GHQ-12) to measure psychological health. The study demonstrated a significant relationship between resiliency and psychological health; resiliency and academic efficacy; and resiliency and emotional exhaustion. As with Chow et al. (2018), this study also demonstrated that higher resiliency levels improve psychological well-being, in addition to lower levels of academic burnout.

Stress, Resilience, and Well-Being in Undergraduate Nursing Students

Smith and Yang (2017) conducted a research study that included all three concepts of resiliency, well-being, and stress. Their cross-sectional study of 1,538 Chinese nursing students utilized the Stressors in Student Nursing Scale (SINS), the Resilience Scale (RS) and the General Health Questionnaire (GHQ-12). Data analysis revealed significant relationships among all three concepts. High levels of stress in the students impacted the psychological well-being of the students, with higher stress scores and poorer psychological well-being indicated in later stages of the nursing program. The authors found resilience predicted psychological well-being and helped students overcome stressful situations. Overall, the study highlighted the importance of resilience as a mediator for stress and well-being in undergraduate nursing students.

Conceptual Map

The literature search showed evidence of relationships between pairs of the concepts of stress, resilience, and well-being. The concept map is represented by Figure 1. Overall, resilience has both positive and negative association with stress (Smith & Yang, 2017), resilience is positively related to well-being (Beauvais et al, 2014; Chow et al., 2018; Li et al., 2015; Rios-Risquez, 2016; Smith & Yang, 2017) and stress is negatively related to well-being (Bodenlos et al., 2015; Gibbons et al., 2010; He et al., 2018; Lee, 2014).

Stress

As represented in the concept map, personal factors and environmental factors have positive and negative relationships with the level of perceived stress of an individual, and stress has a negative relationship with academic outcomes. The concept

map also shows the negative relationship between stress and well-being: as stress

increases, well-being decreases (Bodenlos et al., 2015; Gibbons et al., 2010; He et al.,

2018; Lee, 2014).

Resilience

Resilience decreases stress and improves well-being (Beauvais et al., 2014; Chow

et al., 2018; Li et al., 2015; Rios-Risquez et al., 2016; Smith & Yang, 2017; Thomas &

Revell, 2016). As earlier sections showed, overall stress and well-being are directly

affected by resilience. Resilience and stress have both a positive and negative relationship

because stress (adversity) is required to build resilience and, conversely, stress can be

directly affected by resilience (Smith & Yang, 20017; Stephens, 2013). Between the

concepts of resilience and well-being, a study by Beauvais et al., (2014) noted the

improved ability to manage emotions with increased resilience. The study with

undergraduate and graduate nursing students found graduate students had greater

emotional intelligence and stress management. They concluded graduate students were

better equipped to manage stressors and maintain emotional health because of exposure

to obstacles and learning to overcome them, increasing resilience in the process. The map

also shows the positive relationship resilience plays in academic success in students.

Regarding academic success, resilience improves academic outcomes (Beauvais et al.,

2014, Kong et al., 2016; McGowan & Murray, 2016; Pines et al., 2014; Reyes et al.,

2015a; Reyes et al., 2015b; Rios-Risquez, 2016; Smith & Yang, 2017).

Well-Being

The concept map (Figure 1) shows that well-being can be impacted by

environmental and personal factors, such as age/gender, year in school, and mental health

diagnosis. However, it is also positively associated with resiliency and negatively

associated with stress. This implies that if an individual were to develop resiliency skills,

it could improve well-being, even if stress levels remain the same. Academic outcomes

and well-being were not widely examined. Beauvais et al. (2014) found a positive

relationship between academic outcomes and well-being, however the relationship was

weak. This is an area that requires further research.

Summary

This chapter provided a review of literature regarding stress, resilience, and well-

being. The concepts are all impacted by personal and environmental factors. These

factors include personality, support systems, gender, year in school, psychological

factors, and feelings of self-efficacy. Stress, resiliency, and well-being may influence

one another. Stress can decrease feelings of well-being but can build resilience and

resilience can improve well-being and decrease feelings of stress. The role of the study

was to determine relationships between pairs of the concepts to help inform future

research, such as intervention studies, to help guide future practice.

Figure 1
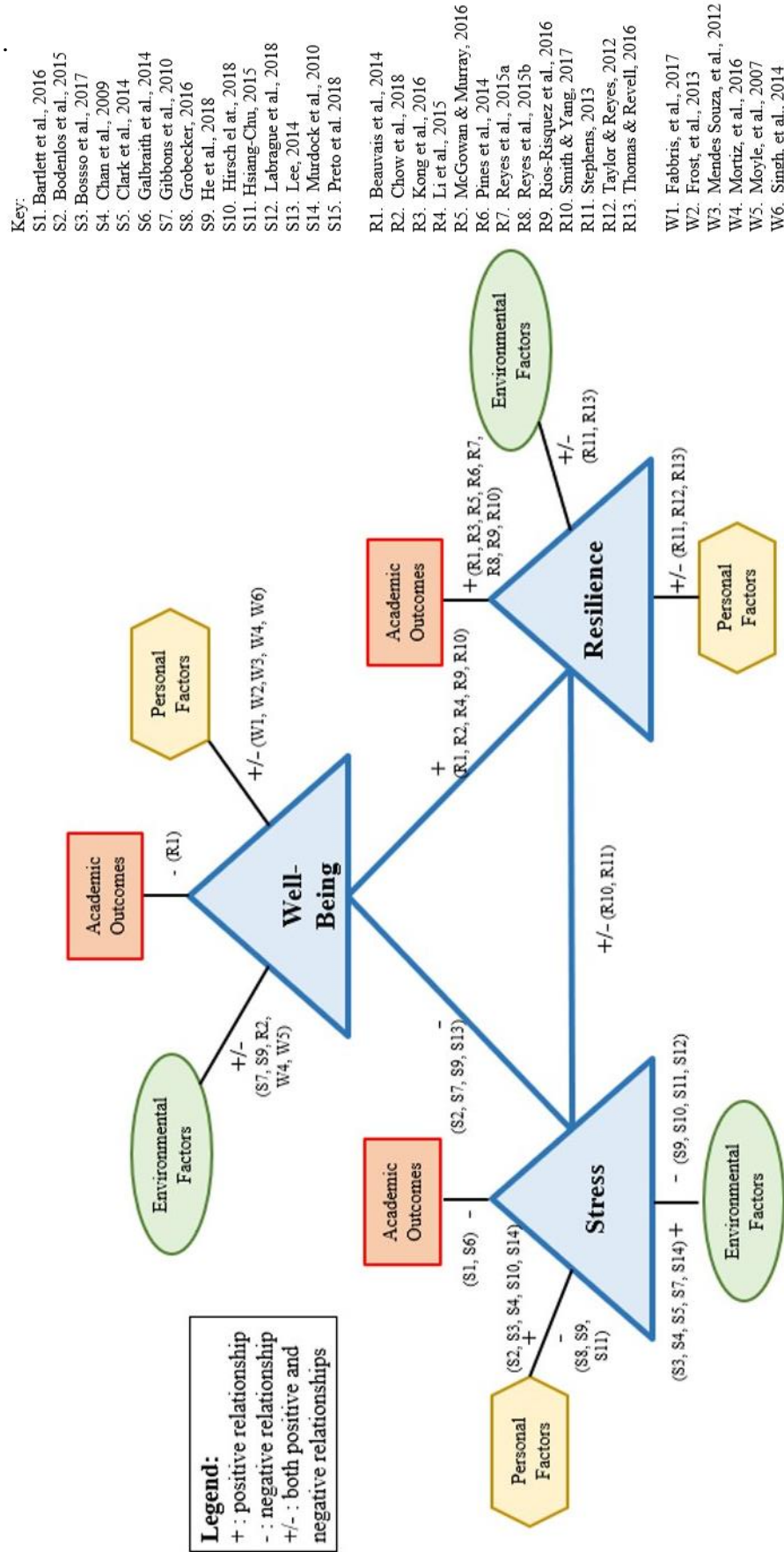
Figure 1. Relationships among stress, resilience, and well-being.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this secondary analysis was to examine the relationship among stress, resiliency and well-being in undergraduate nursing students. This chapter describes the primary investigators' research study as well as the design, setting, sample, ethical considerations, instruments, data collection procedure, data analysis, and limitations for this secondary analysis.

Design

The design of this study was a descriptive correlational secondary analysis of research by McNally Forsyth et al. (2015). The data used were baseline data from the primary study. It was important to evaluate these data about nursing students to determine whether there was a relationship among stress, resiliency, and well-being in undergraduate nursing students.

Primary Study

The primary study was designed to evaluate the effectiveness of implementing a Stress Management and Resiliency Training (SMART) program in an undergraduate baccalaureate nursing program. The SMART program aims to teach stress management and resiliency skills, asking participants to practice these skills throughout the week (Sood, n.d.). Students who attended the SMART program were asked to complete a survey with the LASA (Locke et al., 2007), CD-RISC 25 (Connor & Davidson,

2003), and PSS (Cohen et al., 1983) prior to attending the conference, with a follow-up

survey done before the students graduated. Participants were also asked to evaluate how

frequently SMART techniques were discussed in class or were used by themselves for

the post-survey.

Sample and Setting

Data for this secondary study were provided from the baseline data from the

primary study by Forsyth, Smith, and Winrow (2015). The primary researchers invited

302 undergrad nursing students from a Midwestern university to participate in the study;

261 students participated at baseline. All completed baseline surveys from the primary

study were used in this secondary analysis. Students participating were in the junior and

senior years of the nursing program. They varied among academic terms I, II, III, and IV.

Ethical Considerations

IRB approval was obtained through Winona State University for both the primary

and secondary studies. There were no risks or benefits to study participants as this was a

secondary analysis. De-identified data were shared among these authors using OneDrive

and accessed through password-protected computers. Data were accessible to the primary

authors, the secondary authors, and the statistician.

Instruments

Stress was measured using the PSS (Cohen et al., 1983) (Appendix E). This is a

10-item Likert scale tool. Respondents are asked to answer regarding their feelings over

the last month. Each item is scored from zero (never) to four (very often), and items

summed for total score which can range from zero to forty. Higher scores indicate higher

levels of stress. Internal consistency of this tool ranges from 0.84 to 0.86 and test-re-test

reliability of 0.85 in undergraduate students (Cohen et al. 1983). The PSS tool has been used in a variety of settings and populations to study stress. This tool is provided in Appendix E.

Resilience was measured using the CD-RISC 25 (Connor & Davidson, 2003). This tool contains 25 items with Likert responses from 0 (rarely true) to 4 (true nearly all the time); item scores are summed for total score. The total score can range from 0-100 with higher scores indicating higher resilience. Respondents are asked to answer regarding their feelings over the last month. Internal consistency for this tool is Cronbach's alpha of 0.89 in the general population and retest reliability was 0.87 in general anxiety disorder and post-traumatic stress disorder patients (Connor & Davidson, 2003). CD-RISC has been used in nursing student populations (Aloba, et al., 2016; Rios-Risquez et al., 2016). Permission to use this tool was obtained by primary investigators of the study after paying a $50 fee (Appendix H). Appendix F shows the questions in this tool.

Well-being was measured by the LASA (Locke, et al. 2007). This tool contains five questions with Likert responses from 0 (as bad as it can be) to 10 (as good as it can be). Respondents are asked to answer regarding their feelings over the last week. The scores of each question are not added together, "as each item is intended to stand alone" (Locke, et al., 2007, p. 631). For this study, the overall well-being was determined to be the most relevant question and was the one question used in analysis. The LASA was found to have Cronbach's alpha values of 0.83, 0.88, and 0.88 at time zero, month two, and month four, respectively (Locke, et al., 2007). There was no test-retest reliability, as Locke, et al. (2007) expected the quality of life to vary greatly over time. The LASA tool

was used originally to evaluate the quality of life in neuro-oncology patients and has been used to measure well-being in cancer patients. It has not been used to study undergraduate nursing students. Permission to use this tool was given to primary investigators for no cost or stipulation. Appendix G shows the questions of this tool.

Data Collection Procedure

De-identified research data for the secondary analysis were provided by the primary investigators and the statistician via OneDrive. After IRB approval, baseline data were provided to the authors for secondary analysis in collaboration with the Winona State University Stat Consulting statistician via Excel data base. All data remained de-identified.

Summary

This chapter discussed how the primary study was conducted, including how data were collected. Data were kept confidential and de-identified. The PSS (Cohen et al., 1983), CD-RISC 25 (Connor & Davidson, 2003), and LASA (Locke et al., 2007) were described in detail.

CHAPTER 4

RESULTS

Chapter four provides a description of the sample and data analyzed to address the research questions. Results from surveys were analyzed in order to determine relationships between paired concepts of stress, resilience, and well-being and relationships among the individual concepts and terms. The sample and the statistical analysis used is described. The research questions are reintroduced with results of the statistical analysis.

Description of Sample

Initially 261 responses were considered for evaluation. One respondent was removed due to incomplete responses on all three tools. The total sample size for the secondary analysis was 260. Respondents with incomplete responses for a single tool were included in the statistical analysis for the variables with completed responses. In total, 45 respondents did not complete the PSS, 23 did not complete the CD-RISC 25, and 5 did not complete the LASA.

Demographic information provided by the respondents included term, age, and gender. A mix of each term was represented; 85 Term I students, 42 Term II students, 86 Term III students, and 43 Term IV students completed the tools. Four respondents selected more than one answer for the question regarding term and were excluded from analysis of each concept by term. Ages of respondents were measured using categories.

Two hundred and forty-seven respondents were age 18-22, 12 were age 23-29, one was age 30-40. The sample consisted of 236 females and 24 males.

Data Analysis

Respondents were asked to complete the PSS (Cohen et al., 1983), CD-RISC 25 (Connor & Davidson, 2003), and LASA (Locke et al., 2007). Data were analyzed using linear regression and ANOVA. Higher scores of the PSS (Cohen et al., 1983) indicate higher stress, higher scores on the CD-RISC 25 (Connor & Davidson, 2003) indicate more resilience, and higher scores on the LASA (Locke et al., 2007) indicate better well-being.

