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PSYCHOLOGICAL DISTRESS DURING THE COVID-19 PANDEMIC IN
NURSING STUDENTS: A MIXED-METHODS STUDY

by

Mayantoinette F. Watson

A Dissertation

Submitted to the Graduate School,
the College of Nursing and Health Professions
and the School of Leadership and Advanced Nursing Practice
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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ABSTRACT

During such an unprecedented time of the largest public health crisis, the COVID-19 pandemic, nursing students are of the utmost concern regarding their psychological and physical well-being. Questions are emerging and circulating about what will happen to the nursing students and the long-term effects of the pandemic, especially now that hospitals are being overwhelmed with COVID-19 cases and patients as well as a significant need for nursing staff (Jividen, 2020). Expectations, demands, change, and the fear of the unknown during this unprecedented time can only contribute to the many stressors that accompany nursing students through laborious clinical and didactic courses in nursing programs. The risk of psychological distress is at a maximum and its effects can negatively impact not only nursing students but also nursing education and academia.

The high exposures to interpersonal, economic, and academic demands contribute to the major health concerns, which include a potential risk for psychological distress (Mitchell, 2018). Achievement of educational success among nursing students is directly affected to the high exposures of anxiety and depression from experiences within the program. Working relationships and achieving academic success are imperative to positive student outcomes within the nursing program. The purpose of this study is to identify and establish influences and associations within multilevel factors, including the effects of the COVID-19 pandemic on psychological distress in nursing students. Neuman's Systems Model Theory was used to determine nursing students' responses to internal and external stressors.

The research in this study utilized a mixed-methods, convergent study design. The study population included undergraduate nursing students from Southeastern U.S. The

research surveyed a convenience sample of undergraduate nursing students. The quantitative survey was completed by 202 participants and 11 participants participated in the qualitative follow-up interview surveys. Participants completed the Kessler Psychological Distress Scale (K6), the Perceived Stress Scale (PSS4), and the Dundee Readiness Educational Environment Scale (DREEM12) to measure psychological distress, perceived stress, and perceived educational environment. Participants also answered open-ended questions regarding their experience during the COVID-19 pandemic. Statistical tests, including bivariate analyses, multiple linear regression analyses, and binary logistics regression analyses were performed in efforts to identify and highlight the effects of independent variables on the dependent variable, psychological distress. Coding and qualitative content analysis were performed to identify overarching themes within participants' interviews. Quantitative data were sufficient in identifying correlations between psychological distress and multilevel factors of coping, marital status, COVID-19 stress, perceived stress, educational environment, and social support in nursing students. Qualitative data were sufficient in identifying common themes of students' perceptions during COVID-19 and included online learning, workload, finances, experience, breaks, time, unknown, support, encouragement, unchanged, communication, and transmission. The findings are significant, specifically regarding contributing factors of nursing students' psychological distress, which will help to improve learning in the academic environment.

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DEDICATION

I dedicate my work to my loving family. To my parents, May and Antonio, who have helped me in all things great and small. To my husband, Melvin, you are my rock and continue to push me to be the best version of myself. To my children, Gabrielle, Thomas, and Marlee who are always my number one fans and who have been my motivation in everything I aim to achieve. You are my world and everything that I do, I do for you!

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LIST OF ABBREVIATIONS

<i>BAI</i>	Beck Anxiety Inventory
<i>BRFSS</i>	Behavioral Risk Factor Surveillance Systems
<i>BSN</i>	Bachelor Science of Nursing
<i>CDC</i>	Center for Disease Control and Prevention
<i>CFA</i>	Confirmatory Factor Analysis
<i>COVID-19</i>	Coronavirus Disease
<i>DREEM</i>	Dundee Ready Educational Environment Measure
<i>K6</i>	Kessler-6
<i>K10</i>	Kessler Psychological Distress Scale
<i>MOS</i>	Medical Outcomes Study
<i>NSDUH</i>	National Survey on Drug Use and Health
<i>NSM</i>	Neuman's Systems Model
<i>PSS</i>	Perceived Stress Scale
<i>PSS-4</i>	Perceived Stress Scale-4
<i>PTSD</i>	Posttraumatic Stress Disorder
<i>SAMHSA</i>	Substance Abuse and Mental Health Services Administration's
<i>SMI</i>	Serious Mental Illness
<i>SPL</i>	Students' Perceptions of Learning
<i>USM</i>	The University of Southern Mississippi

CHAPTER I – INTRODUCTION

It has been recognized and well established that nursing students are among those individuals that are highly susceptible to psychological distress, which is associated with the many stressors endured during nursing school (Tagher & Robinson, 2016). Research has found that in comparison within healthcare disciplines and programs, nursing students tend to experience a higher severity of anxiety and stress (Turner & McCarthy, 2017). The challenges that come along with nursing programs, which include the stressors of having to simultaneously balance life issues along with didactic and clinical courses, have the potential to exacerbate psychological distress (Tagher, 2017). Unfortunately, the relentless exposure to stressors may lead to a multitude of negative outcomes and effects on nursing students (Tagher, 2017). Decreased academic performance can be seen in nursing students as a result of multilevel stressors, which can affect coping abilities, problem-solving abilities, and overall health (Tagher & Robinson, 2016). The COVID-19 Pandemic has thrown yet another curve ball in the challenges that nursing students already face. In efforts to prevent the further transmission of COVID-19, there was a rapid switch to online learning that was thrust upon nursing students who were already barely adapting to face-to-face courses. The rapid shift in the way nursing courses are being conducted as a response to the COVID-19 Pandemic can overwhelm nursing students even further, leading to negative consequences from unknown stressors.

Neuman's Systems Model (NSM) theory defines stressors as any occurrence with the potential to invade a client's protective layer or normal lines of defense, which may lead to varying degrees of outcomes (Gonzalo, 2019). Neuman and Fawcett (2011) identified three different types of stressors. The first type is intrapersonal stressors, which

are defined as those occurrences associated with the internal environment and transpire within the client organization. The second type of stressor is the interpersonal stressors defined as those occurrences associated with the external client system boundary and effect the outer organization. The last type of stressor is the extra-personal stressors defined as those occurrences also associated with the external client system boundaries but are noted to be further away from the interpersonal stressors. The NSM functions on the foundation that multilevel resource variables affect a person and the person's resources and responses determine how they preserve against stressors (Olowokere & Okanlanwon, 2015). The application of NSM in nursing education can create stress preventative environments for nursing students, decreasing the risk for psychological distress, and ultimately allowing students the ability to cope with unknown stressors leading to positive student outcomes.

Statement of the Problem

Psychological distress as well as other associated stressors are important to consider in nursing education and represent a significant issue found amongst nursing students. A growing body of research has found that psychological distress can negatively affect the educational environment, including educational performance and success as well as increase educational dropout rates (Thompson et al., 2019). Stress is often associated with psychological distress due to the similar outcomes and is a significant problem within the educational environment, which can hinder learning and negatively affect academic performance (Latif & Nor, 2019). In comparison within health-related disciplines, a higher association of physical and psychological issues and increased psychological distress and environmental distress has been noted amongst

nursing students, which may lead them to increased susceptibility to psychological issues and problems (Pumpuang et al., 2018).

Research has noted that psychological issues and problems are pervasive among Nursing students (Thompson et al., 2019). They are also noted to rarely seek professional psychological help, potentially bypassing the opportunity to prevent further detrimental effects (Pumpuang et al., 2018). Academic experiences and practices within the nursing program may lead to challenges associated with psychological distress, which can negatively affect nursing students' mental well-being (Beanlands et al., 2019). In addition to the psychological stressors that nursing students already face, recent current events of the COVID-19 pandemic have influenced the many aspects of nursing education, including nursing students' mental and physical well-being, coping abilities, and perceptions of their educational environment (Beanlands et al., 2019). Limited knowledge and information associated with how the COVID-19 pandemic has truly affected nursing students has been noted. This limitation in research has highlighted the need to recognize and examine the occurrence of psychological distress and associated stressors among nursing students during such an unusually challenging time.

Purpose

The many unknown challenges associated with the COVID-19 pandemic on nursing students can have negative implications for nursing education. The purpose of this study is to define stressors and factors that influence psychological distress among nursing students attending a baccalaureate nursing program during the COVID-19 pandemic. Research has noted that mental illnesses and psychological distress are common health problems within the young adult population (Kessler et al., 2002).

Moreover, nursing students are highly vulnerable to psychological distress and environmental stress due to a very demanding physical, intellectual, and emotional environment which now includes the new unknowns in the midst of a pandemic. The contributing stressors nursing students can face come from different sources, including academic factors, lack of social support, lack of coping skills, high expectations of clinical knowledge and practice, and the anticipations of guaranteed employment (Devankani et al., 2019). Psychosocial and physical factors add to the pressures and challenges that affect aspects of student life, including learning abilities and academic performance and achievement, which predisposes them to higher risks of psychological distress (Pumpuang et al., 2018).

Nursing students are included as part of the many individuals that have experienced the negative mental health affects as a result of the COVID-19 pandemic. Pumpuang et al., (2018) highlight that nursing students are already prone to experience psychological distress from the nursing program, which excludes and additional effects from the COVID-19 pandemic (Pumpuang et al., 2018). As the pandemic wears on, it is likely that mental burdens and psychological distress will increase as measures, such as social distancing, school closures or restrictions, business closures or restrictions, and the fear of the unknown are taken into consideration to prevent further spread of the COVID-19 virus (Singh et al., 2020). Negative effects of COVID-19 pandemic on nursing students' psychological well-being have the potential to increase their risk of negative mental health outcomes. Exploration and examination of the significant factors and the impact of the COVID-19 pandemic on nursing students will be conducted to identify

associations that are imperative to the future of nursing education during pandemics and the long-term results that are yet unknown.

Research Questions

This study utilized a mixed-methods design. A thorough mixed methods design study includes a mixed methods research question or questions that appropriately approach the integration of quantitative and qualitative data strands within the research (Creswell & Plano Clark, 2007). The following research questions appropriately addressed the data within the research and guided this study:

RQ 1: What is the relationship between the student's social support, coping, COVID-19 stress, COVID-19 anxiety, general health, perceived stress, educational environment, and other demographic factors on psychological distress?

RQ 2: What are nursing students' perceptions of social support, coping, COVID-19 stress, COVID-19 anxiety, social general health, perceived stress, educational environment, and psychological distress?

RQ 3: To what extent do students' perceptions of social support, coping, COVID-19 stress, COVID-19 anxiety, general health, perceived stress, educational environment, and psychological distress confirm outcome data on a psychological distress measure?

Theoretical Framework

This study utilized Betty Neuman's Systems Model. Betty Neuman's Systems Model includes a foundation that addresses a person or client's relationship to stress. The NSM acknowledges the person or client as part of an organized system that responds to environmental stressors (Gonzalo, 2019). Within the organized system, the person or

client can represent multiple concepts including a social entity, a community or group, a family, or an individual (Ahmadi et al., 2017). The theoretical foundation of the NSM is all encompassing and centers around the individual's health awareness within a dynamic organization that works to respond to both internal and external stressors and variables in efforts to prevent harm (Neuman & Fawcett, 2011).

Several client variables can be found within the organizational system and include variables associated with the physiological aspect, variables associated with the psychological aspect, variables associated with the sociocultural aspect, variables associated with the developmental aspect, and variables associated with the spiritual aspect. Neuman and Fawcett (2011) define the physiological variable as the internal mechanisms of the organizational structure. The psychological variable is defined as internal and external psychological processes. The sociocultural variable refers to the outcomes of the integration of social-cultural influences and conditions. The appropriate age-related developmental stages are included in the developmental variable. Spiritual influences and beliefs define the spiritual variable. All client variables function harmoniously and should be addressed concurrently.

Within Neuman's theory, the client system consists of a basic or core structure that is protected by lines of resistance as seen in Figure 1. The usual level of health is identified as the normal line of defense that is protected by a flexible line of defense. A protective flexible line of defense can be found surrounding the dynamic organization of the client system and are associated with the five variables (Neuman & Fawcett, 2011). The protective flexible line of defense ensures a stable state within the client system by shielding the dynamic organization from the penetration of stressors. Instability within

the client system will result should the protective flexible line of defense fail (Neuman & Fawcett, 2011).

Neuman explains it further stating that the client can presents with symptoms of illness or instability when stressors penetrate the normal line of defense. Invasion or penetration in the normal line of defense of nursing students is caused by the multilevel stressors accompanied by the rigorous workload of nursing school. The lines of defense include essential elements that specifically associate with the five client variables.

Neuman and Fawcett (2011) provide examples of these essential elements and include factors such as coping processes, developmental, belief, and sociocultural influences, and lifestyle features. These elements may be key to sustaining a protected line of defense in nursing students.

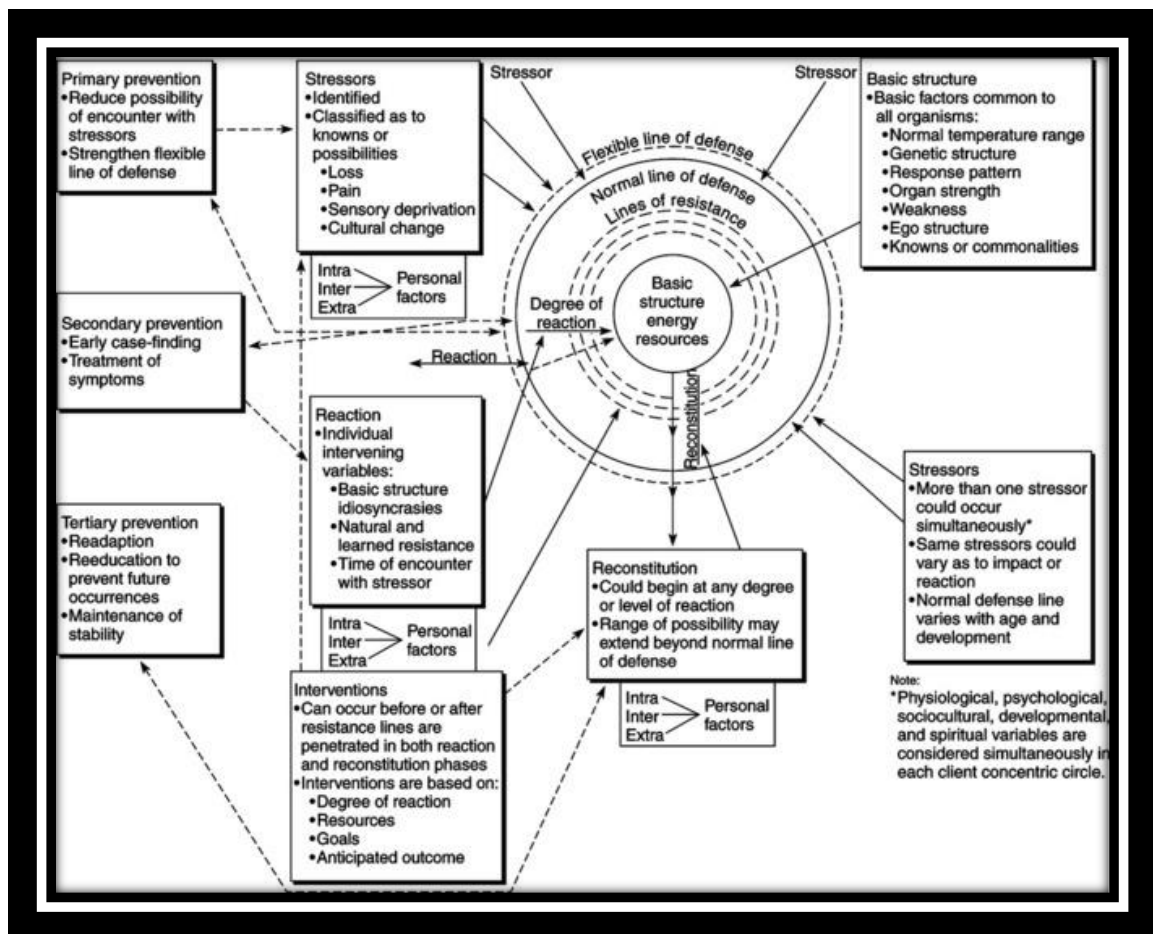


Figure 1. Neuman's Systems Model Core Concepts

Neuman & Fawcett, 2011, p. 20.

This study focused on multilevel factors of stressors from the internal and external environment. Neuman and Fawcett (2011) define the internal environment as occurrences or interactions within the internal boundaries of the client, which are associated with the intrapersonal stressors. The external environment is defined as occurrences or interactions outside of the external boundaries of the client, which are associated with intrapersonal stressors as well as extra-personal stressors. Within the varying states of wellness and illness, all stressors can be associated with internal and external stressors that affect the client organization (Neuman & Fawcett, 2011).

Nursing students can experience multilevel factors of stressors within all environments. Neuman and Fawcett (2011) define stressors as system instabilities caused by tension-producing provocations. Internal and external stressors may lead to negative or positive outcomes, which depends on the perceptions and negotiation abilities of the clients on internal and external stressors. Neuman and Fawcett (2011) explain that internal and external stressors are characteristically passive and neutral, and depending on the client's view of the stressors, the interaction can be considered harmful or beneficial. During stress, people respond and react, which is followed by a method of modification and adjustment in efforts to return the person to a normal state or well-being, but when the flexible lines of defense are penetrated and can no longer provide protection, intervention is needed. (Olowokere & Okanlawon, 2015). Nursing students' abilities to respond and cope with stressors can affect their risk of psychological distress.

Olowokere and Okanlawon (2015) highlight the importance of prevention as part of the goal in maintaining a state of relative wellness or normality by preventing the re-occurrence of a stressor response. Olowokere and Okanlawon (2015) highlighted different levels of prevention that included primary prevention, secondary prevention, and tertiary prevention. Primary prevention was defined as prevention established once a stressor is identified or suspected. When symptoms of stress have occurred and interventions have been implemented, secondary prevention is involved. Tertiary prevention follows secondary prevention and is aimed to gain client stability by adjustment and modification.