This section describes the results of the statistical analysis addressing the following research questions:

Among baccalaureate nursing students in a Midwestern university:

1. What is the relationship between stress and resilience?

2. What is the relationship between stress and well-being?

3. What is the relationship between well-being and resilience?

4. What are the differences among the four academic terms of nursing students regarding stress, resilience, and well-being?

Responses for each of the tools were normally distributed. Table 1 provides the mean score, standard deviation, and ranges for the PSS, CD-RISC 25, and LASA.

Table 1

Descriptive Statistics for PSS, CD-RISC 25, and LASA

Tool	Sample size (n)	Mean ($\bar{x}$)	Standard Deviation (σ)	Minimum	Maximum
Stress (PSS)	215	30.02	3.97	19	40
Resilience (CD-RISC 25)	237	72.08	10.7	31	98
Well-Being (LASA)	255	5.63	1.93	0	10

Note: Higher scores for PSS indicate higher stress, higher scores for CD-RISC 25 indicate higher resilience, and higher scores for LASA indicate higher well-being.

Relationships among stress, resilience, and well-being were analyzed using correlational statistics, including linear regression and one-way ANOVA. The terms were compared using one-way ANOVA and pair-wise comparisons. Total scores of the PSS, CD-RISC 25, and question five of the LASA were compared. Results of the relationships between concepts are provided in Table 2. All relationships were significantly related with p-values < 0.0001.

Table 2

Relationships Between Concepts

Comparison Groups	Sample size (n)	Slope (m)	Correlation (r)	p-value
Stress (PSS) and Resilience (CD-RISC 25)	199	-0.2994	-0.505	< 0.0001*
Stress (PSS) and Well-Being (LASA)	212	-2.2	-0.68	< 0.0001*
Well-Being (LASA) and Resilience (CD-RISC 25)	237	0.08	0.481	< 0.0001*

* Denotes statistical significance

Relationship Between Stress and Resilience

There was a statistically significant negative relationship between stress and resilience, with a slope of -0.2994 and correlation of -0.505 ($p < 0.0001$). The scatter plot is shown in Figure 2.
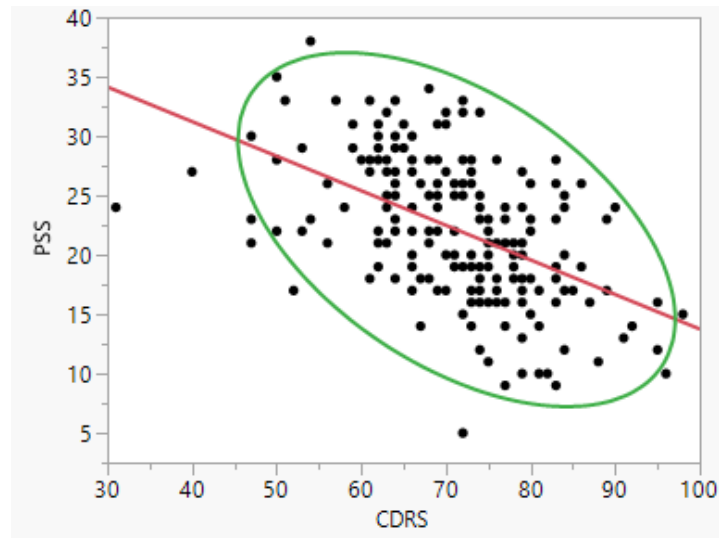
Figure 2. Relationship between stress (PSS) and resilience (CDRS)

Relationship Between Stress and Well-Being

There was a statistically significant negative relationship between stress and well-being, with a slope of –2.22 and correlation of -0.68 ($p < 0.0001$). The scatter plot is shown in Figure 3.
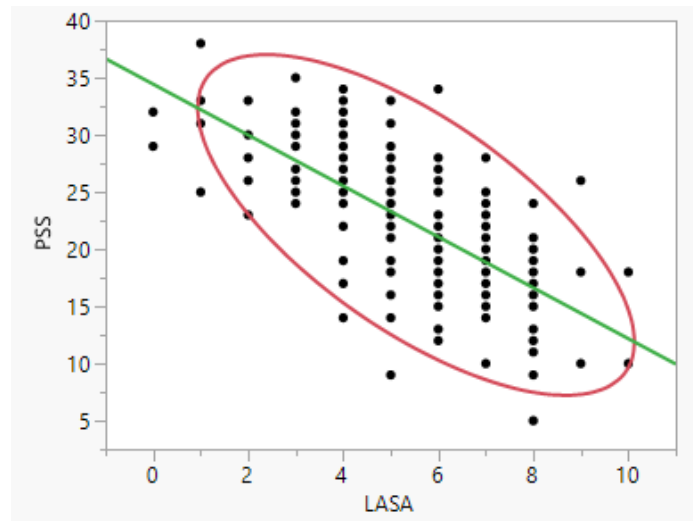
Figure 3. Relationship between stress (PSS) and well-being (LASA).

Relationship Between Well-Being and Resilience

There was a statistically significant positive relationship between well-being and resilience, with a slope of 0.08 and correlation of 0.481 ($p < 0.0001$). The scatter plot is shown in Figure 4.
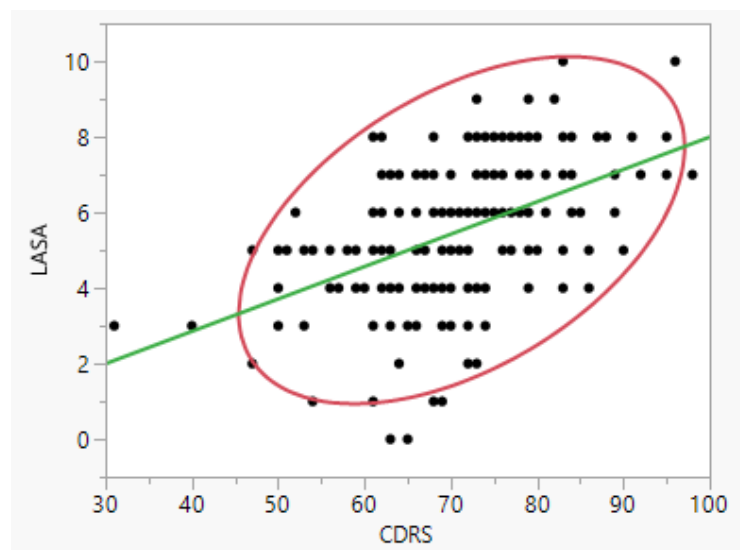
Figure 4. Relationship between well-being (LASA) and resilience (CDRS)

Relationships Among Academic Terms and Concepts

There was no difference among academic term and resilience. Well-being and stress had no significant difference between Term I and Term II, and Term II and III. However, well-being had significant difference between Term I and IV ($p < 0.0001$), Term II and IV ($p = 0.005$), and Term III and IV ($p = 0.0038$). Stress had significant difference between Term I and III ($p = 0.0075$) and Term I and IV ($p < 0.0001$). Table 3 shows the mean scores for each term and Table 4 shows the pair-wise comparison between terms. Figure 5 depicts that average score of each concept throughout each term.

Table 3

Mean Scores by Term

Tool	Term I Mean ($\bar{x}$)	Term II Mean ($\bar{x}$)	Term III Mean ($\bar{x}$)	Term IV Mean ($\bar{x}$)	Total Sample Mean ($\bar{x}$)
Stress (PSS)	31.32	29.97	29.37	28.30	30.02
Resilience (CD-RISC 25)	71.03	71.43	71.96	75.86	72.08
Well-Being (LASA)	5.02	5.45	5.58	7.12	5.63

Table 4

Relationships Among Academic Terms and Concepts

Comparison	Resilience (CD-RISC 25)	Well-Being (LASA)	Stress (PSS)
Term I & Term III			$p = 0.0075*$
Term I & Term IV		$p < 0.0001*$	$p < 0.0001*$
Term II & Term IV		$p = 0.005*$	
Term III & Term IV		$p = 0.0038*$	

* Denotes statistical significance
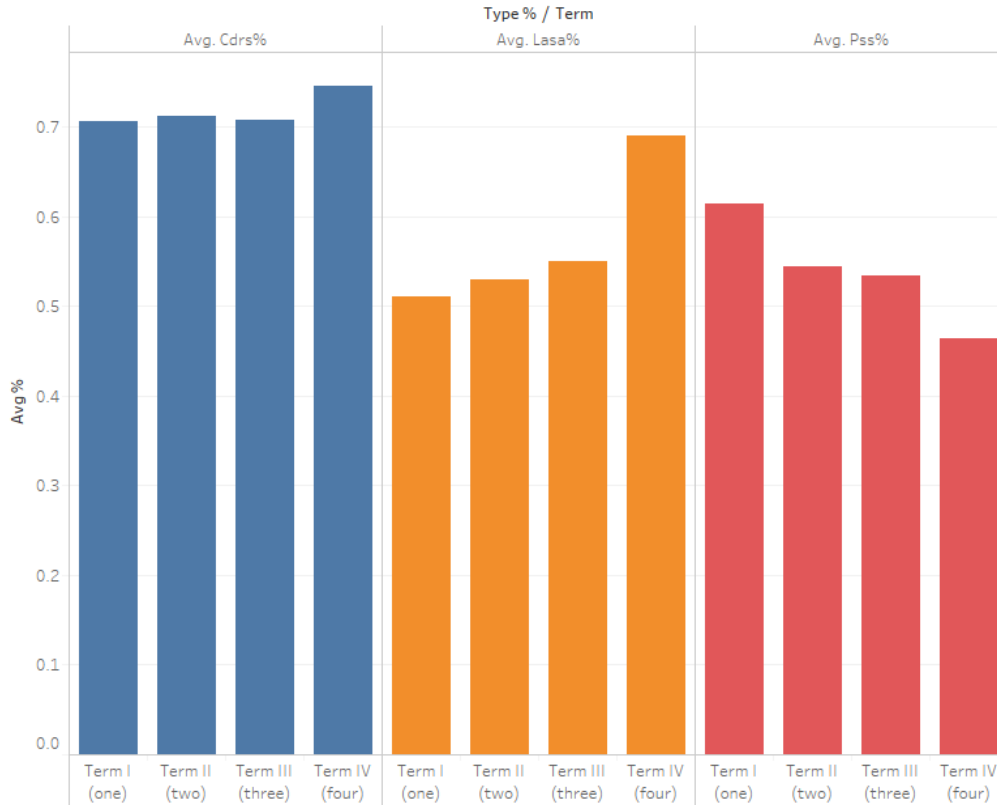
Figure 5. Difference between term levels in average percentage of stress, well-being, and resilience.

Summary

Data were analyzed using linear regression and ANOVA. In this sample, stress had a negative relationship with well-being and resilience ($p < 0.0001$). However, resilience and well-being had a positive relationship ($p < 0.0001$). Resilience stayed at consistent levels throughout the terms, however stress and well-being varied by term. Well-being continued to improve through each academic term, with highest levels reported in Term IV ($\bar{x} = 7.12$). Stress continued to decrease through each academic term, with lowest levels reported in Term IV ($\bar{x} = 28.30$).

CHAPTER 5

DISCUSSION AND CONCLUSION

This chapter is planned as a manuscript for a nursing education journal. No definitive journal has been selected.

Introduction

Undergraduate nursing students are faced with a high level of stress. Students are challenged by academic workload, clinical experience, and the fear of mistakes made during patient care. It is important to examine nursing students to determine how stress, resiliency, and well-being interact, as these factors can impact the student's academic success. It is also valuable to explore the difference among students and academic terms.

The purpose of this secondary analysis was to examine the relationship of undergraduate nursing students in relation to perceived stress, resilience, and well-being. The objective of the study was to examine the concepts and how they compare to one another. The overall purpose was to explore the relationship among resilience, perceived stress, and well-being at a Midwestern university. Research questions guiding the study are the following:

Among baccalaureate nursing students in a Midwestern university:

1. What is the relationship between stress and resilience?

2. What is the relationship between stress and well-being?

3. What is the relationship between well-being and resilience?

4. What are the differences among the four academic terms of nursing

students regarding stress, resilience, and well-being?

Background Literature

Literature review was conducted using a variety of search engines. Search terms

included combinations of the following words and phrases: undergraduate students,

stress, resiliency, well-being, quality of life, nursing students, Connor-Davidson

Resilience Scale, Linear Analog Scale Assessment, and Perceived Stress Scale. Abstracts

were reviewed and any study that did not articulate how stress, resilience, or well-being

were measured was excluded. Stress, resilience, and well-being literature is reviewed and

summarized individually, discussing the factors influencing and the observed outcomes

for each concept.

Stress in Undergraduate Nursing Students

The study of stress in undergraduate nursing students falls into three main

categories: measuring the stress this population experiences, identifying factors that are

related to stress levels, and identifying outcomes of stress. The most common way

researchers measured stress was a self-report tool to measure subjective stress. Many

researchers found nursing students had high levels of stress (Bartlett, Taylor, & Nelson,

2016; Bosso, da Silva, & Costa, 2017; Chan et al., 2009; Galbraith, Brown, & Clifton,

2014; Hirsch, Devos Barlem, de Almeida, Tomaschewski-Barlem, Lunardi, & Ramos,

2018; Labrague, McEnro-Petitte, De Los Santos, & Edet, 2018; Murdock, Naber &

Perlow, 2010; Preto et al., 2018).

Personal factors that have a negative relationship with stress, meaning as these

characteristics increase, stress decreases, include: self-efficacy (Gibbons et al., 2010; He

et al., 2018), dispositional control (Gibbons et al., 2010), sense of belonging (Grobecker, 2016), resilience (He et al., 2018), and nursing competence (Hsiang-Chu, 2015). Workload, relationships with faculty, and caring for patients are environmental factors that impact a student's perception of stress (Chan et al., 2009; Clark, Nguyen, & Barbosa-Leiker, 2014; Hirsch et al., 2018; Hsiang-Chu, 2015; Labrague et al., 2018). Stress has a negative relationship with overall health, well-being, and academic success. Nursing students had more stress-related issues and illnesses, and those with higher stress were more likely to consider leaving the nursing program (Bartlett et al., 2016; Hirsch et al., 2018).