The NSM theory was used to present psychological distress as a concept that is experienced by nursing students during the COVID-19 pandemic and identify associated

factors that breakthrough or penetrate the normal line of defense within nursing students. The systems model theory supports understanding of psychological distress and associated stressors among nursing students and the student's responses to those stressors. The theoretical framework can aid in gaining an understanding of future interventions that can positively affect psychological distress in nursing students.

Operational Definitions

The following terms are the operational definitions for this study.

Coping: For the purposes of this study, intellectual and behavioral approaches that are utilized to aid individuals in handling stressful situations (Klainin-Yobas et al., 2013).

COVID-19 Pandemic: "On February 11, 2020, the World Health Organization announced an official name for the disease that is causing the 2019 novel coronavirus outbreak, first identified in Wuhan China. The new name of this disease is coronavirus disease 2019, abbreviated as COVID-19. In COVID-19, 'CO' stands for 'corona,' 'VI' for 'virus,' and 'D' for disease" (CDC, 2021, para. 1).

Educational Environment: For the purpose of this study, the "educational environment are occurrences within the academic setting, such as in a classroom or university, and is imperative to positive educational outcomes (Lokuhetty et al., 2011).

General Health: "The state of health of the body as a whole, or a community" (Lexicom.com, 2020, para. 1).

Global Stress: "For the purpose of this study, incorporates feelings about the uncontrollability and unpredictability of one's life, how often one has to deal irritating hassles, how much change is occurring in one's life, and confidence in one's ability to deal with problems or difficulties" (Phillips, 2013, para. 1).

Mixed Methods Research: “An approach to research in the social, behavioral, and health sciences in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand the research problems” (Creswell, 2015, p. 2).

Psychological Distress: For the purposes of this study, “widely used as an indicator of mental health and a transient emotional response to stress” (Devakani et al., 2019, p. 46).

Qualitative Research: “A rigorous, scholarly, interactive, holistic, subjective research approach used to describe life experiences, cultures, and social processes from the perspectives of the persons involved” (Gray et al., 2017, p. 3).

Quantitative Research: “The most frequently conducted method in nursing, is a formal, objective, systematic methodology that counts or measures to describe variables, tests relationships, and examine cause-and-effect interactions” (Gray et al., 2017, p. 3).

Social Support: “Interrelated social relations and connections that help in the coping and dealing of individuals with stressful life situations” (Amarneh, 2017, p. 5).

Assumptions, Limitations, and Delimitations

Assumptions

An assumption can be defined as a belief or conviction that is acknowledged as valid or true even without proof and it is imperative to associate assumptions within the study as it relates to the research (Gray et al., 2017). The following are assumptions included within the study:

1. Nursing students' perceptions of psychological distress can be measured
2. Nursing students' perceptions of psychological distress are reported honestly
3. Nursing students experience psychological distress during nursing school and a pandemic.
4. Participants will fully complete all surveys.

Limitations

Polit and Beck (2012) define the limitations of a study to include study design issues, insufficient or inadequate samples, and flaws in data collection and analysis. Limitations of the study included a population only consisting of BSN students in the Southeastern U.S., which restricts the ability to generalize the findings to the larger population of BSN students and can cause an external validity threat. Limitations were also noted by the truthfulness and accuracy of participants' responses and self-reporting.

Delimitations

Polit and Beck (2012) define delimitations as boundaries or restrictions established by the researcher for a study. Participants were nursing students admitted to an undergraduate program during the COVID-19 pandemic. The study was delimited by the utilization of a convenience sample to programs in the Southeastern U.S. The

study was further delimited by the use of a convergent mixed methods design that includes the merging of separate quantitative and qualitative sets to complete analysis (Creswell, 2015)

Significance of the Study

Psychological distress is a term commonly seen in healthcare where mental health practitioners describe a range of symptoms and experiences that are troubling, uncommon, or confusing within a person's internal life (Devankani et al., 2019). Thompson et al., (2019) highlight the significance of mental health awareness amongst university students due to research findings that indicate mental illness outbreaks and crisis are known to occur in individuals around the average college age of 25 years old.

The physical and psychological symptoms among nursing students can be attributed to Psychological distress and environmental stress factors. "The term stress has so many different meanings that it can be confusing, elusive, and heard so often that its meaning is frequently distorted, and its implications are taken for granted" (Latif & Nor, 2019, p. 88). Common causes of environmental stress were highlighted and noted within this study as well as within the literature and included the fear of unknown events including changes in health, poor academic performance, financial support, lack of support system, and more recently the effects of COVID-19. These stressors are inevitable for nursing students, so it is essential for students to have coping abilities to manage psychological distress as well as environmental stress, otherwise it will affect their role satisfaction, their ability to perform, their health, and attitude as a nurse (Rafati et al., 2017). Due to the nature of a new phenomenon, limited research has been conducted in identifying the effects of the COVID-19 pandemic on nursing students,

resulting in a significant need for exploration and additional research. The significance of this study includes knowledge generation and understanding related to contributing factors of psychological distress, environmental stress, and other associated stressors experienced in nursing students during the COVID-19 pandemic.

Summary

Chapter I included gathering data and planning the study on nursing students' perceptions of psychological distress. Multilevel factors can affect the risk of psychological distress in nursing students and ultimately impact their learning in the academic environment. Identifying undergraduate BSN students' opinions on psychological distress will provide nursing educators with information to improve student outcomes. Chapter II will include a review of literature that focuses on psychological distress in nursing students.

CHAPTER II – REVIEW OF THE LITERATURE

Introduction

This chapter focused on the concept of psychological distress and what is known about multilevel factors influencing psychological distress in nursing students. A focused search of scholarly literature from Academic Search Premier, Google Scholar database, PubMed, MEDLINE, and Cumulative Index to Nursing and Allied Health (CINAHL) was conducted. The literature review utilized keywords within the search and included client variables and perceptions of psychological distress that follow the theoretical foundation of this study. Consideration of literature gaps was noted while conducting the literature review. The literature review included articles within the past 10 years, excluding some older research studies that included significant landmark writings that contribute to understanding associated concepts.

Psychological Distress

The term psychological distress has been acknowledged and recognized throughout history. “Even 3,900 years old Egyptian manuscripts provide an accurate picture of the distressed person as pessimistic, his losing faith in others, unable to carry out everyday tasks of life and his serious consideration of suicide” (Devakani et al., 2019, p. 46). According to the CDC (2015), serious psychological distress includes moderate to severe mental health problems that may lead to severe impairment in functioning and may require treatment.

Data was collected for the 2009-2013 National Health Interview Survey (NHIS) and result found that 3.4% of adults experienced severe psychological distress and occurrence of psychological distress was higher in women than in men (CDC, 2015). One

of the key findings from the NHIS identified that the occurrence of various chronic diseases were more prominent and associated in individuals with severe psychological distress, which highlights the negative implications of psychological distress on overall health. Research has noted that serious consequences, such as higher risk of morbidity and mortality, have been associated with psychological distress as well as with mental illness including anxiety and depression. Psychological distress can be experienced at different levels and includes mental symptoms that can range from mild to severe (McLachlan & Gale, 2018).

Psychological Distress and College Students

The literature review revealed research articles that identify college students as a population who are at high risk for psychological distress. It is not uncommon that many students within higher education encounter and experience psychological distress due to distinct life stressors and progressive tasks (Pedrelli et al., 2015). It has been noted that within the last 4-year period in the US, college students continue to see and increased risk for psychological distress, depression, and anxiety (CCMH, 2017). There continues to be a growing body of evidence within research that includes psychological distress in association to the nursing discipline as well as nursing students (Gibbons et al., 2011). Sources and factors that lead to stress experience among nursing students that ultimately lead to psychological distress are experienced by students generally. A study by Gibbons et al., (2008) highlighted sources and factors of stress associated specifically among female students with children to include assessments and exams that can negatively affect the balance between work and everyday living.

The focused population of this study is specific to nursing students. Several articles yielded results on contributing factors of psychological distress specifically among nursing students. Vitaliano et al. (1984) conducted one of the earlier studies and highlighted significant stressors among students in healthcare programs, including nursing students. The study found significant stressors were associated with variables such as financial issues, time pressures, limited personal time, increased workload and information, increased competitiveness among peers, frequent assessments and evaluation, and accountability and responsibility that comes alongside patient care. It is important to identify those students who have the potential for psychological instability during their training, especially within health professional students that are exposed to increased levels of psychological distress (Wolf, 1994).

Another study exploring psychological distress among college students was conducted by Henning et al. (1998) and uncovered an unexpected finding that indicated higher levels of psychological distress among college students, approximately 28%. The study included a variety of 477 medical students who participated in nursing, dental, and pharmacy programs. The study aimed to identify contributing factors associated with psychological distress among medical students and focused on the students' personality traits including psychological adjustment, character traits of perfectionism, and characteristics of the imposter phenomenon, that may predispose them to a higher risk of psychological distress. Demographic variables were also taken into consideration. Pearson and point-biserial correlations for nursing students showed that four variables were related to psychological distress. "Male nursing students reported significantly more psychological distress ($r_{pb} = -0.33$, $p < 0.01$), and students reporting higher levels of self-

oriented perfectionism and socially prescribed perfectionism were also more distressed ($r = .25$, $P > 0.5$ and $r = 0.51$, $P < 0.001$, respectively)” (p. 461). Study results suggest that nursing students as well as other healthcare students are associated with higher risk and potential for psychological distress within the clinical setting are at high risk for clinical levels of psychological distress. Study findings indicated that over one-fourth of the students experienced psychological distress associated with the clinical environment and 21% of the students seeking mental health services reported equal to or higher experience of psychological distress compared to the average student. A significance of reported increased levels of mental health issues, such as anxiety and depression, were noted among health sciences and health professions students. This significance was noted in several other articles as well.

A significant association between nursing students and increased levels of stress and psychological distress experienced throughout the nursing program was highlighted in a study by Deary et al. (2003). Watson et al. (2008), noted that nursing students specifically are prone to psychological distress due to the nature of the nursing discipline, which includes a profession that is accompanied and surrounded by a multitude of stressors. A longitudinal study of 192 participants was conducted to explore the associations and effects of stress and life events on psychological distress among nursing students and nurses. Watson et al. (2008) utilized time waves of data collection within their study. Data analysis was conducted using mixed-effects models. The study identified a positive correlation between the trait of self-esteem and life events on psychological distress. Self-esteem was associated significantly with the General Health Questionnaire (GHQ) across all time waves within the study (R-values from -0.45 to

0.21). In addition, the study identified a positive correlation between age and life events on psychological distress.

The literature review revealed research articles focused on coping as a variable to psychological distress among nursing students. A study by Gibbons et al. (2011), highlighted research that found beneficial effects associated with problem-based coping, which can influence experienced stress and clinical performance. The study addressed associations of sources of psychological distress and stress among nursing students and the effects of various coping resources on the students' mental well-being. The study included 171 senior nursing students. Beta values in the study indicated a positive correlation between avoidance coping and the General Health Questionnaire (GHQ) scores. Conclusions of the study found evidence indicating adverse effects as a result of avoidance coping and ineffective strategies. In another study by Klainin-Yobas et al. (2013), a cross-sectional, descriptive correlational research design was used to examine the effects of coping within nursing students' stress-health relationships and the associations to psychological distress and stress. The study setting took place in a University in Bangkok, Thailand and included a population of 335 nursing students that were surveyed using various measurement tools including a Thai-version GHQ. Study findings indicated an association between coping and the stress-health relationship as evident by the result of a direct relationship between stress and coping ($\beta = -0.73$, $P < 0.01$).

Another survey study by Pumpuang et al. (2018), based in Thailand identified that nursing students experienced stress, anxiety, and depression with study percentages ranging from 35% to 41%. The study identified that in addition to the multitude of

stressors related to suicidal ideations and behaviors as well as depression, other risk factors included students admitted to a nursing program, 20 years of age or younger, not actively seeking help regarding mental health issues, and being female. Devankani et al. (2019), conducted a study based in India at SRM College of Nursing. The study aimed to assess psychological distress among nursing students and included 181 participants. The study findings indicated higher levels of psychological distress among nursing students in the first year of the nursing program and reduced levels of psychological distress among nursing students in the final year of the nursing program. The study conclusions highlighted the importance of psychological distress from a preventative and promotion aspect due to the higher severity of mental health problems and disorders among higher education students. The study also highlighted concerns regarding nursing education due to its negative impact on student learning outcomes.

A qualitative study by Galvin et al. (2015), explored nursing students' experiences within the mental health clinical setting in association to stress. The study included interviews of 12 nursing students within a mental health course attending Cardiff University in the UK. Some of the participants voiced concerns regarding the strenuous demands within the mental health clinical setting. One student described the challenges of coping with the academic demands and the negative effects from limited time to complete all assignments and work. Another student reported that help was limited due to staff being busy all the time. This student found the experience to be very stressful and emotional. Another student described coping strategies for stress during training and stated, "I do think I drink a lot more when I've had a stressful week. So, when I go out with my friends, I know I drink a lot more than if I wasn't stressed" (p.

776). The study findings noted that stress variables were associated with lack of clinical support due to staffing issues, a negative working environment from staff, and the challenging demands of the clinical environment. Galvin et al. (2015), noted that identifying and exploring coping strategies among nursing students can play an imperative role in aiding them to cope within the program.

A qualitative study by Sharif and Masoumi (2005) investigated experiences within the clinical setting and included 90 baccalaureate students. Focus groups were used to interview the students and aimed to address students' perceptions and opinions regarding their clinical practice. The study identified four themes that emerged from the student interviews and included that the students experienced initial anxiety within the clinical setting, a professional role, a gap between theory and clinical, and clinical supervision. An overall dissatisfaction was noted among the nursing students regarding their educational environment within the clinical setting. The results found anxiety among nursing students were associated with feelings of inadequate knowledge and deficient abilities of patient care within the clinical setting. One of the students reported, "I was so anxious when I had to change the colostomy dressing of my 24-year-old patient. It took me 45 minutes to change the dressing. I went ten times to the clinic to bring the stuff. My heart rate was increasing, and my hand was shaking. I was very embarrassed in front of my patient and instructor. I will never forget that day" (p. 5).

Psychological Distress and Educational Environment

Several other articles identified correlations between psychological distress and the educational environment among nursing students as well as an association between psychological distress with increased college dropout rates, negative academic

performance, and decreased academic achievement (Thompson et al., 2019). In a study conducted by Eisenberg et al. (2009), found an association between higher college dropout rates and lower grade point average among students that were noted to have anxiety and depression. In an article by Genn (2001), it is noted that academic development, student behavior, and students' well-being are significantly affected by their educational environment during program training.

A qualitative study by Kermansaravi et al. (2015) aimed to explore and understand nursing students' perceptions and experiences addressing deficiencies within the educational environment and the nursing education system. The study carried out the qualitative content analysis at the School of Nursing and Midwifery in Zaheden and included interviews and discussions with 40 senior nursing students. Results from the study revealed three themes that emerged from the interviews and included a gap between theory and clinical, skills within the clinical setting, and theoretical education. Concerning the instructors' qualifications, one student commented, "although the instructors' knowledge background was satisfactory, they didn't have sufficient mastery of the subjects and their explanatory abilities were poor" (p. 355). Regarding curriculum, one student commented, "the subject titles were not completely covered and that what was taught had not applied value" (p. 355). Regarding the educational environment, one student commented how the staff provided an unwelcoming environment, which only added to the student's reluctance and anxiety. Conclusions of the study identified factors influencing education quality and included the use of traditional teaching methods, content within theory did not carry over to clinical practice, inaccurate education in

clinical practice, application failure regarding scientific principles, and inadequate curriculum content.

Another qualitative study by Kalyani et al. (2019) explored the clinical environment in an academic setting in Iran among nursing students and identified the interactions and responses within their experiences. The study surveyed nursing students, nursing instructors, and nurses. Results of the study indicated the challenges of defining an identity among the nursing students due to an inadequate clinical environment. Nursing students realized that their training environment lacked the required efficiency. Educators that were ineffective in combination with an inadequate clinical environment resulted in an overall unproductive and inefficient educational setting.

A study conducted by Jamaiah (2008) aimed to explore the perceptions of nursing students on educational environment by utilizing the Dundee Ready Education Environment (DREEM) measurement tool. The environment experienced by students and instructors is defined as the educational environment within the study. The study included 62 nursing students from a university in Sri Lanka. Results included an overall score of 22.9 regarding perceptions of educational atmosphere indicating a need for change as a result from many issues. The conclusion of the study highlighted the need for the development and implementation of an environment conducive to supportive and creative learning and an ongoing assessment of negative outcomes and elements in efforts to bring about positive change within the educational environment.

Another research study by Hamid et al. (2013), surveyed 202 nursing students from an Iranian University using the DREEM survey. Hamid et al. (2013), indicated that the learning environment is imperative to predicting academic success, achievement, and

learning among students. The study aimed to evaluate nursing students' perceptions and viewpoints regarding their learning and educational environment. Results were similar to that of the study conducted by Jamaiah (2008), concluding that there is a significant need for change within the educational environment in efforts to produce a supportive atmosphere, which can be accomplished by implementing interventions that address inadequate areas and elements.

An article by Dewart et al. (2020) addressed and discussed the effects of the COVID-19 pandemic on nursing education. The article highlights nursing students and nursing educators' specific needs and concerns regarding the COVID-19 pandemic. Dewart et al. (2020) notes that there are many unknown outcomes of the educational environment as a result of the pandemic and nurse educators will face difficult decisions as evident by the significant need for retired nurses and nursing alumni to join the frontline efforts and response against the COVID-19 pandemic. These difficult decisions will affect nursing academia and can lead to a shortage in this discipline (Dewart et al., 2020). The article highlights the need for consideration of the current and future nursing students and their educational environment. Another article by Elmer et al. (2020) addresses associated effects of the COVID-19 pandemic within nursing education and the educational environment in Switzerland. The move from classroom teaching to online teaching among many universities have been associated with increased risk of educational stressors that have changed the lives of many students (Dewart et al., 2020).