Resilience in Undergraduate Nursing Students

Evidence suggests resilience is a process versus a specific trait and is affected by multiple factors (Stephens, 2013). Resilience is affected by both intrinsic and extrinsic factors. Thomas and Revell (2016) reviewed literature on resilience in nursing students and found common themes. Intrinsic factors affecting resilience are traits such as optimism, hope, a sense of humor, effective coping, perseverance, and self-efficacy. A sense of determination also improves resilience. Resilient students are more apt to respond to challenges with positivity, have increased problem-solving abilities, and improved self-confidence (Stephens, 2013). Extrinsic factors are related to support systems, the passage of time, and adversity. Resilience is improved by the ability to overcome adversity and stressors. Support systems for undergraduate nursing students include family, friends, and faculty (Thomas & Revell, 2016).

Resilience in previous studies was typically measured quantitatively using various self-reported scales (Beauvais, Stewart, DeNisco, & Beauvais, 2014; Chow et al., 2018;

Kong et al., 2016; Li, Cao, Cao, & Liu, 2015; McGowan & Murray, 2016; Pines et al.,

2014; Rios-Risquez, Garcia-Izquierdo, de los Angeles Sabuco-Tebar, Carrillo-Garcia,

Martinez-Roche, 2016; Smith & Yang, 2017; Taylor & Reyes, 2013, Thomas & Revell,

2016). Resilience has shown variance across studies of undergraduate students. In a study

of Nigerian nursing students by Aloba, Olabisi, and Aloba (2016), resilience was at a

moderate level. Comparatively, studies on Australian and Spanish nursing students

showed high levels of resiliency (Chamberlain, Williams, Stanley, Mellor, Cross &

Siegloff, 2016; Rios-Risquez et al., 2016). Chow et al. (2018) discovered low levels of

resilience in Chinese students. It is uncertain why baseline levels of resilience vary across

cultures.

Well-Being in Undergraduate Nursing Students

There are a variety of ways to quantify well-being in nursing students, and no

consistency was found in tools used to measure well-being. Chow et al. (2018) measured

total well-being by the combination of positive mood, vitality, and interest in things.

Mendes Souza, Martins da Silva Paro, Morales, Costa Pinto, and Martins da Silva (2012)

evaluated well-being across eight domains: physical functioning, general health

perceptions, bodily pain, role limitations caused by physical problems, mental health,

vitality, social functioning, and role limitations caused my emotional problems. Moritz et

al. (2016) evaluated well-being based on four domains: physical, psychological, social

relationships, and environmental. A student's year in school has a varying impact on

overall well-being, however, no consistent results were found in literature. The

inconsistent results could be due to the lack of a unified tool for measuring well-being.

Because each individual study chose to measure well-being differently, it is difficult to

compare studies and determine if there is a difference between well-being and term in school.

Personal factors, such as depression and anxiety, could have a negative impact on overall quality of life (Fabbris, Mesquita Caldeira, Carvalho, & Campos de Carvalho, 2017; Mendes Souza et al., 2012). Gender and sociodemographic factors have had no consistent impact on overall quality of life (Frost et al., 2013; Medes Souza et al., 2012; Mortiz, et al., 2016; Singh, Satele, Pattabasavaiah, Buckner, & Sloan, 2013). It is interesting to note that there was consistency among these factors despite each individual study measuring well-being differently. This could indicate that well-being varies throughout time, but that could not be fully determined until there is a unified method for measuring well-being.

Stress and Well-Being in Undergraduate Nursing Students

When evaluating the quality of life in nursing students, the relationship to stress is under-researched. Fabbris et al. (2017) evaluated spiritual well-being and anxiety, finding that students with higher levels of spiritual well-being had lower levels of anxiety. Bodenlos, Wells, Noonan, and Mayrsohn (2015) used the Medical Outcomes Short-Form Health Survey to measure overall emotional well-being in undergraduate students. They found positive well-being was associated with lower levels of perceived stress.

Resilience and Well-Being in Undergraduate Nursing Students

Due to the rigorous demands of the nursing profession, such as high burnout rates, it is important to understand how factors, such as resilience and well-being, affect each other. Chow et al. (2018) examined how these two concepts interacted in nursing students

in Hong Kong. Resilience levels of undergraduate nursing students were lower than post-graduate students. However, there was no difference between perceived well-being in the groups. Rios-Risquez et al. (2016) studied well-being and resiliency. Their study demonstrated a significant relationship between resiliency and psychological health, resiliency and academic efficacy, and resiliency and emotional exhaustion. As with Chow et al. (2018), the Rios-Risquez et al. (2016) study also demonstrated that higher resilience levels improve psychological well-being, in addition to lower levels of academic burnout.

Stress, Resilience, and Well-Being in Undergraduate Nursing Students

Smith and Yang (2017) conducted a research study that included all three concepts of resiliency, well-being, and stress. Data analysis revealed significant relationships among all three concepts. High levels of stress in the students impacted the psychological well-being of the students, with higher stress scores and poorer psychological well-being indicated in later stages of the nursing program. They found resilience was a predictor of psychological well-being and helped students overcome stressful situations. Overall, the study highlighted the importance of resilience as a mediator for stress and well-being in undergraduate nursing students

Methods

The design of this study was a descriptive correlational secondary analysis of research by Forsyth, Smith, and Winrow (2015). All completed surveys from primary study were used in this secondary analysis (N =260). Term I students were in their junior year and first semester of the nursing program. Term II students were junior nursing students in their second semester of the nursing program. Term III students were senior

nursing students in their third semester. Finally, Term IV students were in their senior

year and final semester of the nursing program.

Instruments

Stress was measured using the Perceived Stress Scale (Cohen et al., 1983), a 10-

item Likert scale tool. Respondents are asked to answer regarding their feelings over the

last month. Each item is ranked zero (never) to four (very often), and higher scores

indicate higher levels of stress (highest score 40). Internal consistency of this tool ranges

from 0.84 to 0.86 and test-re-test reliability of 0.85 (Cohen et al., 1983). Cronbach's

alpha for the current study was 0.86.

Resilience was measured using the CD-RISC 25 (Connor & Davidson, 2003).

This tool contains 25 items with Likert responses from 0 (rarely true) to 4 (true nearly all

the time). Respondents are asked to answer regarding their feelings over the last month.

The score can range from 0-100 with higher scores indicating higher resilience. Internal

consistency for this tool is Cronbach's alpha of 0.89 and retest reliability was 0.87

(Connor & Davidson, 2003). Cronbach's alpha for the current study was 0.80.

Well-being is measured by the LASA (Locke et al. 2007). This tool contains five

questions with Likert responses from 0 (as bad as it can be) to 10 (as good as it can be).

Respondents are asked to answer regarding their feelings over the last week. The scores

of each question are not added together, "as each item is intended to stand alone" (Locke

et al., 2007, p. 631). For this study, overall well-being (question five) is the most relevant

question and was used in analysis. The LASA was found to have Cronbach's alpha

values of 0.83, 0.88, and 0.88 at time zero, month two, and month four, respectively

(Locke et al., 2007). There was no test-retest reliability as Locke et al. (2007) expected

the quality of life to vary greatly over time. The LASA tool was used originally to evaluate the quality of life in neuro-oncology patients and has been used to measure well-being in cancer patients. Currently it has not been used to study undergraduate nursing students, however, Cronbach's alpha for our study was good at 0.86.

Data Collection Procedure

De-identified research data for the secondary analysis was provided by the primary investigators via OneDrive. Following university IRB approval, survey data were provided to these authors for secondary analysis in collaboration with a statistician via Excel data base. These secondary data remained de-identified.

Results

Demographic information provided by the respondents included term, age, and gender. A mix of each term was represented; 85 Term I students, 42 Term II students, 86 Term III students, and 43 Term IV students completed the survey. Four respondents selected more than one answer for question regarding term and were excluded from analysis of each concept by term. Ages of respondents were measured using ranges. Two hundred and forty-seven respondents were age 18-22, 13 were age 23 and older. The sample consisted of 236 females and 24 males. Descriptive statistics for each tool are provided in Table 1.

Table 1

Descriptive Statistics for PSS, CD-RISC 25, and LASA

Tool	Sample Size (*n*)	Mean ($\bar{x}$)	Standard Deviation (σ)	Minimum	Maximum
Stress (PSS)	215	30.02	3.97	19	40
Resilience (CD-RISC 25)	237	72.08	10.7	31	98
Well-Being (LASA)	255	5.63	1.93	0	10

Note: Higher scores for PSS indicate higher stress, higher scores for CD-RISC 25 indicate higher resilience, and higher scores for LASA indicate higher well-being.

Data were analyzed using linear regression and ANOVA to determine relationships between concepts. Results showed a significant negative relationship between stress and resilience ($p < 0.0001$). For every one-point increase in resilience, there was a 0.2994-point decrease in stress score on average. The correlation between stress and resilience was moderate, demonstrated by a correlation coefficient of -0.505.

Data analysis examining the relationship between stress and well-being showed a significant negative relationship ($p < 0.0001$). For every one-point increase in well-being, there was a 2.22-point decrease in stress score on average. The correlation between the stress and well-being was moderate, demonstrated by a correlation coefficient of -0.68.

A significant positive relationship was identified between resilience and well-being ($p < 0.0001$). For every one-point increase in resilience, there was a 0.08-point increase in well-being score on average. The correlation between the well-being and resilience was moderate, demonstrated by a correlation coefficient of 0.481. Table 2 summarizes the results for research questions one, two, and three.

Table 2

Relationships Between Concepts

Comparison Groups	Sample size (*n*)	Slope (*m*)	Correlation (*r*)	*p*-value
Stress (PSS) and Resilience (CD-RISC 25)	199	-0.2994	-0.505	< 0.0001*
Stress (PSS) and Well-Being (LASA)	212	-2.2	-0.68	< 0.0001*
Well-Being (LASA) and Resilience (CD-RISC 25)	237	0.08	0.481	< 0.0001*

* Denotes statistical significance

ANOVA was used to analyze data comparing the relationships among concepts

and terms. Figure 5 depicts the average in scores of resilience, stress and well-being

throughout each term. Resilience remained consistent throughout the four academic

terms of the program, with no significant difference between the terms. Well-being and

stress had no significant difference between Term I and Term II, and Term II and III.

Well-being had significant differences between Term I and IV ($p < 0.0001$), Term II and

IV ($p = 0.005$), and Term III and IV ($p = 0.0038$). Stress had significant differences

between Term I and III ($p = 0.0075$) and Term I and IV ($p < 0.0001$).
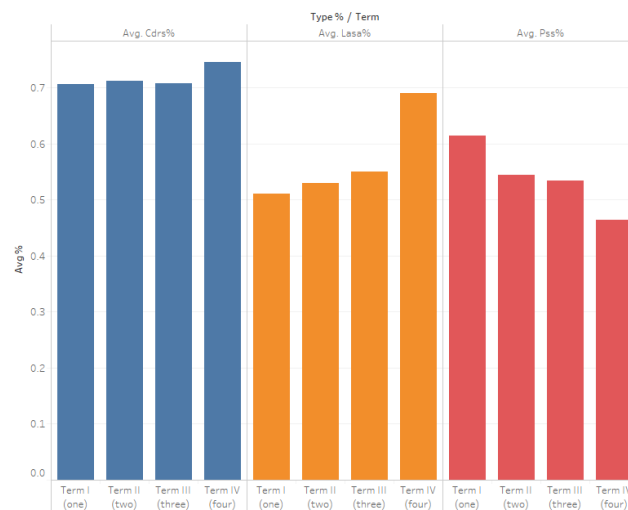
Figure 5. Difference between term levels in average percentage of stress, well-being, and
resilience.

Discussion and Conclusions

The relationship among stress, resilience, and well-being described in the literature review was supported by this study. Bodenlos et al. (2015), He et al. (2018), and Lee (2014) all found that stress and well-being had a moderate negative correlation; higher perceived stress was associated with lower well-being. Higher resilience led to lower stress and improved well-being by Smith and Yang (2017) and Chow et al. (2018). Rios-Risquez et al. (2016) and Chow et al. (2018) showed positive relationships between resilience and well-being.

When assessing perceived stress by academic term, the established evidence varied. Bosso et al. (2017) found a statistically significant difference between first year and fourth year students, with first year students reporting higher stress. Although different tools were used, the findings are consistent with the current study where differences in mean PSS (Cohen et al., 1983) scores were statistically significant between Term I students (31.32) compared to Term IV students (28.30). However, Hirsch et al. (2018) found students in earlier semesters were less stressed than later semesters, and Murdock et al. (2010) found no significant differences in perceived stress by semesters. This warrants further research to examine the relationship between stress and academic term.

Higher stress in this study coincided with lower levels of well-being. The results of the current study concur with other studies, in relation to well-being and year in school (Chow et al., 2018; Mortiz et al., 2016; Moyle et al., 2007), which found that higher levels of well-being were found in the last year. This finding from our study is consistent with the negative relationship found between stress and well-being. Results from our

study showed that well-being increased each term, while stress decreased each term. More research is needed to examine the difference across terms.

Well-being was highest in Term IV, with a mean score of 7.12 out of 10. Moritz et al. (2016) found that social relationships were the highest domain in quality of life for students. This could help explain increased well-being over academic terms. As students form relationships with faculty and classmates throughout their program, well-being could be positively impacted. Students may also feel "settled" and confident in themselves and their close relationships. Students in term IV were graduating in two months from this survey; these students could have optimism related to their future which could impact well-being.

Smith and Yang (2017) found strong relationships among the concepts of stress, well-being, and resilience as well. They suggested that resilience acted as a mediator for stress and well-being; higher resilience predicted improved well-being and helped students overcome stressful situations. Our study showed a strong negative relationship with stress and a strong positive relationship with well-being. However, despite resilience remaining the same across terms, well-being and stress did change. This suggests more research is needed to determine what role resilience plays as a mediator and to determine what other factors are affecting stress and well-being levels, such as methods to decreases stress.

This study showed no significant difference among academic terms and resilience, which was different from some studies. It is argued that resilience is a process and develops through overcoming obstacles and stressors (Stephens, 2013; Thomas & Revell, 2016). Chow et al. (2018) found that graduate students had higher levels of

resilience than undergraduate students, suggesting that resilience was developed through

a process of acquiring resilient qualities.