Neuman Systems Model

The theoretical framework of this study, NSM, was included in the literature review. In efforts to organize and establish nursing knowledge, an educational model and

holistic framework were developed in 1970 and are known as the NSM (Skalaski et al., 2006). The literature review revealed findings of very limited research of application of the NSM specifically to nursing students in association to psychological distress in particular, but articles of the NSM and students, in general, were discovered in the literature review.

Research conducted by Pines et al. (2011), incorporated the Neuman Systems Model framework within a correlational study to address associations among demographic factors, conflict management styles, psychological empowerment, and stress resiliency relations. The study utilized multiple survey instruments including a demographic inventory, the Stress Resiliency Profile, the Conflict Mode Instrument, and the Psychological Empowerment to survey 166 BSN students. Results of the study findings highlighted that the occurrence of nursing students being able to balance demands can strengthen the line of defense and can prevent infiltration of stressors and interpersonal conflict. The ability to balance demands can include stimulating exercises that allow the students to assess problems realistically and view challenges as opportunities for improvement which can lead to a reduction in stress and psychological distress (Thomas & Tymon, 1992). “A key finding in the study identified that the NSM provides a framework from which to analyze barriers inherent in the expansion of nursing student’s roles and functions and to design primary prevention initiatives” (p. 1491).

Other articles in the literature review focused on the application of the NSM and students in general. Gigliotti (1999) utilized the Neuman’s conceptual model within an exploratory study to examine occurrences where role stress can be seen in women who are both mothers and students. A convenience sample of 191 female students based in the

United States were surveyed. Gigliotti (1999) conducted various survey measures to investigate the client variables of the NSM. Key findings regarding the application of the NSM included the importance of the flexible line of defense that is found to rapidly expand and contract, adjusting in response to environmental stressors.

In another article, Olowokere and Okanlawon (2015) explored the application of the NSM with a focus on psychosocial care associated with the school support among children in vulnerable situations. The NSM was found to be beneficial in addressing psychosocial issues due to a framework that focuses around the client system (Olowokers & Okanlawon, 2015). One of the key findings in the article includes that effective model application suggests successful client adjustment and adaptation using available resources that are obtained within the environment. Key findings of the article also emphasize encouragement for the client to facilitate modification through preventative measures.

Psychological Distress in College Students During Catastrophic Events

The Global Challenges Foundation (2020) describes the COVID-19 pandemic as catastrophic and extremely disruptive. Several articles explored the effects of catastrophic events, such as pandemics, hurricanes, and earthquakes on college students. Marthoenis et al. (2018) note a significant association between complex mental health issues, including psychological distress, and residence in a disaster-prone area among college students as result of exposure to a combination of disaster and student life stressors. Depression was seen as being the most common problem among them. Curry (2005) wrote about the experience of Jacksonville University nursing students who volunteered to help the residents of New Orleans shortly after Hurricane Katrina hit. “Hurricane Katrina, a tropical cyclone, struck the southeastern United States in late August of 2005

and its aftermath claimed more than 1,800 lives” (Britannica, 2020, para 1). One nursing student from JSU stated that “the best description of it would be what Hiroshima looked like after the atomic blast.... total devastation” (p. 5). Another student expressed sadness and despair regarding the lost lives during the hurricane.

The American Psychiatric Association (2020) note that the majority of individuals that experience a traumatic event or disaster usually can return to their normal level of functioning after their experience. However, some individuals may experience psychological and physical distress that may lead to unhealthy coping strategies such as risky behaviors. Some are prone to psychiatric disorders, like depression, anxiety, and posttraumatic stress disorder. The Dean of the University of South Alabama School of Nursing, Debra Davis, DSN, RN, included a response in the article by Curry (2005) addressing Hurricane Katrina and the effects on the nursing students. Debra Davis noted a large amount of nursing students, about half, were unable to continue through the program and dropped out as a result of the negative effects of Hurricane Katrina.

Another study conducted in New Orleans by Davis et al. (2010), explored 68 students’ responses and reactions regarding the effects of Hurricane Katrina. The study participants were displaced from their New Orleans universities as a result of the hurricane. Measurement tools that addressed posttraumatic stress disorder (PTSD), depression, stress, and anxiety were utilized within the study. Results indicated a significant association between displacement and increased trauma exposure, increased distress, and increased symptoms of depression and PTSD

A qualitative study by Watson et al. (2011), aimed to examine associations regarding student perceptions on emergency preparedness, emergency responses, and

lessons learned during Hurricane Ike, which occurred in the fall of 2008. Qualitative content analysis revealed three major themes that emerged and included disaster recovery needs such as the need to return to normalcy, the need to be prepared, and the need to be connected. Results highlighted significant associations between academic performance issues, worries, and problems and life post hurricane as well as the evacuation process among students. The conclusion of the study found higher levels of distress following a natural disaster among students.

A study by Chen et al. (2009), aimed to explore the psychological state and well-being among nursing students attending a university with the Wenchuan earthquake zone. The article included background on the Wenchuan Earthquake:

“An 8.0 magnitude earthquake that struck Wenchuan County in Sichuan and was the most destructive earthquake to hit China since the People’s Republic of China was founded in 1949. It caused great environmental harm and property damage and brought considerable psychological stress and emotional problems to many in the population” (Chen et al., 2009, p. 30).

The results of the study showed a significant association of higher anxiety and depression levels and nursing students in comparison to other individuals within the population ($p < .001$). The conclusion of the study also revealed associations of anxiety and depression disorders and nursing students located in areas affected by the Wenchuan earthquake. The article highlighted the significant need for mental health interventions, such as adequate social support in efforts to maintain and improve their psychological well-being.

Another study by Lee and Lee (2019) explored anxiety, depression, and stress among college students and associations of coping and disaster awareness. The

researchers describe a disaster as a catastrophic crisis with the potential to negatively impact a community on such a large scale that it may impede in community recovery. Participants of the study included 291 college students located in Korea. A multiple regression analysis was utilized to evaluate significant associations between disaster awareness and coping and mental distress, such as depression and anxiety. The regression analysis results indicated increased depression symptoms in association to individuals with higher perceptions of the challenges and risk accompanying natural disasters. The results also indicated increased depression and anxiety symptoms in association to individuals with higher perception of the challenges and risk accompanying social disasters. Lee and Lee's (2019) implications for nursing indicate that indirect and direct exposure to disasters lead to anxiety among college students and are associated with the increase frequency of natural and social disasters.

In an article by Lovric et al. (2020), a qualitative study aimed to explore nursing students' perceptions of the COVID-19 pandemic and associated experiences. Lovric et al. (2020), highlight the multitude of ongoing scientific studies in efforts to address the lack of experience and information about COVID-19 around the world. The study included 33 undergraduate nursing students that participated in online questionnaires. The study utilized an inductive thematic saturation method for analysis and data saturation was noted. Data results uncovered 29 codes associated with various student perceptions regarding efficient crisis response from state institutions. Protective measures were highlighted in the study and were noted to be an important theme among the students due to the fear of infection and the well-being of their families. The study also noted additional findings to include fear within the clinical setting but not the classroom

setting among nursing students. Thirteen participants reported challenges regarding learning and the ability to concentrate. All participants noted a supportive environment from faculty during a crisis.

Majrashi et al. (2021), conducted a scoping review to examine significant associations and evidence of coping strategies among nursing students as a result of the stressors accompanying the COVID-19 pandemic. The study analyzed multiple journal articles and found that stressors among nursing students were associated with the need to move to an online learning platform as a result of the pandemic. The scoping review results also found that during the adjustment of moving to online learning, nursing students were able to cope and stay optimistic by utilizing coping strategies such as obtaining information and seeking guidance in efforts to address the negative psychological effects from the COVID-19 pandemic.

The literature review revealed a lack of research and limited data addressing the COVID-19 pandemic and psychological distress in nursing students especially in the U.S., although research on this topic is ongoing. Future research is needed and should take into consideration possible interventions to address psychological distress and other mental issues among nursing students during the COVID-19 pandemic (Majrashi et al., 2021). One research study by Loveric et al. (2020), highlighted in the literature review involving COVID-19 and nursing students that given the COVID-19 pandemic is such a new phenomenon, there is limited data and availability regarding nursing students and their perceptions and opinions of experiences during the pandemic. Increased focus and attention to undergraduate nursing programs have been highlighted in the UK as a result of the negative outcomes and experiences from nursing students and new nurses during

the peak of the COVID-19 pandemic. (Leigh et al., 2020). In an article by Leigh et al. (2020), reflections from nursing students and newly qualified nurses were obtained regarding the request for nursing students to join the frontline workers in efforts against the COVID-19 pandemic. The conclusion of the personal accounts demonstrated the challenges and the difficult decisions that student nurses are having to make on the path to their professional careers.