As stated, resilience and stress showed a negative relationship in this study which

would suggest that as stress decreased in later terms, resilience would increase. Despite

stress decreasing in later terms, resilience did not significantly change. The results of this

study could be congruent with the findings of Reyes et al. (2015a). Their qualitative

research uncovered a dynamic theme of "pushing through" where students endured

hardships and took necessary steps to achieve goals. This process was non-linear and

non-static. Students took various steps to achieve academic outcomes. These steps were

not dependent on age, experience, or term in school but instead on different encounters

along the way. Student resilience was an undercurrent to academic success.

Understanding this theme may help understand the results of our study and why there was

no significant change in resilience in relation to academic term.

Another explanation is that resilience is high in these students upon entering the

program. Average scores of the CD-RISC 25 (Connor & Davidson, 2003) in Term I

through Term IV were in the 70s ($\bar{x} = 72.08$). Nursing is a competitive and rigorous

undergraduate program which requires dedication and commitment to even get admitted.

Perhaps these students learned resilience throughout their coursework by "pushing

through" or eyeing their goals prior to admittance into the nursing program and are,

therefore, resilient students from the start.

Concept Map

In the literature review, well-being was positively impacted by resilience and negatively

impacted by stress. This is congruent with the findings found in this study. However, the

literature found both positive and negative relationships between stress and resilience. In

this study, there was only a negative relationship between these two variables. A concept

map including the results of this study results is shown in Figure 6.

This study only examined the differences between well-being, stress, and

resilience among term. It did not examine other personal and environmental factors that

could impact these variables. It was beyond the capabilities of this secondary analysis to

determine whether personal factors or environmental factors or both were related to the

variation in stress and well-being by term. Therefore, these findings were not included in

the concept map, and instead the relationship of the concepts by term is depicted in

Figure 7.

Scope and Limitations

This study only examines the relationships between the three concepts and student

nursing terms for undergraduate students. The tools have variable timeframes that

respondents are asked to reflect on. The PSS (Cohen et al., 1983) and CD-RISC 25

(Connor & Davidson, 2003) as respondents to respond over the past month, while the

LASA (Locke et al., 2007) over a week. Limitations to this secondary analysis include a

specific cohort of students at one Midwestern university with predominately white,

female, and traditional students at a single point in time. Only question five of the LASA

was analyzed for this study which could affect results of our study compared to using all

questions of the LASA tool.

Figure 6
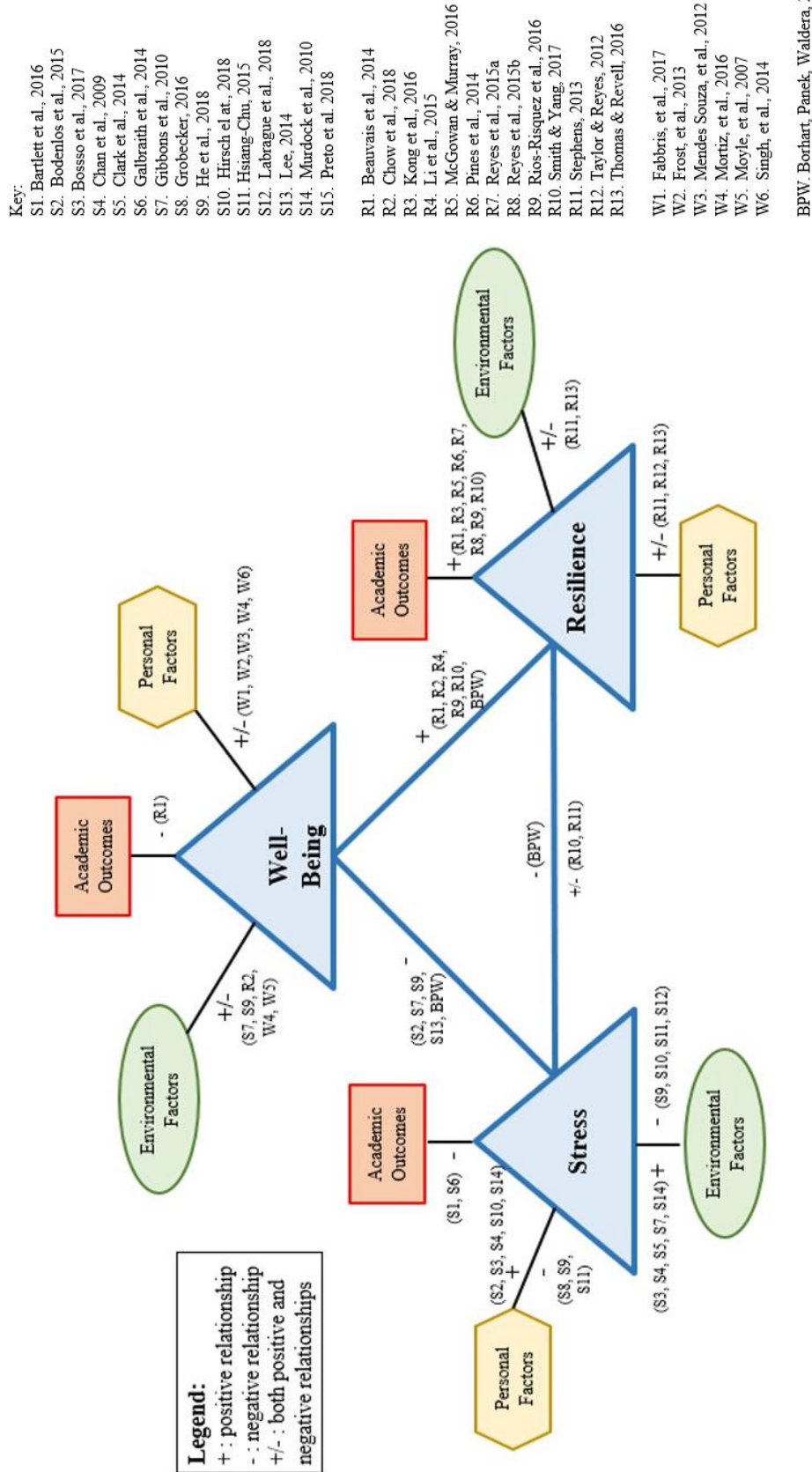
Figure 6. Relationships among stress, resilience, and well-being (updated)

Key:
S1. Bartlett et al., 2016
S2. Bodenlos et al., 2015
S3. Bosso et al., 2017
S4. Chan et al., 2009
S5. Clark et al., 2014
S6. Galbraith et al., 2014
S7. Gibbons et al., 2010
S8. Grobecker, 2016
S9. He et al., 2018
S10. Hirsch el at., 2018
S11. Hsiang-Chu, 2015
S12. Labrague et al., 2018
S13. Lee, 2014
S14. Murdock et al., 2010
S15. Preto et al. 2018

R1. Beauvais et al., 2014
R2. Chow et al., 2018
R3. Kong et al., 2016
R4. Li et al., 2015
R5. McGowan & Murray, 2016
R6. Pines et al., 2014
R7. Reyes et al., 2015a
R8. Reyes et al., 2015b
R9. Rios-Risquez et al., 2016
R10. Smith & Yang, 2017
R11. Stephens, 2013
R12. Taylor & Reyes, 2012
R13. Thomas & Revell, 2016

W1. Fabbris, et al., 2017
W2. Frost, et al., 2013
W3. Mendes Souza, et al., 2012
W4. Mortiz, et al., 2016
W5. Moyle, et al., 2007
W6. Singh, et al., 2014

BPW. Borhart, Panek, Waldera, 2018

Legend:
+ : positive relationship
- : negative relationship
+/- : both positive and negative relationships

Figure 7

Figure 7. Relationships among concepts and academic terms.

Implications for Practice/Education

Well-being of nursing students is an important consideration for nursing educators. Stress can cause negative impacts on students such as increased illness or decreased retention.   It can be beneficial for nursing programs to include resilience training or stress reduction strategies in their curriculum. Resiliency and stress reduction training could be done formally, using standardized programs or informally through discussions in the classroom. By increasing resilience or reducing stress of students, overall well-being can improve.

Stress, resiliency and well-being can also impact students' academic success. Students who have positive academic outcomes will have success when they transition to professional nursing. The students who can utilize resiliency skills and effectively manage stress can continue to employ these skills outside of academia. Educators should work towards reducing stress, enhancing student confidence and well-being, and fostering resilience in students. Additionally, faculty should focus on interactions with students and foster supportive relationships in order to increase resilience.

Implications for Research

This secondary analysis adds to the body of evidence that describes the concepts of stress, resilience, and well-being. Future research should be done to examine causal relationships between the concepts. For instance, a randomized control study could determine if resilience training impacts well-being. Interventional studies will be helpful in identifying the personal and environmental factors and how they affect each of these concepts. A longitudinal study could be conducted to determine if these concepts change

over time. Additionally, a longitudinal study could help identify which interventions are successful in increasing resilience.

Well-being is a concept that is not studied in a consistent matter. The use of the LASA (Locke et al., 2007) has been shown to be an effective measurement and allows the respondent to subjectively rate their own well-being. Increasing the use of LASA in research can bring consistency in measurement and assist in determining if there are other variables that have a consistent impact on well-being. There is much research on the impact of resilience, but little research on which interventions can help increase resilience and what can be done to foster resilient students.

Summary

This study examined the relationships between pairs of the concepts of stress, resilience, and well-being in addition to the relationship among academic terms and each concept. Findings of this study revealed strong relationships between concepts. Additionally, low stress levels and high well-being levels were revealed in Term IV students despite resilience levels remaining the same throughout academic terms. Further research needs to be done to understand the role of resilience on stress and well-being and to determine effective measures to reduce stress in Term I students in order to improve well-being.

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APPENDIX A

Literature Search Table

Citation / Search Engine Used	Date	Keywords	Results	Results Viewed	Filters
CINAHL	2/8/18	"Connor-Davidson resilience scale" + "undergraduate nursing students"	1	1	English Full text available
CINAHL	2/8/18	Connor-Davidson resilience scale + nursing students	5	2 (3 unavailable)	English
CINAHL	2/8/18	stress, resilience, well-being nursing students	10	3	English Full text available
PUBMED	2/20/18	Resiliency + "nursing students"	117	15	English Full text available 5 years old or newer
CINAHL	2/20/18	Resiliency + "undergraduate nursing students"	1	1	English Full text available
CINAHL	2/20/18	Resiliency + "nursing students"	12	4	English

Citation / Search Engine Used	Date	Keywords	Results	Results Viewed	Filters
CINAHL	2/27/18	Quality of Life + Nursing Students	200	10	English
CINAHL	2/27/18	Well-being measures + Nursing Students	17	8	English
EBSCOhost	3/1/18	Nurs*, student, stress	169	43	English Peer reviewed Full text available 5 years old or newer
CINAHL	3/3/18	Nurs*, "Perceived Stress Scale"	84	12	English Peer reviewed Full text available 5 years old or newer
EBSCOhost	3/10/18	"Perceived Stress Scale" + Nurs*	20	4	English Peer reviewed Full text available 5 years old or newer
EBSCOhost	3/10/18	"Perceived Stress Scale" + Student	35	7	English Peer reviewed Full text available 5 years old or newer

Citation / Search Engine Used	Date	Keywords	Results	Results Viewed	Filters
PsychInfo	3/11/18	Linear Analog Scale Assessment	65	3	English Full text available
PsychInfo	3/11/18	Quality of life + Nursing Students	108	8	English
PUBMED	3/11/18	Quality of life + Nursing Students	483	3	English Full text available