Conclusion

The literature review provided an overview of the research on psychological distress in nursing students. Older literature specific to psychological distress was included to aid in highlighting the significant need for current research regarding the sizeable population of nursing students, especially within the United States. The literature review highlighted gaps that exist in acknowledging and understanding other significant variables, such as social support, anxiety, and general stress in relation to psychological distress in nursing students. Although there is growing research on nursing student's perceptions of the educational environment, there is a lack of research on the educational environment and its association to psychological distress in nursing students.

The literature review also revealed the lack of research on psychological distress and nursing students specifically in the US. There is limited research found on psychological distress in nursing students and the COVID-19 pandemic as this is a newly emerging phenomenon. The review findings indicated the need to research additional variables affecting psychological distress in nursing students and support a study such as this one, which included multilevel factors. Betty Neuman's Systems Model is a strong

framework and is appropriate for this study, which identifies nursing students' responses to stressors and highlights the need for preventative measures of psychological distress.

Summary

Chapter II included a literature review that provided an overview of the research on psychological distress in nursing students. The literature review also highlighted gaps in research regarding psychological distress in nursing students and indicated the need for research in noted areas. Chapter III will include the methods section of the study which includes research design, sample and setting, procedures, instruments, and data analysis.

CHAPTER III - METHODS

Research Questions

The following research questions were addressed within this study: What is the relationship between the student's social support, coping, COVID-19 stress, COVID-19 anxiety, general health, perceived stress, educational environment, and other demographic factors on psychological distress? What are nursing students' perceptions of social support, coping, COVID-19 stress, COVID-19 anxiety, social support, coping, general health, perceived stress, educational environment, and psychological distress? To what extent do students' perceptions of social support, coping, COVID-19 stress, COVID-19 anxiety, general health, perceived stress, educational environment, and other demographic factors confirm outcome data on a psychological distress measure? This chapter includes a discussion of the methodology, the study design, the population sample and setting, the study procedures, which include data collection, data instruments, and data analyses.

Research Design

A convergent mixed-method study was utilized as the research design for this study and was deemed appropriate in approaching and addressing the research questions presented. Creswell and Creswell (2018) define a mixed methods design as an approach to qualitative data as well as quantitative data to uncover various types of evidence and information. The information includes both views of participants qualitatively and scores on instruments quantitatively. Information is then integrated and will yield the same results. A convergent mixed method design is recommended when data strands from quantitative and qualitative data are compared to develop meta-inferences (Creswell &

Creswell, 2018). The expected outcome of a convergent mixed methods design is to merge and integrate the two databases to show how the data converge or diverge. Figure 2 depicts the sampling in a convergent design.

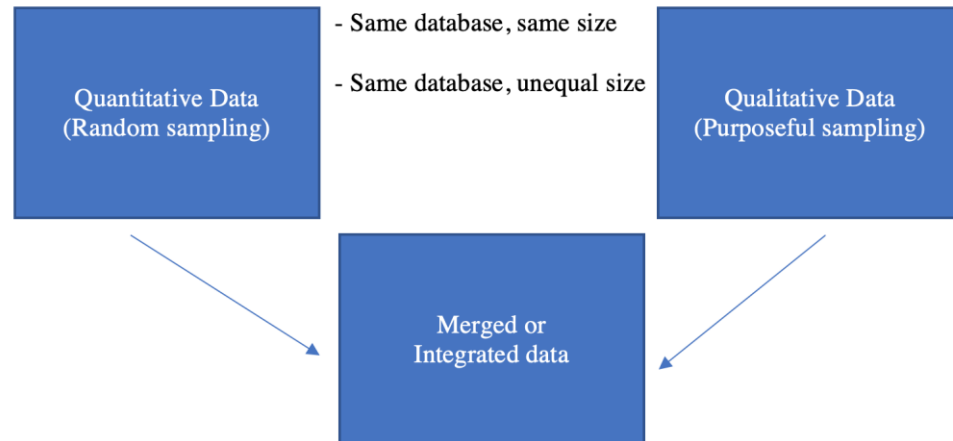


Figure 2. Sampling in a Convergent Design

Creswell, 2015, p. 78.

Creswell (2015) identified that a convergent design intends to integrate results from both the quantitative data analyses and the qualitative data analyses. “A convergent design occurs when both the qualitative and the quantitative data are collected and analyzed roughly at the same time, which is useful for ensuring the collected data are tightly linked relative to a particular moment in time” (Fetters, 2020, p. 66). By utilizing a convergent mixed methods design, the researcher will gain an understanding and describe a research problem by exploring and examining a phenomenon or concept (Creswell & Creswell, 2018). This researcher examined the data for associations of psychological distress as measured by survey tools and phone interviews conducted within the same amount of time to explore psychological distress in nursing students. The convergent, mixed methods design was also ideal for this study because the researcher explored uncharted

territory with the new phenomenon of the COVID-19 pandemic and psychological distress among nursing students.

Sample and Setting

Quantitative Sample

A convenience sample was selected from southeastern nursing programs in the U.S. “The Southeastern United States include Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Maryland, Virginia, and West Virginia” (World Population Review, 2020, para 1). Inclusion criteria for participants included participants the age of 18 years or older and the admission to a nursing program as a BSN student. BSN students did not hold any previous nursing licenses and RN to BSN students were excluded. Participants in the study attended nursing programs located in one of the southeastern states listed above. Participants were recruited through each state’s Student Nurses Association (SNA). Social media platforms, such as Facebook and Instagram were also utilized in recruitment efforts. Directors and deans of BSN programs within the states listed above were contacted through the Southern Association of Colleges and Schools (SACS) to obtain school listservs and to aid in recruitment with posted announcements via email and social media.

Other methods of recruitment included but were not limited to network sampling, listservs, and advertisements. Each participant was provided with study information and consent forms through Qualtrics, an online platform that utilizes a survey tool with the purpose to collect and evaluate data as well as conduct research (CSULB, 2020). Qualtrics allowed for immediate online access to the survey for those who agreed to participate. Participants were also prompted to provide an email as a point of contact for

further information on their results of the K6 and a possible follow-up phone or zoom interview. A researcher should perform a power analysis before finalizing plans for a study, to establish the sample size that is required to validate statistical analysis (Gray et al., 2017). The sample included nursing students admitted to an undergraduate program with a required minimum sample size of 101 participants, which was established by a power analysis (see below). In efforts to achieve a minimum of 101 fully completed surveys, the researcher aimed to survey at least 500 participants.

Descriptive statistical analysis, bivariate analysis, multivariate multiple linear regression, and binary logistics regression analysis were performed to determine whether there were any correlational relationships between the outcome variable, psychological distress, and independent variables. Independent variables included: Socio-demographic variables such as age, gender, region, and employment status as well as nursing students' general health, stress, anxiety, educational environment, etc. We assumed 13 independent variables in analyses. Table 1 provides an overview of study variables and corresponding measurement tools.

Table 1

Overview of Variables and Corresponding Measurement Tools

Variable	Instrument	Independent or Dependent	# of Questions or Items
Age	Demographics	Independent	1
Ethnicity	Demographics	Independent	1
Gender	Demographics	Independent	1
Location/Year	Demographics	Independent	1
Employment status	Demographics	Independent	1
Marital status	Demographics	Independent	1
Social support	Single-item indicator	Independent	1
Coping	Single-item indicator	Independent	1
COVID-19 stress	Single-item indicator	Independent	1
COVID-19 anxiety	Single-item indicator	Independent	1
General health	Single-item indicator	Independent	1
Perceived stress	PSS-4	Independent	4
Educational environment	DREEM-12	Independent	12
Psychological distress	K6	Dependent	6

To determine the size of the target sample, power analyses were performed using the G*Power version 3.1.9.2. The significance level, $\alpha = 0.05$ was set. The simulation considered the targeted power 0.7, 0.8, and 0.9 and the effect size (Cohen f^2 which is a ratio of r^2 over $1 - r^2$) medium ($f^2 = 0.15$) and large ($f^2 = 0.35$). Using the statistical settings, the target sample size would be 101 with targeted power = 0.8 and effect size = 0.15 (medium).

Qualitative Sample

Purposeful sampling was used to recruit students for follow-up phone and zoom interviews. The purpose underlying qualitative research includes selecting participants decisively and purposefully, which will aid the researcher in understanding the problem and the research questions (Creswell & Creswell, 2018). Determination of participant sample size for the follow-up survey was guided by Creswell (2015). When determining sample size, determining a specific size leading to saturation should be considered (Creswell, 2015). Saturation can be achieved during data collection when the development of new codes or themes can no longer be conducted even after the researcher gathers data from new participants. Creswell (2015) recommended 3 to 10 participants for a phenomenology approach. A heterogeneous group is ideal for qualitative research and can include anywhere from groups of 3 individuals to groups of 15 individuals (Creswell & Poth, 2018). The researcher determined that 10 to 15 follow-up phone or zoom interviews would ensure saturation and aligns with recommendations from Creswell (2015). Phone and zoom interview participants reviewed, signed, and submitted consents via email before the interview. This study was reviewed and approved by The University of Southern Mississippi Institutional Review Board IRB-20-551.