APPENDIX B

Stress Literature Table

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Bartlett, M. L., Taylor, H., & Nelson, J. D. (2016). Comparison of mental health characteristics and stress between baccalaureate nursing students and non-nursing students. *Journal of Nursing Education, 55(2),* 87-90. doi: 10.3928/0148483 4-20160114-05 **PubMed**	Compare stress and mental health indicators between nursing students and all other students.	*N* = 232 156 undergraduate nursing students, 76 non-nursing undergraduate students. Mid-sized university in the southwestern United States.	Descriptive, comparative Descriptive statistics, chi square analysis, Mann-Whitney *U* test Mental health (National College Health Assessment II, questions 30-37 used for this study)	Median score for level of stress significantly higher in nursing students ($p < 0.001$). Regarding impact on academics, nursing students reported more anxiety and sleep disturbances affecting academics than non-nursing students ($p < 0.05$). Nursing students report more stress-related illness than non-nursing students ($p < 0.05$)	Nursing students experience higher levels of stress and negative outcomes of stress.	6474 enrolled undergraduate students (1.2% response rate) 488 undergraduate nursing students (32% response rate). 88% percent of students in both samples were upperclassmen. NCHA-II is an 11 page, 300 question assessment administered via Scantron booklet.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Bodenlos, J. S., Wells, S. Y., Noonan, M., & Mayrsohn, A. (2015). Facets of dispositional mindfulness and health among college students. *Journal of Alternative & Complementary Medicine, 21(10)*, 645-652. doi: 10.1089/acm.2014.0302 **EBSCOHost**	Examine the associations between facets of mindfulness with psychological and physical health in college students.	$N = 310$ (68% female, 32% male, age 18-24, 85% white) Undergraduate students from a small, private college in the northeastern United States	Descriptive correlational Self-reported measures: Subjective stress (Perceived Stress Scale-14), Mindfulness (Five Facets Mindfulness Questionnaire), Physical and mental health, emotional well-being (Medical Outcomes Short-Form Heath Survey), and alcohol misuse (Rutgers Alcohol Problems Index) Facets of Mindfulness: Observing, describing, acting with awareness, nonjudging of experience, nonreactivity to inner experience.	Subjective stress was negatively associated with mindfulness and health domains ($p < 0.05$). Positive emotional well-being was associated with lower stress levels ($p < 0.01$) Observation facet was negatively associated with physical health. Acting with awareness and nonjudging facets were associated with emotional well-being. Nonjudging facet was also had a positive relationship with social functioning. Mean PSS score = 37.58	Tailoring mindfulness interventions to enhance these facets may be beneficial to young adults. It may be beneficial for college counselors to emphasize acting with awareness and nonjudgement when working with college students. Limited generalizability – predominately white, limited variability in health and physical functioning.	Students offered extra credit or entered in a drawing for a 50-dollar gift card for participation in the survey.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Bosso, L. O., da Silva, R. M., & Costa, A. L. S. (2017). Biosocial-academic profile and stress in first- and fourth-year nursing students. *Invest Educ Enferm, 35(2),* 131-138. doi:10.17533/udea.iee.v35n2a02 **EBSCOHost**	Examine relationships between stress and demographic and academic variables. Compare stress between first year and final year nursing students.	*N* = 83 Undergraduate nursing students Public university in San Paulo, Brazil	Cross-sectional descriptive Demographic data (Birthdate, children, ethnicity, marital status, city of residence, income, education history, smoking habits, alcohol consumption) Academic variables (Current academic semester, number of courses, credit load, time spent studying, work experience, satisfaction with course) Stress (Assessment of Stress in Nursing Students) Mix of email-based and in person questionnaires.	Majority of first-year students reported moderate stress (80%), compared to fourth-year students reported high stress (54.3%). Insufficient income and extra-curricular activities were related to higher levels of stress ($p < 0.05$). Stress level was significantly higher in fourth-year students than first-year students ($p < 0.001$). Younger students experience lower stress in year one and higher in year four when compared to older students.	Perception of stress and stressors varies between first- and fourth- year students. Stress management interventions should be tailored to the needs of the student specific to their progress in the nursing curriculum.	Small sample size Mix of questionnaire administration method must be considered when interpreting results.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Chan, C. K. L., So, W. K. W., & Fong, D. Y. T. (2009). Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice. *Journal of Professional Nursing, 25*(5), 307-313. doi: 10.1016/j.profnurs.2009.01.018 **EBSCOHost**	Examine relationship between stress and coping strategies of undergraduate nursing students.	*N* = 205 (342 eligible participants, response rate 60%) Hong Kong Chinese baccalaureate nursing students during clinical practice.	Cross-sectional descriptive Self-administered survey Demographics (Age. term, gender, religion), Stress levels, types of stressors (Perceived Stress Scale), Coping strategies (Coping Behavior Inventory Four types of coping strategies: Avoidance, transference, problem-solving, optimistic. Define stress by using mean Likert score on PSS.	Students perceived a moderate level of stress (*M* = 2.10, SD 0.44). Transference was the most frequently used coping strategy (*M* = 2.73, SD = 0.71). Lack of professional knowledge and skills was the most common stressor, followed by stress from assignments and workload.	Provides educators information for identifying students' needs and developing effective interventions to reduce stress. Clinical instructors and educators need to teach effective coping strategies that will be sustainable throughout their career.	PSS in this study was created by Sheu et al in 1997, not the same scale used in our study. Requirements for clinical hours from the Nursing Council of Hong Kong are higher than requirements in the United States. This, along with culture influences on academic performance expectations, may limit generalizability.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Clark, C. M., Nguyen, D. T., & Barbosa-Leiker, C. (2014). Student perceptions of stress, coping, relationships, and academic civility: A longitudinal study. *Nurse Educator, 39(4),* 170-174. doi: 10.1097/NNE000 00000000004 9 **EBSCOHost**	Examine relationship between stress and academic incivility.	*N* = 68 Bachelor of science nursing students. Data collected from a single cohort of students. Survey administered during the sixth week of students' sophomore, junior, and senior years. Northwest region of the United States.	Descriptive, longitudinal One-way between groups ANOVA 13-item, author designed questionnaire. Mix of Likert-style and open-ended questions. Perceived stress, coping, faculty-student relationships, student-student relationships, and ways to promote civility in education.	Decrease in level of civility and quality of student-faculty relationships over time ($p < 0.05$). Top three stressors: demanding academic workloads, balancing time, work, school, and family, and finding time to relax. Top three coping strategies: spending time with friends and family, exercising and getting outdoors, and organizing, planning and prioritizing. Students reported faculty incivility as a stressor in years two and three of the study.	This study demonstrates the relationship between civility and students' perception of stress, coping, and relationships.	Small sample size. Identifiers not collected, so unable to complete repeated measures analysis.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Galbraith, N. D., Brown, K. E., & Clifton, E. (2014). A survey of student nurses' attitudes toward help seeking for stress. *Nursing Forum, 49(3),* 171-181. doi: 10.1111/nuf.12066 **CINAHL**	Examine attitudes towards stress and help-seeking.	*N* = 219 Undergraduate nursing students at two large U.K. universities. Questionnaires administered at beginning or end of lecture period.	Cross-sectional descriptive Frequency, Chi-square test, Fisher's exact test Demographic data (sex, age, year in program), attitudes toward stress and help seeking (author developed questionnaire).	74.9% reported that they have experienced stress. 72.1% believed nurses had higher stress than the general population. 87.2% would choose to disclose stress to family/friends over colleagues or professional institutions (χ^2 = 16.5). Only 11.4% would opt for formal professional advice. 47.9% would prefer social support, and 30% would seek informal professional advice. (Fisher's exact = 97.72, *p* = 0.001)	Preference for social support and informal advice instead of formal professional advice may lead to a delay in getting help and unhealthy coping styles. This study provides insight for nurse educators in addressing attitudes toward stress and help-seeking behaviors.		VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Gibbons, C., Dempster, M., & Moutray, M. (2010). Stress, coping, and satisfaction in nursing students. *Journal of Advanced Nursing, 67(3),* 621-632. doi: 10.1111/j.365-2648.2010.05495.x **CINAHL**	Explore relationship between sources of stress and psychological well-being.	$N = 171$ Final year nursing students. Queens University Belfast, UK 61% response rate	Cross-sectional descriptive Survey administered via computer Sources of stress (Index of Sources of Stress in Nursing), Self-efficacy (General Self-Efficacy Scale), coping styles (Brief COPE), Well-being (General Health Questionnaire, course and career satisfaction).	Avoidance coping style was the strongest predictor of poor well-being Clinical placement was the only stressor that had a statistically significant relationship with course and career satisfaction ($r = -0.228, p < 0.01$) Self-efficacy, support, and dispositional control have positive relationship with well-being ($p < 0.01$)	Placement experiences play an important role in students' satisfaction. Nurse educators should be aware of the various factors that are related to stress and their ability to influence students' well-being.	Perception of stressor (as a hassle vs. a motivator) had varying impacts on well-being. A negative perception of stressors had a negative relationship with well-being, where a positive view of stressors had a positive relationship with well-being.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Grobecker, P. A. (2016). A sense of belonging and perceived stress among baccalaureate nursing students in clinical placements. *Nurse Education Today, 36,* 178-183. doi: https://doi-org.wsuproxy.mnpals.net/10.1016/j.nedt.2015.09.015 **PubMed**	Examine the relationship between a sense of belonging and perceived stress among baccalaureate nursing students in clinical placements.	*N* = 1296 Convenience sample - National Student Nurses Association database 30,000 members received an email invitation to the online survey. 1595 responded: 286 excluded due to incomplete data and 17 did not meet inclusion criteria (currently enrolled students, 18 years or older, and completed at least one clinical experience).	Descriptive correlational Pearson correlation coefficient, two-tailed analysis Online survey administered through SurveyMonkey® Stress (Perceived Stress Scale), sense of belonging (Belongingness Scale – Clinical Placement Experience), and demographic questionnaire.	Statistically significant negative correlation between sense of belonging and perceived stress (*r* = -0.277, *p*-value not reported).	This study supports the concept that sense of belonging has a positive impact on student's learning, motivation, and confidence.	Sample of students that belong to NSNA might not be representative of the general population. Mean PSS score not reported.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
He, F. X., Turnbull, B., Kirshbaum, M. N., Phillips, B., & Klainin-Yobas, P. (2018). Assessing stress, protective factors and psychological well-being among undergraduate nursing students. *Nurse Education Today, 68,* 4-12. doi: 10.1016/j.nedt.2018.05.013 **EBSCOHost**	Examine predictors and mediators of psychological well-being in nursing students.	*N* = 538 (response rate of 37%) Nontraditional nursing students Australian regional university, curriculum taught predominately online.	Cross-sectional, descriptive correlational Pearson's correlation analysis, multiple linear regression Well-being (Psychological Well-being Scale), stress (Perceived Stress Scale), self-efficacy (General Self-Efficacy Scale), resilience (Connor Davidson Resilience Scale), social support (Multi-dimensional Scale of Perceived Social Support), and mindfulness (Mindfulness Attention Awareness Scale).	All variables except self-efficacy had a statistically significant correlation with negative psychological well-being ($p < 0.05$). Students who experience higher levels of stress report higher levels of negative psychological well-being ($r = -0.55$, $p < 0.01$) Those with higher resilience, mindfulness, and social support had lower negative psychological well-being ($r = 0.40$-0.48, $p < 0.01$) Mean PSS score = 27.91	Nurse educators have the opportunity to impact students' wellbeing by including stress management and resilience content in the curriculum, and providing resources and support to students.	Low response rate. 1760 students invited to participate in study. Used a 1-5 Likert scale for PSS (instead of 0-4)	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Hirsch, C. D., Devos Barlem, E. L., de Almeida, L. K., Tomaschewski-Barlem, J. G., Lunardi, V. L., & Ramos, A. M. (2018). Stress triggers in the educational environment from the perspective of nursing students. *Texto Contexto Enferm, 27(1)*, 1-11. doi: 10.1590/0104-0707201800037 0014 **CINAHL**	Identify perceived triggers of stress in the nursing education environment.	$N = 146$ Convenience sample Nursing students from all semesters Public university in southern Brazil	Descriptive ANOVA, linear regression Demographic variables (age, sex, current grade, number of courses, satisfaction, and relationship with professors), Perceived stressors (Stress Assessment in Nursing Students Scale) – grouped into six dimensions: environmental and professional relationships, commuting, academic education, practical knowledge acquired, time and leisure, professional security. Scored with a Likert-scale ranging zero to three.	Students from earlier semesters were less stressed than those in later semesters (no *p*-value reported). Time and leisure dimension had the highest mean score ($\bar{x}$ = 2.28), followed by the academic education dimension ($\bar{x}$ = 1.88). Relationship with faculty influenced the perception of academic education as a stressor. Students with regular, poor, or very poor relationships reported higher stress than those with great or good relationships (p = 0.01)	Understanding the source of stress for undergraduate nursing students can assist nurse educators in targeting interventions and stress management strategies. Relationships been faculty and students can impact students' levels of stress.	Tables not clearly organized. Difficult to identify data to support conclusions made in the text.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Hsiang-Chu, P. A. I. (2015). The effect of a self-reflection and insight program on the nursing competence of nursing students: A longitudinal study. *Journal of Professional Nursing, 31*(5), 424-431. doi: 10.1016/j.profnurs.2015.03.003 **CINAHL**	Evaluate the effects of a self-reflection practice exercise program for nursing students on clinical competence, self-reflection, stress, and perceived quality of teaching.	*N* = 245 Nursing students in their clinical practice course (21 credits, 1,120 hours). October 2012 - March 2013 Mean age: 19.38 years 5-year diploma program in Taiwan.	Longitudinal, descriptive correlational Data collected at two, four, and six months after clinical experience. Nursing competence (Holistic Nurse Competence Scale), ability to self-reflect (Self-Reflection and Insight Scale), perceived stress in clinical practice (Perceived Stress Scale), and perceived instruction quality (Clinical Teaching Quality Scale).	Nursing competence was positively related to self-reflection (T_1 r = 0.58, $p < 0.01$, T_2 r = 0.56, $p < 0.01$, and T_3 r = 0.60, $p < 0.01$) and negatively related to stress (T_1 r = -0.42, $p < 0.01$, T_2 r = -0.42, $p < 0.01$, and T_3 r = -0.53, $p < 0.01$) Inverse relationship between perceived stress and self-reflection (T_1 r = -0.34, $p < 0.01$, T_2 r = -0.44, $p < 0.01$, and T_3 r = -0.53, $p < 0.01$) Negative correlation between stress and instruction quality, T_2 (r = -0.19, $p < 0.01$) and T_3 (r = -0.33, $p < 0.01$). Perceived stress not significantly related to duration of clinical practice.	Implementing a self-reflection practice program may improve nursing competence and reduce stress. Students' perceived stress is related to perceived instruction quality; therefore, clinical instructors should tailor their teaching strategies to the student. Stress did not change over time. However, students changed wards mid-clinical experience, and this could have influenced their levels of stress.	PSS in this study was created by Sheu et al in 1997, not the same scale used in our study.	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Labrague, L. J., McEnroe-Petitte, D. M., De Los Santos, J. A. A. & Edet, O. B. (2018). Examining stress perceptions and coping strategies among Saudi nursing students: A systematic review. *Nurse Education Today, 65,* 192-200. doi: 10.1016/j.nedt.2018.03.012 **PubMed**	Explore stress perceptions and coping of Saudi nursing students	11 articles SCOPUS, CINAHL, PubMed, Ovid 2010-Present Published in English	Systematic review of descriptive studies Search terms: Stress, psychological stress, coping, psychological adaptation, Saudi Arabia, student, nurse. 12-item Centre for Evidence-Based Medicine tool Inductive thematic analysis	Eight studies reported moderate to high levels of stress. Five studies identified heavy workloads as a predominant stressor. Three studies identified caring for patients as the main source of stress. Inconclusive results on relationship between demographic variables and stress.	Findings from this study consistent with samples from other geographic and cultural regions.	Limited to studies of Saudi students. Limited generalizability.	V

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Lee, Y. (2014). The relationship of spiritual well-being and involvement with depression and perceived stress in Korean nursing students. *Global Journal of Health Science, 6(4).* 169-176. doi: 10.5539/gjhs.v6n4p169 **CINAHL**	Identify relationship among spiritual well-being, depression, and perceived stress.	$N = 518$ Undergraduate nursing students K province, Korea.	Descriptive correlational *t*-test, ANOVA, Pearson's correlation coefficient Spiritual well-being (Spiritual Well-being Scale) Subscales: Religious well-being (odd numbered questions), Existential well-being (even numbered questions). Depression (Beck's Depression Inventory) Stress (Perceived Stress Scale) All tools were translated into Korean	No significant difference between genders in well-being scores. Mean PSS score = 15.47. Higher well-being was associated with lower stress on all three scales/subscales (Spiritual $r = -0.299$, Religious $r = -0.153$, Existential $r = -0.376$ $p < 0.001$).	Spirituality has an important relationship with stress, and influences overall well-being. Existential well-being has a similar relationship with stress compared to religious well-being. Promoting a sense of meaning in life is important in individuals that do not consider themselves religious.		VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Murdock, C., Naber, J., & Perlow, M. (2010). Stress level and stress management skills of admitted baccalaureate nursing students. *Kentucky Nurse, 58(2),* 8. **CINAHL**	Explore stress levels and stress management skills in baccalaureate nursing students. Examine relationship between stress and gender and program placement.	*N* = 95 Mean age: 23.03 years Paper questionnaire distributed during class. Murray State University, Kentucky	Cross sectional descriptive Descriptive statistics, ANOVA Demographic data (age, gender, semester in program), Stress management skills, sources of stress (Author-developed questionnaire).	No significant differences in stress levels by semesters (nears significance, $p = 0.051$). Female students have higher stress than male students ($p = 0.007$). Mean level of stress = 3.8 (out of 5). Stress management techniques: exercise (33.7%), socializing (19.0%), listening to music (12.6%), eating (11.6%), meditation (7.3%), smoking (2.1%), drinking alcohol (1.1%) or other (12.6%) Majority responded "yes" that they wanted to develop better stress management skills.	Nursing students report a moderate to high level of stress. Stress management techniques selected most often were active and emotion-focused.		VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Preto, V. A., Palomo Garcia, V., Gonçalves Araujo, L., Mendes Flauzino, M., Correia Teixeira, C., da, S. P., et al. (2018). Perception of stress in nursing academics. *Journal of Nursing UFPE / Revista De Enfermagem UFPE, 12*(3), 708-715. doi: 10.5205/1981-8963-v1213a231389p 708-715-2018

EBSCOHost | Evaluate the perception of stress, and the relationship between perceived stress and socio-demographic characteristics in nursing students. | *N* = 136

Nursing students from private university in Aracatuba, San Paulo, Brazil.

Inclusion criteria: 18 years old or greater, enrolled in nursing course, present in classroom at time of administration of data collection tools. Exclusion criteria: absence in the classroom

March-April 2016 | Cross-sectional descriptive correlational

Socio-demographic data (sex, marital status, ethnicity, employment status, living situation, drinks alcohol, smokes, practice weekly leisure activity), perceived stress (Perceived Stress Scale - 14).

Pearson's chi-squared test | 46.5% of students reported a medium level of stress, 22.8% reported a high level of stress, and 30.9% reported a low level of stress. Mean PSS score = 28.6.

No statistically significant relationships between perception of stress and each socio-demographic variable ($\alpha = 0.05$). | Definition of low, medium, and high stress based on percentiles of the sample (high stress: 75th percentile or higher, medium stress: 25th-75th percentile, low stress: below 25th percentile).

Authors identify some demographic variables that are related to higher perceived stress (smoking, alcohol consumption, marital status, leisure activity) which may guide preventative interventions. | The authors make additional observations regarding the relationship between each socio-demographic variable and the perceived level of stress, but the descriptive statistics are not clearly presented. The table provided to supplement this discussion is difficult to interpret. | VI |

Note. Level of evidence rating scale is based on Ackley, B.J., Swan, B.A., Ladwig, G., & Tucker, S. (2008). *Evidence-based nursing care guidelines: Medical-surgical interventions.* (p. 7). St. Louis, MO: Mosby Elsevier.

APPENDIX C

Resilience Literature Table

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Beauvais, A. M., Stewart, J. G., DeNisco, S., & Beauvais, J. E. (2014). Factors related to academic success among nursing students: A descriptive correlational research study doi:https://doi-org.wsuproxy.mnpals.net/10.1016/j.nedt.2013.12.005

PubMed | Describe the relationship between emotional intelligence, psychological empowerment, resilience, spiritual well-being, and academic success in undergraduate and graduate nursing students | N = 124

73 undergraduate, 50 graduate, 1 nonspecified

Private Catholic university in New England

120 females 109 Caucasian 80 singles

Background data gathered: age, gender, ethnicity, marital status, type of nursing program, self-reported GPA | Descriptive correlational design

Spreitzer Psychological Empowerment Scale, Wagnild and Young Resilience Scale, Spiritual Well-Being Scale, Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) – accessed through SurveyMonkey and the publisher website for MSCEIT | Managing emotions (branch of EI) statistically significant correlation to academic success (p = 0.002) Psychological empowerment and academic success significantly (weak) correlated (p = 0.033) Resilience and academic success significantly (weak) correlated (p = 0.007) Spiritual well-being and academic success significantly (weak) correlated (p = 0.029) | Undergrad students: total emotional intelligence not related to academic success – perceiving emotions (branch 1) improved success

Combined: spiritual well-being, empowerment, resilience increased academic success, managing emotions (branch 4) EI | Attrition rates for undergrad up to 50%, Attrition for master's programs 10-75% and 40-70% in doctorate

Freshman nursing students excluded from study

Differing results from grad and undergrad students

Grad students may have developed greater emotional intelligence over time or may be able to better manage stressors than undergrad students | IV |

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Chow, K. M., Tang, W. K. F., Chan, W. H. C., Sit, W. H. J., Choi, K. C., & Chan, S. (2018). Resilience and well-being of university nursing students in Hong Kong: A cross-sectional study. *BMC Medical Education, 18*(13)10.1186/ s12909-018-1119-0 **CINAHL**	Examine relationship between resilience and well-being among university nursing students in Hong Kong	Convenience sample 678 university nursing students; undergraduate and postgraduate students Chinese University of Hong Kong	Cross-sectional descriptive correlational Connor-Davidson Resilience Scale World Health Organization-5 Well-Being Index	Level of significance 0.05 Significant difference between undergraduates and postgraduates ($p = 0.02$) No significant difference in resilience level between junior and senior students ($p = 0.912$) Wellbeing not significantly different between undergrad and postgrad ($p = 0.131$) Significant difference between junior and senior students well-being ($p = 0.003$)	Nursing students with high level of resilience have better perceived well-being Level of resilience of postgraduates was significantly higher than undergraduates – developed through process where people acquire resilience qualities Perceived stress level negatively correlates with resilience – senior students suffered greater stress Resilience is significant predictor of perceived well-being in students	Strategies should be developed in nursing curriculum Supportive learning environment should be created to foster resilience in students Clinical practicum and academics identified as significant stressor for students Positive thinking should be emphasized in nursing education – plays significant role in mediating resilience and well-being	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Kong, L., Liu, Y., Li, G., Fang, Y., Kang, X., & Li, P. (2016). Resilience moderates the relationship between emotional intelligence and clinical communication ability among Chinese practice nursing students: A structural equation model analysis. *Nurse Education Today, 46*, 64-68. http://dx.doi.org/10.1016/j.nedt.2016.08.028 **PubMed**	Examine relationship between emotional intelligence and clinical communication ability among practice nursing students Determine whether resilience plays a moderating role in relationship between emotional intelligence and clinical communication ability	377 practice nursing students 3 hospitals in Shandong province 308=female, 69=male	Cross-sectional design Questionnaires CD-RISC 10 Higher scores indicate greater resilience 10 questions, Likert scale 0-4 Emotional Intelligence Scale (EII) 33 items, four subscales, higher scores indicate higher level of EI Clinical Communication Ability Scale (CCAS) 28 items, six subscales, higher scores reflect stronger communication	Emotional intelligence positively related to clinical communication ability ($p < 0.01$) Resilience affected clinical communication ability ($p < 0.01$) Resilience moderated relationship between emotional intelligence and clinical communication ability ($p < 0.01$)	Females better at clinical communication than males Resilience associated with clinical communication ability Higher resilience also had more psychological resources such as optimism, tranquility, low neuroticism, high openness – may mean easier adaptation to clinical environment	First study to confirm moderating effect of resilience on relationship between emotional intelligence and communication ability Nursing educators should develop intervention strategies to enhance students' clinical communication ability such as EI training and social-emotional training	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Li, Y., Cao, F., Cao, D., & Liu, J. (2015). Nursing students' post-traumatic growth, emotional intelligence and psychological resilience. *Journal of Psychiatric and Mental Health Nursing, 22*, 326-332. 10.111/jpm.12192 **PubMed**	Investigate relationships among post-traumatic growth, emotional intelligence, and psychological resilience in vocational school nursing students who have experienced childhood adversities	Convenience sample of 202 vocational nursing students Shandong province in China All female	Cross-sectional, anonymous questionnaires (self-report) Childhood Adversities Checklist Post-Traumatic Growth Inventory Connor-Davidson Resilience Scale – 10 item Emotional Intelligence Scale	PTGI scores significantly related to total EIS ($p < 0.01$) and total CD-RISC ($p < 0.01$) Total PTGI not significantly related to emotional expression	Moderate resilience and emotional intelligence can help nursing students cope with adversity in their future clinical work Optimal levels of EI and resilience may foster development PTG High resilience leads to less engagement in cognitive processing needed for PTG to occur Mentorship programs could be helpful for working environments in building resilience	Resilience building should be incorporated into nursing education Students with low or high EI or resilience reported lower growth than those with intermediate EI or resilience levels Emotional intelligence interventions may increase emotional coping resources and enhance social skills for nurses (may benefit long-term occupational health) EI development curriculum could include reflective learning experiences that focus on developing self and dialogic relationships, developing empathy and practicing listening skills	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
McGowan, J. E., & Murray, K. (2016). Exploring resilience in nursing and midwifery students: A literature review. *Journal of Advanced Nursing,* 72(10), 2272-2283. doi:10.1111/jan.12960 **CINAHL**	Explore concepts of resilience hardiness in nursing and midwifery students in educational settings; identify educational interventions to promote resilience	8 quantitative studies Quasi-experimental (3), descriptive correlational (3, analytic cross-sectional (1), convenience sample (1)	Review of quantitative studies using systematic approach Review objectives formulated from Cochrane Handbook for Systematic Reviews	Undergrad students did not display correlation between academic success and resilience; graduate students did Relationship between hardiness and academic performance No significant change in resilience after interventions implemented in programs	Time spent in training and developing resilience still not understood or impactful Positive relationship between higher resilience and hardiness scores lower academic burnout Reflection, experiential learning and creativity promote resiliency	Limited studies - underpowered Poor methodological quality in studies not included in this systematic review More research needs to be done on this topic in this cohort	III

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Pines, E., Rauschhuber, M., Cook, J., Norgan, G., Canchola, L., Richardson, C., & Jones, M. (2014). Enhancing resilience, empowerment, and conflict management among baccalaureate students: Outcomes of a pilot study. *Nurse Educator, 39*(2), 85-90. 10.1097/NNE. 0000000000000023 **CINAHL**	Determine whether nursing students who participate in simulated training exercises that manage intimidating and disruptive behaviors of others have increased perceptions of resiliency, psychological empowerment, and conflict management styles after training	60 undergrad students 2 cohorts – Cohort 1: enrolled in 2010 fall semester and completed in spring 2011 Cohort 2: enrolled in spring 2011 and completed fall 2011 Private, faith-based university in southwest US	Quasi-experimental, pre-post design Didactic and simulated training – Reaching Out and Reaching In curriculum and TeamSTEPPS 4 modules over 2 semesters; modules presented in class Thomas-Kilmann Conflict Mode Instrument (conflict management), Stress Resiliency Profile, Psychological Empowerment Instrument	No significant differences in psychological empowerment ($p = 0.014$) Change in "necessitating" pre v. post (80% to 68%) Change in skill recognition pre vs. post (50% to 58%)	No significant changes noted overall with training programs pre vs post Program was implemented in last 2 semesters of their program – could have limited opportunity for students to practice skills in real-world settings Students don't have experience to understand contextual meaning of programs once in practice	Studies with larger sample sizes needed	III

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Reyes, A., Andrusyszyn, M., Iwasiw, C., Forchuk, C., & Babenko-Mould, Y. (2015a). Nursing students' understanding and enactment of resilience: A grounded theory study. Journal of Advanced Nursing, 71(11), 2622-2633. doi:10.1111/jan.12730 **PubMed**	Explore nursing students' understanding and enactment of resilience	38 students from 4-year, integrated baccalaureate nursing program of a university in Ontario, Canada Seven participants were in first year 13 in each the second and third year Five in the fourth year 18-37 years old 4 males, 34 females	Constructivist, grounded theory qualitative study design Face-to-face interviews conducted during the second semester of the academic year between January and April 2012 Semi-structured interview guide used, interviews lasted 30-60 minutes Follow up telephone or face-to-face interview offered (27 followed up)	'Pushing through' the main theme identified Three phases of 'pushing through' 1. Stepping into- includes sub-phases 'seeking clarity' and anchoring' 2. Staying the course with sub-phases 'broadening perspectives', 'prioritizing', 'collaborating', and 'releasing' 3. Acknowledging with sub-phases 'recognizing', 'contributing', and 're-immersing Disengaging was a theme found during the second phase – three sub-phases include 'defocusing', 'disconnecting' and 'disengaging'	Resiliency is a dynamic process – not a linear one. Students who experience the disengaging phase are not lacking in resilience but are experiencing part of the process of resilience Nurse educators can use this theory to identify where their students are at and apply strategies to help students adapt Administrators can integrate concepts of this theory into their programs to facilitate development of resiliency	Only one university sampled and one-time data collection Nurses can also use this theory to identify their own trajectory and move them through adversities professionally Resilience is perceived by students as a facilitator of academic success	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Reyes, A., Andrusyszyn, M., Iwasiw, C., Forchuk, C., & Babenko-Mould, Y. (2015b). Resilience in nursing education: An integrative review. *Journal of Nursing Education, 54*(8), 438-444. 10.3928/01484834-20150717-03 **PubMed**	Analyze and synthesize empirical and theoretical reports on resilience in nursing education	16 empirical reports (qualitative and quantitative), 3 theoretical papers	Integrative literature review Whittemore and Knafl integrative review method as framework	Main themes: Resilience is important for nursing education Resilience is conceptualized as either a trait or process Resilience is related to protective factors	Resilience is important in nursing students' academic lives and nurse educators work lives Resilience is key contributing factor in successful adaptation to challenges Increased engagement between student and educator facilitates student resilience Resilience must be viewed as holistic perspective when consideration given to fostering resilience in students and educators	Resilience as process more evident in qualitative studies Resilience related to stress, burnout, oppression in daily traumatic experiences	V