Procedures

Quantitative Data Collection

A convergent, mixed-methods approach utilizing multiple measurements, including, single item indicator questions, the K6, the PSS-4, the DREEM, demographics survey tool, and phone interviews were used in data collection within the desired population. The measurement tools utilized Likert-type scale questions and self-reporting. Ideal administration for such measurements would be conducted via web-based platforms. The Qualtrics platform was used to conduct the study with 202 participants. Completion of the survey took approximately 15 to 20 minutes. Consent explaining the study was obtained via Qualtrics. At this point in the survey, a participant could choose to proceed with the survey or withdraw from the survey completely. All participants have the right to privacy, which includes the right to remain anonymous and the right to assume that all of their data collected within the survey will be held and kept confidential (Gray et al., 2017).

In maintaining confidentiality, participation in the study was anonymous. All data collected was stored and maintained on a password-protected computer and a removable drive that was only accessible to the researcher in efforts to maintain confidentiality of all participants. Participants were prompted to provide an email address for information regarding a follow-up survey should they meet the criteria. Criteria inclusion for a follow-up survey included a score of 20 or above on the K6. Participants were notified that they would be contacted via the email they provided should they score a 20 or above on the K6, indicating mild to severe mental disorder. Mental health resources were provided for those who met the criteria. Resources include contact information to the

National Alliance on Mental Illness (NAMI) Helpline 1-800-950-NAMI (6264) and the National Suicide Prevention Lifeline 1-800-273-TALK (8255). Students were also referred to their university's counseling services. The audio recordings during the phone or zoom interviews were uploaded to a secure removable drive and downloaded to password-protected audio digital files. Participants had 2 opportunities to be compensated for their time:

1. A chance to win a \$50 Visa gift card for participation in the initial survey
2. A chance to win a \$50 Visa gift card for providing an email for a follow-up phone or zoom interview.

Quantitative Data were collected over a 4-week period. Participation in the study was allowed only after each participant read and agreed to consent for participation. Participants had to indicate that they met the criteria to participate in the study, which included that participants were over the age of 18 and nursing students of an undergraduate program. If participants checked "No" for any criteria to participate, they were unable to continue with the study. After all, criteria were met and checked off by the participant, the following survey items were presented: 6 demographic questions, 5 single-item indicator questions, the 6-item K6, the 4-item PSS-4, and the 12-item DREEM.

Qualitative Data Collection

Qualitative data were collected over a 4-week period shortly after quantitative data were collected. The use of a descriptive qualitative approach and specifically a directed content analysis approach was used to guide questions for the follow-up phone or zoom interviews. The ability to develop an understanding and conclusion regarding the

way an individual perceives their own experiences and derive interpretations from their world can be described as a descriptive qualitative approach (Kahlke, 2014). The goal of a directed approach to content analysis is to “validate or extend conceptually a theoretical framework or theory and it can provide predictions about the variables of interest or the relationships among variables, thus helping to determine the initial coding scheme or relationships between codes” (Hsieh & Shannon, 2005, p. 1280). Participants who met the criteria for a follow-up interview submitted consent via email before the interview. Participants were then contacted during a specified time of availability that was communicated via email. The interviews lasted approximately 12 minutes and participants were prompted to speak about their experience during the COVID-19 pandemic using the following open-ended questions:

1. In what ways has the COVID-19 pandemic changed your academic performance?
2. What are some stressors or things that have caused you stress or psychological stress during your time in nursing school?
3. What things have you done to cope with stressors caused as a result of the COVID-19 pandemic?
4. During the COVID-19 pandemic, what are some stressors or things that have caused you anxiety during your time in nursing school?
5. What things have you done to cope with anxiety caused as a result of the COVID-19 pandemic?
6. How has your social support system, such as family and friends, and the nursing school, helped you progress through the nursing program?

7. What could your family and friends and nursing school have done differently to support your progress through the nursing program?
8. While you are attending nursing school, did you have any concerns that affected your physical or mental health during the COVID-19 pandemic?

After each interview, the researcher reflected on the interview. The researcher documented findings, notes, and observations related to the participant's interview responses and content. Accurate and precise transcription of the recordings were conducted by the researcher in efforts to prepare for analysis.

Instruments

Psychological distress in nursing students during the COVID-19 pandemic is a new phenomenon that necessitates the utilization of various survey tools in the effort to gain a better understanding of students' perceptions and experiences. The review of literature unveiled appropriate instruments to gauge students' perceptions of psychological distress, which include single-item indicator questions, the K6, the PSS-4, the DREEM, and open-ended interview questions. In efforts to obtain the best understanding of a research study question, the collection of mixed methods data and the use of both quantitative and qualitative instruments should be utilized (Andrew & Halcomb, 2009).

Kessler Psychological Distress Scale (K6)

To evaluate the psychological distress of nursing students, the brief Kessler-6 (K6) scale was used in the study on psychological distress in nursing students during the COVID-19 pandemic. The U.S. National Health Interview Survey utilizes the shortened versions, the K6 and K10, as a reliable tool to measure psychological distress (Kessler et

al., 2002). “The K6 was first translated from the English version by two bilingual psychiatrists and then back-translated by an independent psychiatrist, and the result was identical to the original English version” (Xu et al., 2013, p. 4494). Bessaha (2017) describe major surveys that have utilized the K6:

Due to its brevity, ease of use, and high predictability of serious mental illness (SMI) compared to other measures of psychological distress, the K6 has been included in several major national government health assessment surveys, the CDC, Behavioral Risk Factor Surveillance System (BRFSS), and the Substance Abuse and Mental Health Services Administration’s (SAMHSA), National Survey on Drug Use and Health (NSDUH). (p. 620)

Satisfactory psychometric properties of the K6 have been reported in numerous studies of college students including studies by Tang et al. (2020), Dendle et al. (2018), Wang et al. (2016), and Cvetkovski et al. (2012). The study by Tang et al. (2020), utilized the K6 and other survey tools to identify the associations somatic symptoms, suicidal behaviors and psychological distress among medical students. Cronbach’s alpha of the k6 in the study was 0.901 indicating good reliability. Cronbach’s alpha coefficient is utilized to calculate internal consistency and reliability of ratio and interval data (Gray et al., 2017). Cronbach’s alpha coefficients can range from 0.00 to 1.00. A coefficient alpha of 0.00 represents no reliability. A coefficient alpha of 1.00 represents perfect reliability. Higher levels of reliability or precision (0.90 to 0.99) are imperative in the assortment of measurement methods for use in a study and are important for physiological measures that are used to determine critical physiological functions (Bialocerkowski et al., 2010).

Decreased measurement error can be obtained by demonstrating reliability and precisions of a study instrument, which can be seen in the consistency of participants' scores obtained (Gray et al., 2017). Another study by Wang et al. (2016), utilized the Kessler Psychological Distress Scale and other measurements to explore associations between psychological distress and religious preferences among students in China. The coefficient alpha within the study indicated good reliability at 0.91. Another study conducted by Cvetkovski et al. (2012), utilized the K6 in their study and found that the tool was deemed a valid and reliable tool to measure psychological distress within a population in comparison to other scales and structured interviews. The study included participants from a variety of settings. Settings included university settings, technical and vocational school settings, and those students not included in either of those settings. The study aimed to examine psychological distress among the different populations and associated factors from each population setting.

Bessaha (2017) conducted a study to examine the reliability and validity of the K6. Utilization of confirmatory factor analysis (CFA) was conducted to evaluate validity. CFA can be used to aid researchers in validating an instrument by factoring in the measurement uniformity among contrasting groups (Gray et al., 2017). Sample descriptive statistics were utilized before the use of CFA in efforts to validate the K6. Sample descriptive statistics took into consideration factors such as skewness and kurtosis to determine normality among the K6 responses. It is suggested that absolute values found to be greater than 2 regarding skewness or values greater than 7 regarding kurtosis could indicate lower validation (Cohen et al., 1983). Results of the study found the K6 a valid tool in measuring psychological distress and can be utilized to adequately

screen for psychological distress and associated symptoms among adult individuals.

Bessaha (2017) states that, the K6 provides good accuracy and can be a dependable tool that can be utilized as a brief screener for mental disorders.

The K6 incorporates 6 questions aimed to measure and screen for psychological distress and includes questions about participants' experiences regarding depressive and anxiety symptoms. Each question is attached to specific numbers. Once a participant completes the K6, the numbers are added up. The total score will represent the score on the Kessler Psychological Distress Scale (Kessler et al., 2002). Scores will range from 10 to 50. Should a participant score less than 20 then they are considered well. Should a participant score a 20-24, they are likely to have mild mental health disorder. Should a participant score a 25-30, they are likely to have moderate mental health disorder. Should a participant score greater than 30, they are likely to have severe mental health disorder. Participants with any score over 20 are considered to have some degree or severity of psychological distress (Dendle et al., 2018).