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Rios-Risquez, M. I., Garcia-Izquierdo, M., de los Angeles Sabuco-Tebar, E., Carrillo-Garcia, C., & Martinez-Roche, M. E. (2016). An exploratory study of the relationship between resilience, academic burnout and psychological health in nursing students. *Contemporary Nurse, 52*(4), 430-439. 10.1080/10376 178.2016.1213 648 **PubMed**	Examine relationship between resilience, academic burnout, and psychological health in nursing students	Convenience sample 113 students in final academic year Voluntary participation – questionnaires distributed before practical clinical seminar	Descriptive, cross-sectional design Tools: Connor-Davidson Resilience Scale (CD-RISC) 10 questions – 0-4 Likert scale for each question Adapted to Spanish-speaking population Maslach Burnout Inventory Student Survey (MBI-SS) 16 questions – 0-6 Likert scale for each question General Health Questionnaire (GHQ-12) 12 questions, 0-3 Likert Scale	$p < 0.5$ for: resilience/cynicism age/psychological health $p < 0.01$ for: age/emotional exhaustion psychological health/cynicism $p < 0.001$ for: resilience/emotional exhaustion resilience/academic efficacy resilience/psychological health cynicism/emotional exhaustion emotional exhaustion/psychological health	Significant relationship between age, resilience dimensions that make up burnout, psychological health Negative association between resiliency and emotional exhaustion, cynicism Positive relationship between resilience and academic efficacy Positive correlation between emotional exhaustion and cynicism, psychological discomfort	Increased age lead to worse perceived psychological health Increased resilience leads to less academic burnout, fewer symptoms of psychological distress (better perceived psychological health) Develop student self-confidence by enhancing self-determination (planning, persistence), use feedback that doesn't emphasize comparison with peers	III

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Smith, G. D., & Yang, F. (2017). Stress, resilience and psychological well-being in Chinese undergraduate nursing students. *Nurse Education Today, 49*, 90-95. doi:10.1016/j.nedt.2016.10.004 **CINAHL**	To examine the relationship between stress and resilience on psychological well-being in a cohort of Chinese undergraduate student nurses	n = 1538 nursing students from three Chinese nursing schools in southeast China First year through final year of nursing school (1-4)	Cross-sectional; descriptive statistical analysis 3 self-administered questionnaires Stress in Student Nursing (higher scores = higher stress) Resilience Scale (higher scores =higher resiliency) General Health Questionnaire (higher score = poorer well-being) Overall means: resilience score 121.59 – moderate resilience Stress score 105.11 GHQ-12 score 3.23	Class leaders had higher levels of resilience than non-class leaders (resilience score 124.22 class vs 120.25 non-class leaders) Stress levels highest in final year students (108.57 vs 100.50 in first year) Total resilience scores weakly and negatively correlated with stress ($p < 0.01$), psychological well-being ($p < 0.01$) Total stress scores positively correlated with well-being ($p < 0.01$) No significant differences between students of single-child and multiple-child families	Positive interactions between faculty and students may reduce stress, enhance student confidence Educators have the potential to influence (positively or negatively) student perception of challenges within nursing Higher stress levels lead to lower psychological well-being Higher resilience led to lower stress and improved well-being	Large sample Limited male nursing student representation (only 2.7% of questionnaires) Findings of this study consistent with findings of Western studies relating to stress and well-being Data collected in area of China known for high socioeconomic status which may impact results	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Stephens, T. M. (2013). Nursing student resilience: A concept clarification. *Nursing Forum, 48*(2), 125-133. doi:10.1111/nuf.12015. **CINAHL**	Clarify the concept of resilience for the nursing student population.	26 articles Inclusion criteria: English-Language, peer-reviewed, research or conceptual studies, recent publications	Literature review Norris method of concept clarification used to analyze and clarify concept Phenomenon described according to antecedents, attributes, and consequences	<u>Antecedents:</u> Adversity or trauma, situation interpreted as traumatic, cognitive ability to interpret adversity, realistic worldview <u>Attributes:</u> Positive emotions, humor, self-efficacy, knowledge of health behaviors, flexibility, competence, strong social support systems, faith, optimism/hope, connectedness, effective coping <u>Consequences:</u> Personal growth, psychological adjustment, effective coping, positive adaptation, self-esteem, longevity, physical and mental health status, career success, confidence, sense of well-being, mastery	Resilience is an individualized process of development that occurs through use of personal protective factors to successfully navigate perceived stress and adversities All nursing students are vulnerable to episodes of perceived adversity and stress Certain protective factors can be identified, enhanced, and/or developed in nursing students to assist them in development and enhancement of resilience	Have the ability to increase both student and faculty satisfaction, increase student retention, and contribute to future student success if we create a culture that encourages the development and nurturance of resilience Ability to increases personal resilience can lead to more successful college experience	V

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Taylor, H., & Reyes, H. (2012). Self-efficacy and resilience in baccalaureate nursing students. *International Journal of Nursing Education Scholarship,* 9(1)10.1515/1548-9223X.2218 **CINAHL**	Explore self-efficacy and resilience related to test grades among baccalaureate students over one 16-week semester	136 students, multiple nursing courses 1 semester Sophomore through senior	Pre-post quasi-experimental design Resilience Scale (RS) Five underlying characteristics measured; 25 questions, Likert scale 1-7 General Self-Efficacy Scale (GSES) 10 item, Likert scale 1-4	No significant difference between pre- and post-test GSES ($p > 0.05$) No significant difference between pre- and post-test on RS ($p > 0.05$) No significant difference between early semester and late semester ($p = 0.0$)	Self-efficacy scores were slightly higher in post-tests than pre-tests – consistent with literature that suggests self-efficacy improves when people overcome difficult circumstances "Trying hard enough" significantly decreased student problem solving – evaluate teaching and learning practices	More research needed to understand relationship between self-efficacy and resiliency Short period of time comparing pre- to post- scores Small number of participants in second semester of junior year Success based on perception of self-efficacy and resilience by students Need a better understanding of self-efficacy and resilience to develop curricula and teach practices that promote retention	III

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Thomas, L., & Revell, S. (2016). Resilience in nursing students: An integrative review. *Nurse Education Today, 36*, 457-462. 10.1016/j.nedt. 2015.10.016 **PubMed**	Investigate the state of knowledge on resilience in nursing students 1. How is resilience among nursing students defined or described? 2. What factors affect or contribute to resilience in nursing students? 3. In what ways has resilience been promoted among nursing students?	93 articles identified in search – 9 used for integrative review Theoretical and empirical work included	Integrative review 3 phase analysis done Guided by three questions – scored based on classification noted Points associated with relevance and rigor Included: Pilot interventional study, descriptive longitudinal, ethnographic case study, concept clarification, quasi-experimental, correlational, phenomenological, theoretical study	Resilience not well defined in literature Internal qualities, human traits, personal characteristics used to define resilience Support identified as important factor of resilience in nursing students Increase in perseverance may be attributed to student's sense of determination	Teach students to reflect and persevere in face of conflict to increases resilience Short doses of interventions over longer period of time may be more effective- needs to be researched Resilience can affect perseverance, academic success and empowerment	Parse's theory can be framework for undergraduate education to enhance professional identity and resilient nurses Reflection should be considered a reasonable option for facilitating resilience in students Faculty should encourage students to draw upon resources (family, friends, faculty) to overcome challenges "What did you learn?" "Has this experience made you more knowledgeable or stronger?" Stronger knowledge of what affects student resilience/how it can be enhanced needed	V

Note. Level of evidence rating scale is based on Ackley, B.J., Swan, B.A., Ladwig, G., & Tucker, S. (2008). *Evidence-based nursing care guidelines: Medical-surgical interventions.* (p. 7). St. Louis, MO: Mosby Elsevier.

Well-Being Literature Table

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Fabbris, J.L., Mesquita, A.C., Caldeira, S., Carvalho, A.M.P., Campos de Carvalho, E. (2017). Anxiety and spiritual well-being in nursing students: A cross-sectional study. *Journal of Holistic Nursing. 35*(3), 261-270 doi: 10.1177/08980 10116655004 **CINAHL**	Explore the relationship between anxiety and spiritual well-being among undergradu ate nursing students	*n* = 169 First and last year students in an undergraduate nursing program in Brazil Data collected during first semester of 2014, any student over 18 years old was invited to participate	Descriptive Spiritual well-being scale (SWBS), internal consistency 0.92. 20 questions rated on Likert scale, high score indicates positive well-being. Scale divided into two subscales: religious well-being (RWB) and existential well-being (EWB). Beck's Anxiety Inventory (BAI), internal consistency 0.87. 21 item scale, each item rated 1-4. High score indicates severe anxiety/distress	Relationship found between SWB and anxiety (*p* = 0.32) Individual subscales of SWB were further analyzed: no relationship between RWB and anxiety (*p* = .29), EWB was related to well-being (*p* = .011)	SWB not associated with gender (*p* = .53), course (*p* = .2), or marital status (*p* = .65) Majority of respondents followed Christian faith, results may not be generalizable	73% of participants had high spiritual well-being, 93% reported some sort of religious belief, - faith may help manage anxiety	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Frost, M.H., Novonty, P.J., Johnson, M.E., Clark, M.M, Sloan, J.A., & Yang, P. (2013). Spiritual well-being in lung cancer survivors. *Support Care Cancer*, *21*, 1939-1946. doi:10.1007/s00520-013-1757-z\n\n**CINAHL**	1) The examine the spiritual wellbeing (SWB) of individuals with lung cancer over time 2) To determine the stability of SWB over time 3) Identify factors associated with SWB	*n* = 1,578\n\nParticipants were patients with lung cancer receiving care at the Mayo Clinic.\n\nStudy entry began at time of diagnosis or referral to Mayo Clinic; surveys filled out at fist appointment, six and 12 months, and then once annually.\n\nStudy continued for 10 years\n\nMean age 65.6, Female 47.9%, Male 52.1%, Caucasian 92.5%	Prospective cohort study\n\nMedical record was abstracted to determine demographic data, tobacco use, and treatment\n\nQuality of life was examined through three surveys: Functional Assessment in Chronic Illness Therapy-Spiritual (FACIT-Sp), Linear Analog Scale Assessment (LASA), Medical Outcome Short Form (SF8).\n\nAssociations between FACIT-Sp, SF8 and QOL scores tested using spearman correlation. Linear regression models explored relationships between SWB and demographics	SWB of entire cohort was high and stable through the entire 10-year study (M = 77.1-79.3)\n\nQOL LASA scores showed minimal difficulty with overall QOL (M = 70-80, Mdn = 72.7-75.8).\n\nLow SWB was not associated with age at diagnosis, educational status, lung cancer type, tumor stage or grad, status of metastasis, or type of treatment.\n\nThe characteristics associated with lowest SWB are males (p < 0.001), current smokers (p = 0.045), and participants with higher pack-years (p = 0.0004)	One third of participants dropped out of study after one survey\n\nQOL measurements between the LASA scale and SF8 were grouped together hard to determine effectiveness of LASA scale\n\nParticipants were overwhelmingly Caucasian, may not be easy to generalize results\n\nPatients with poor SWB may not have chosen to participate	Spiritual well-being could be higher in women due to differences in gender\n\nSWB can be correlated to overall quality of life, especially when focusing on participants perception of health\n\nNo significant difference between the SWB of those who survived and those who died within a year of completing survey	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Griffin, A. (2017). Wellness and thriving in a student registered nurse anesthetist population. *AANA Journal, 85*(5), 325-330. **EBSCOHost**	Examine relationship between perceived wellness and thriving.	*n* = 75 Student registered nurse anesthetists Students in a master's degree program at a large Midwestern state university.	Longitudinal, descriptive correlational Multiple regression analysis Wellness (Salutogenic Wellness Promotion Scale [SWPS]), self-efficacy (Perceived Self-Efficacy Scale), academic achievement (grade- point average, Self-Evaluation Examination scores), technical clinical competence (overall clinical course grades), patients' perception of student's relational skills (Caring Behaviors Inventory Scale and Client Perception of Caring Scale). Data collected at five points over 16 months.	No significant changes in wellness over time *(p*-value not reported). Positive correlation between wellness and self-efficacy at all time intervals; statistically significant at T_1 (*r* = 0.34, *p* < 0.05), T_2 (*r* = 0.32, *p* < 0.05), and T_3 (*r* = 0.62, *p* < 0.01). Overall wellness negatively correlated with Self-Evaluation Examination scores (*r* = -0.48, *p* < 0.05). Little variance in academic achievement, clinical competence, and patient satisfaction.		Small sample size. Data collection occurred during class time at the beginning of each trimester. The little variance in academic achievement, clinical competence, and patient satisfaction could indicate the tools/measures were not sensitive enough.	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Locke, D.E.C., Decker, P.A., Sloan, J.A., Brown, P.D., Malec, J.F., Clark, M.M... Buckner, J.C. (2007). Validation of a single-item linear analog scale assessment of quality of life in neuro-oncology patients. *Journal of Pain Symptom Management, 34*(6), 628-638. doi:10.1016/j.jpainsymman.2007.01.016 **CINAHL**	Investigate the psychometric properties of single-item linear analog scale assessments (LASAs) for patients with newly diagnosed high-grade gliomas	*n*=205 patients who were already enrolled in Glioma QOL study Participants filled out surveys 72 hours after being entered into the study (baseline), at two months, and at four months Median age 56 years	Methodological design LASA- measure overall QOL. Functional Assessment of Cancer Therapy-Brain (FACT-Br) measures general physical, social/family, emotional, and functional well-being, with additional brain-tumor specific QOL. Profile of Mood States-Short Form (POMS) list of 30 adjectives participant rates from 0 (not at all) to 4 (extremely). Symptom distress scale (SDS) 13-itme questionnaire measuring physical concerns	No significant change across time for the LASA, the SDS, the overall and confusion scores of the POMS, and overall, emotional, and brain score of the FACT-Br. LASA scale was significantly associated with each corresponding scale of SDS, POMS, and FACT-BR ($p < 0.001$ in all cases). All correlations were moderate to strong ($r = 0.50$-0.65) except the FACT-Br emotional scale at baseline ($r = 0.44$)	LASA may be as valid as other QOL measurements LASA items have enough variability within them to be clinically meaningful LASA correlated strongly with other well-validated quality of life scales The patient population has a shorter life-span, so a longer follow-up could be beneficial if the study was repeated with a different population	Single-item LASA scale places less burden on the patient, need for a meaningful brief scale to be included in QOL research This study only evaluated neuro-oncology patients, not sure if the results would be found in other populations	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Mendes Souza, I.M.D, Martins da Silva Paro, H.B. Morales, R.R., Costa Pinto, R.M., & Martins da Silva, C.H. (2012). Health-related quality of life and depressive symptoms in undergraduate nursing students. *Rev. Latino-Am. Enfermage*, *20*(4), 736-743. **CINAHL**	To investigate the health-related quality of life in nursing students in relationship to the year of training, sociodemographic factors, and depressive symptoms	*n* = 256 nursing students enrolled in a nursing program and present between June and July 2007 Median age 21.5 years, 80.5% female, 89.8% single, 94.5% childless.	Descriptive Self-administered questionnaires: Brazilian version of 36-item Short Form Health Survey (SF-36) and Beck Depression Inventory (BDI) SF-36 is a 36-item questionnaire that divides into eight domains, total scores range from 0-100. Cronbach's alpha for the domains ranged from 0.7-0.8 BDI evaluates depression symptoms through a 21-item survey. Every item is scored between 0-3, any total score higher than 15 indicates depressive symptoms	Comparing SF-36 scores between the years of study found statistically significant differences in the *physical functioning* ($p = 0.03$), *vitality* ($p = 0.000$), and *social functioning* ($p = 0.000$) domains SF-36 scores did not vary based on employment status ($p > 0.05$). Correlation between family income and *role limitation caused by emotional problems domain* ($r = -0.15$, $p = 0.03$), no other domains had a correlation Students with higher BDI scores had lower SF-36 scores in all eight domains ($p = 0.00$)	SF-36 is a generic questionnaire and may not have accounted for a person' individual health needs Females scored lower on physical aspects of the form, may be due to cultural differences between genders	Negative perception of well-being was noted in fourth-year students, students with depressive symptoms, and females Students in their final year may score lower due to stressors related to graduation and feeling uncertain about the future	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications / critique	Comments Themes	Level of Evidence
Mortiz, A.R., Pereira, E.M, Borba, K.P, Clapis, M.J., Gevert, V.G., & Mantovani, M.F. (2016). Quality of life of undergraduate nursing students at a Brazilian public university. *Invest Educ Enferm, 34*(3), 564-572 doi:10.17533/udea.iee.v34n3a16 **CINAHL**	Analyze the quality of life in undergraduate nursing students	*n* = 95 students who were present at a nursing class on Aug 6, 2012 Data were collected one time, students who did not attend class were not included in study Students in class were first to fourth year undergraduate nursing students	Descriptive World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) translated and validated for Brazilians. Questionnaire is 26-question Likert scale that examines four domains. Scores are complied, resulting in each domain receiving a total score between 0-100. Higher score indicates better quality of life	Ranking the five domains of the quality of life scale: Social relationships were the highest score (77.2), psychological (67.73) environmental (64.85), and physical (63.4) No significant difference between the sociographic variables and quality of life domains (ANOVA and student t test $p < 0.05$) Each domain had higher than expected scores for all grade levels	High percentage of young females in the sample Survey was only done once, may not be an accurate representation of quality of life through the four years of nursing school	Students had an overall high quality of life, indicating they can adapt to the high demands of nursing school	VI

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Moyle, W., Park, Y.S., Olorenshaw, R., Grimbeek, P., Griffiths, S., & Murfield, J. (2007). The influence of personal characteristics on student health nurse attitudes. *Australian journal of Advanced Nursing*, *27*(3), 55-61. **CINAHL**	To measure student attitudes towards health and compare these attitudes to demographic characteristics and psychological wellbeing Research questions: 1) How do student nurses rate their general health attitudes? 2) Which personal and psychological wellbeing characteristic significantly influence student nurses' general health attitudes	*n* = 369 students enrolled in a Bachelor of Nursing program at an Australian University in southeast Queensland Mean age 28, 89.1% female, 53.8% single, 82.8% worked less than 24 hours/week. Surveys were administered between April and June 2006 while students were enrolled in a pre-registration program at the university	Descriptive Health Attitude Scale-Form B (HAS-form B) measures attitudes towards health. 15 item Likert scale that is dived into "feelings' beliefs" and "intentions to act" (Cronbach's alpha = 0.81, 0.73, 0.75). General Health Questionnaire (GHQ-28) 28-item instrument that detects psychological distress, scores ranged from 0-28 (Cronbach's alpha 0.90).	Overall, students were positive in their "feelings" "beliefs" and "intentions" towards health behavior. Student nurses had the most positive "feelings" towards health (M = 4.3), followed by "beliefs" (M = 4.1), and "intention to act (M = 4.0). The difference between these subsets were significant ($p <$ 0.001) Students "feelings" towards health improved as they advanced through the program ($p <$ 0.05) The higher the GHQ-28, the more positive the student "feelings' towards health ($p <$ 0.05)	Results of GHQ-28 were not shared or discussed Overall positive attitudes towards health could be due to the fact they are in a health-related profession "Feelings towards health" could be highest ranking overall because the first step of behavior change is to think about the change Results may be hard to generalize to other locations	Engaging in healthy behaviors/having positive attitude toward health can lead to engaging in health promoting behavior Nurses are considered role models for health behavior, that could cause nurses to have a positive attitude towards health Well-being was assessed using the GHQ-28	IV

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Prasad, K., Wahner-Roedler, D.L., Cha, S.S., & Sood, A. (2011). Effect of a single-session meditation training to reduce stress and improve quality of life among health care professionals: A dose-ranging feasibility study. Alternative Therapies, 17(3), 46-49

PubMed | To assess the feasibility of incorporating a single-session meditation-training program into the daily activities of healthy employees of a tertiary-care academic medical center | *n=17* healthy clinic employees

All female participants, median age 48 years

16 participants were compliant in practicing meditation 5 days a week | Quasi-experimental, one-group posttest only design

Participants received initial instructions on mediation and then were taught Paced Breathing Meditation (PBM). Participants asked to practice mediation using the DVD, (choosing either the 5, 15, or 30-minute session.)

Results tracked through daily diary, Perceived Stress Scale (PSS), Linear Analogue Self-Assessment (LASA), Smith Anxiety Scale (SAS)

Paired t-tests | After four weeks, significant improvement in all scores. PSS ($p < 0.0001$), SAS ($p = 0.0005$), LASA ($p = 0.0005$)

During the four-week study the 5-minute session was practiced by 14 participants 137 times total
The 15-minute session was practiced by 16 participants 223 times total
The 30-minute session was practiced by 13 participants 71 total

No relationship between the length of time practice and improvement of PSS, LASA, or SAS scores | Participants stated a 15-minute session once or twice a day was optimal time for practicing meditation

Small sample size, nonrandomized design, all participants female, all participants have an interest in alternative medicine, results may not be able to be generalized

The meditation program was taught in a structured manner, making it cost-effective and repeatable | Meditation can assist in short-term improvement in stress, anxiety, and quality of life

Participants could choose when they would practice and for how long, made compliance easier to achieve | IV |

Citation / Search Engine Used	Purpose/ Objectives	Study population/ Sample/ Setting	Study Design/ Methods/ Major Variables/ Instruments and Measures	Result(s)/ Main Findings	Implications /critique	Comments Themes	Level of Evidence
Singh, J.A., Satele, D., Pattabasavaiah, S., Buckner, J.C., & Sloan, J.A. (2014). Normative data and clinically significant effect sizes for single-item numerical linear analogue self-assessment scales. Health and Quality of Life Outcomes, 12(187). doi: 10.1/s12955-014-0187-z **PubMed**	Examine the normative data and clinically significant effect sizes for single-item numerical linear analogue self-assessment (LASA) scale for overall quality of life (QOL)	36 clinical trials, 6 observational studies obtained from either published manuscripts, protocols, an abstracts or unpublished datasets 54 volunteers provided LASA data via survey Mayo physician and residents data drawn from a survey Total of 9,296 individual samples were obtained	Systematic Review LASA scores were obtained from all sources, and simple summary statistics used to analyze the results. Correlation between LASA and demographics done via correlation coefficients LASA scores across subpopulations by Fishes exact tests, and Kruskal-Wallis testing	Overall QOL score was 7.39 (*SD* = 2.11) 17% of respondents reported a score of 5 or below, indicating clinically significant deficit Healthy individuals QOL *M* = 8.3 (SD = 1.2), hospice caregivers *M* = 7.4, Mayo physicians and medical students *M* = 7.3: residents *M* = 6.5 Hospice patients had the worst scores (*M* = 5.7), and cancer patients varied greatly with the average being approximately 7 QOL weakly correlated with performance (r_s = -0.29),	A drawback with using a single-item measure for QOL is that there is lack of detail ad precision, determining the best response to deficient score may be difficult Extensive number of samples reviewed	A single-item measure of overall QOL has acceptable content and construct validity to be used as a clinical indicator of patient well-being	I

Note. Level of evidence rating scale is based on Ackley, B.J., Swan, B.A., Ladwig, G., & Tucker, S. (2008). *Evidence-based nursing care guidelines: Medical-surgical interventions.* (p. 7). St. Louis, MO: Mosby Elsevier.

APPENDIX E

Perceived Stress Scale

In the last month, how often have you:	0 (Never)	1 (Almost Never)	2 (Sometimes)	3 (Fairly Often)	4 (Very Often)
been upset because of something that happened unexpectedly?					
felt that you were unable to control the important things in your life?					
felt nervous or "stressed"?					
felt confident about your ability to handle your personal problems?					
felt that things were going your way?					
found that you could not cope with all the things you had to do?					
been able to control irritations in your life?					
felt that you were on top of things?					
been angered because of things that were outside of your control?					
felt difficulties were piling up so high that you could not overcome them?					

APPENDIX F

Connor-Davidson Resilience Scale 25

Mark the response that best indicates how much you agree with the following statements as they apply to you over the last MONTH. If a particular situation has not occurred recently, answer according to how you think you would have felt.	0 Not True at All	1 Rarely True	2 Sometimes True	3 Often True	4 True Nearly All the Time
1. I am able to adapt when changes occur.					
2. I have at least one close and secure relationship that helps me when I am stressed.					
3. When there are no clear solutions to my problems, sometimes fate or God can help.					
4. I can deal with whatever comes my way.					
5. Past successes give me confidence in dealing with new challenges and difficulties.					
6. I try to see the humorous side of things when I am faced with problems.					
7. Having to cope with stress can make me stronger.					
8. I tend to bounce back after illness, injury, or other hardships.					
9. Good or bad, I believe that most things happen for a reason.					
10. I give my best effort no matter what the outcome may be.					

Mark the response that best indicates how much you agree with the following statements as they apply to you over the last MONTH. If a particular situation has not occurred recently, answer according to how you think you would have felt.	0 Not True at All	1 Rarely True	2 Sometimes True	3 Often True	4 True Nearly All the Time
11. I believe I can achieve my goals, even if there are obstacles.					
12. Even when things look hopeless, I don't give up.					
13. During times of stress/crisis, I know where to turn for help.					
14. Under pressure, I stay focused and think clearly.					
15. I prefer to take the lead in solving problems rather than letting other make all the decisions.					
16. I am not easily discouraged by failure.					
17. I think of myself as a strong person when dealing with life's challenges and difficulties.					
18. I can make unpopular for difficult decisions that affect other people, if it is necessary.					
19. I am able to handle unpleasant or painful feelings like sadness, fear, and anger.					
20. In dealing with life's problems, sometimes you have to act on a hunch without knowing why.					
21. I have a strong sense of purpose in life.					
22. I feel in control of my life.					
23. I like challenges.					

Mark the response that best indicates how much you agree with the following statements as they apply to you over the last MONTH. If a particular situation has not occurred recently, answer according to how you think you would have felt.	0 Not True at All	1 Rarely True	2 Sometimes True	3 Often True	4 True Nearly All the Time
24. I work to attain my goals no matter what roadblocks I encounter along the way.					
25. I take pride in my achievements.					

APPENDIX G

Linear Analog Self-Assessment

Choose the response best reflecting your response to the following that describes your feelings during the past WEEK, including today. (0 being "as bad as it can be" and 10 being "as good as it can be")	0	1	2	3	4	5	6	7	8	9	10
1. How would you rate your physical well-being over the past week? This question refers to such things as fatigue, activity, etc.											
2. How would you rate your emotional well-being over the past week? This question refers to such things as depression, anxiety, stress, etc.											
3. How would you rate your spiritual well-being over the past week? This question refers to such things as sense of meaning and purpose, relationship with God, etc.											
4. How would you rate your intellectual well-being over the past week? This question refers to such things as the ability to think clearly, to concentrate, to remember, etc.											
5. How would you rate your overall well-being this past week?											

Appendix H

Letter of Permission

Graduate Programs in Nursing
Winona State University
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WINONA
STATE UNIVERSITY
ROCHESTER

August 23, 2018

To the Winona State University IRB Review Committee:

I will provide secondary data to Brittany (Boelter) Borhart, Megan Panek, and Jamie (D'Agostino) Waldera for their thesis titled: *Stress, Resilience, and Well-being in Nursing Students*. The data will be de-identified and provided to them in an Excel file. Data from my primary study includes total scores from Perceived Stress Scale and Connor-Davidson Resiliency Scale, Question five from the Linear Analog Scale Assessment, and demographic data. These data are needed for their thesis.

Please contact me if I can be of further assistance.

Sincerely,

Diane McNally Forsyth, PhD, RN
Professor, Graduate Programs in Nursing
Winona State University – Rochester.