Perceived Stress Scale 4 (PSS-4)

The review of the literature revealed that the Perceived Stress Scale (PSS) was deemed a good fit and reliable for screening for stress among nursing students. The Perceived Stress Scale (PSS; Cohen et al., 1983) has been noted to be an acceptable and a widely utilized tool for measuring perceived psychological stress (Lee, 2012). The PSS is a self-reported questionnaire that was designed to measure "the degree to which individuals appraise situations in their lives as stressful" (Cohen et al., 1983, p. 385). Three versions of the PSS exist and were developed in English. The original PSS instrument, PSS-14, contains 14 items (Cohen et al., 1983). Shortened versions include

the PSS-10, a 10-item scale, and later the PSS-4, a 4-item scale. The PSS-4 has 4 items with a 5-point Likert-type scale (0=Never, 1=Almost never, 2=Sometimes, 3=Fairly often, 4=Very often). There are 2 items on the scale that are worded positively, and the remaining 2 items are worded negatively, and reverse scoring is conducted for the two negatively worded items during analysis. Higher scores are correlated to more stress.

Several studies were indicating good reliability with the utilization of the PSS among nursing students. The PSS has been noted to be a valid tool with utilization among college students (Lee, 2012). Hamaideh et al. (2016), utilized the PSS within their study to define the myriad of stressor associated with coping behaviors within the clinical setting and environment among nursing students. The PSS aided the researchers in assessing the different severities of perceived stress among the students. Coefficient alpha of the PSS was 0.89, indicating good reliability. Test-retest reliability is utilized to evaluate stability within an instrument. A one-week test-retest reliability of $>.70$ from the study added to the construct validity of the tool (Sheu et al., 1997). “Test-retest reliability reflects the reproducibility of a scale’s scores on repeated administration over time when a subject’s condition has not changed. In test-retest reliability, coefficient values $>.70$ are usually recommended, indicating good test-retest reliability in the study” (Terwee et al., 2007, p. 47).

Lee (2012) evaluated the psychometric properties of the PSS. The evaluation included test-retest reliability and internal consistency reliability. Lee (2012) also extracted four types of validity from the PSS and included construct validity, criterion validity, hypothesis testing, and known groups validity. Gray et al. (2017) define the types of validity found within the study by Lee (2012). Construct validity includes

determining a suitable association between the theoretical and operational definitions of a variable and whether an instrument appropriately measures that variable. When a participants' score on an instrument can be utilized to assume the score or performance on another variable criterion, criterion validity is reinforced. Validity of an instrument can be established by testing it within population settings that are predicted to have contrasting scores in efforts to develop hypotheses associated with the expected responses within these known settings (Gray et al., 2017). "Exploratory factor analysis for the PSS-14, PSS-10, and PSS-4 indicated that a two-factor structure was more dominant than a one-factor structure, and the validity of the PSS was confirmed by the findings of confirmatory factor analysis" (Lee, 2012, p.124). Hypothesis testing was conducted, and findings revealed significant associations with the PSS and the hypothesized variables regarding emotions, such as anxiety and depression. Lee (2012) evaluated the PSS's known-group validity by utilizing general characteristics associated to groups of participants. "The PSS scores were significantly lower for groups of participants who were young, white, married, employed, earning a high income, and with parents with a smaller number of children or not having chronically ill children" (Lee, 2012, p. 126). The conclusion of the study indicates that the PSS is a brief and easy questionnaire that has been established with acceptable psychometric properties.

Dundee Ready Educational Environment Measure (DREEM-12)

The Dundee Ready Educational Environment Measure (DREEM) has been utilized in a variety of settings, including health sciences and nursing, to measure perceptions and qualities of students' learning environments (Hamid et al., 2013). The DREEM was deemed a valid tool among several studies within the review of the

literature to measure perceptions regarding educational environment among students in various settings, especially for medical schools and other health professions, which include nursing students (Roff et al., 1997). The valid instrument, the DREEM, has been widely used among many cultures and countries (Umber et al., 2011). “The DREEM was developed using a Delphi panel of faculty members from international medical schools/health professions and then tested on students in several countries for validation purposes” (Miles et al., 2012, p. 621). The original version of the DREEM included 50-items. These items included closed question statements that could be categorized into five subscales. The first subscale addressed students’ perception of learning and includes twelve items. The second subscale addressed students’ perception of teachers and includes eleven items. The third subscale addressed students’ academic self-perceptions and includes eight items. The fourth subscale addressed students’ perceptions of the atmosphere and included twelve items. The last subscale addressed Students’ social self-perceptions and included seven items. Each of the 50 statements is scored on a five-point Likert scale which includes the following responses: Strongly agree, Agree, Unsure, Disagree, and Strongly Disagree (Roff et al., 1997). An abridged version of the DREEM, the DREEM-12, was later established as a shortened version and has been utilized in studies establishing validity and reliability across different settings.

A study conducted by Umber et al. (2011), included a breakdown of the overall score interpretation was included. Should a participant score a 0-50 they perceive their educational environment as very poor. A score of 51-10 indicated the educational environment had plenty of problems. A score of 101-150 indicated the educational environment was more positive than negative. A score of 151-200 indicated an excellent

educational environment. The study was conducted to determine students' perception of their learning environment at the University Medical and Dental College (UMDC).

Conclusion findings of the study noted that the DREEM helped to identify certain issues in the educational environment at UMDC.

Jeyashree et al. (2018) conducted a review of the development and psychometric properties of the DREEM-12. "The DREEM-12 is described as a generic and culturally non-specific tool which has been translated and validated in at least eight languages and is used worldwide" (p. 2). The DREEM-12 has also been noted to associate and compare various group settings, observe the same group setting within a set time frame, and evaluate variables that affect the educational environment. Results of the study indicated that the DREEM-12 was a valuable tool as evidence by reliability and validity.

The shortened version, the DREEM-12, was developed by identifying 2 items from the different domains that contained the highest correlational value item-total. Questions were combined when the same correlational value was noted. The result produced 12 items and the DREEM-12 was developed. Within the DREEM-12, when a participant scores 0-1 then their perception of the educational environment is very poor. Scores of 13-24 indicate plenty of problems within the educational environment. Scores of 25-36 indicate more positive than negative within the educational environment. Scores of 37-48 indicate an excellent educational environment. Study results included a coefficient alpha of 0.83 indicating good internal consistency. Other indicators of validity and reliability of the tool included a test-retest reliability of 0.595, $p < 0.001$ and a statistically significant CFA (LR test of model vs. saturated $p=0.0006$).

Single-item Indicators

Single-item indicators and shortened versions of multi-item scales have been used among researchers to define their concepts (Fuchs & Diamantopoulos, 2009). Advantages of single-item measures include a brief questionnaire, flexibility, and ease of administration (Pomeroy et al., 2001). Other advantages of single-item indicators include the less time needed to complete these questions and exclusion of repetitive questions, which leads to decreased response bias (Gardner et al., 1998). “Several authors have demonstrated that single-item measures can have acceptable psychometric properties and are, therefore, a potentially viable alternative to multi-item scales for construct measurement purposes” (Bergkvist & Rossiter, 2007, p. 177).

Youngblut and Casper (1993) reviewed the utilization of single-item indicators within nursing research. The authors identified that single-item measures can be classified into two essential groups, single-item measures utilized within multi-item scale and then single-item indicators as part of a global single-item scale. “Globally single-item indicators require that subjects consider all aspects of a phenomenon and represent a holistic way to measure subjects’ perceptions of many concepts that of interest to nursing and are consistent with nursing’s perspectives” (p. 459). Youngblut and Casper (1993) highlight associations between higher validity measure of a concept and the utilization of a single-item measure within research.

Single-item indicators and measures have been utilized in numerous studies and have been deemed reliable and valid (Youngblut & Casper, 1993). Evidence within test-retest reliability supports findings that single-item indicators are deemed a reliable measure (De Boer et al., 2004). Reliability of single-item indicators can be measured using internal consistency reliability (Ginns & Barrie, 2004). Youngblut and Casper

(1993) include multiple studies in their review indicating reliability. The authors note that in a study by Andrews and Withey (1976), reliability of their single-item measure regarding quality of life resulted in a test-retest reliability of .70. Another study noted by the authors found test-retest correlations of single-item indicators that ranged from .50 to .83 (Cella & Perry, 1986). According to Matheson (2019), good reliability of a single-item measure is represented by a test-retest reliability with values between 0.4 and 0.75. Excellent reliability of a single-item measure is represented by a test-retest reliability above 0.75. A national study utilized a single-item scale to measure quality of American life and resulted in a coefficient alpha of .89, indicating good reliability (Youngblut & Casper, 1993). In a cross-sectional study by West et al. (2009), single-item indicators were utilized to assess depersonalization and emotional exhaustion among 10,951 medical professionals of various disciplines. Findings included that “responses to the single-item measures of emotional exhaustion and depersonalization stratified risk of high burnout displayed consistent patterns across the four sampled groups” (p. 1319). A deeper understanding of burnout among medical professionals was obtained within the study by the utilization of single-item measures.

There is significant evidence within research that support validity of single-item indicators and it has been noted that these measures perform well in validity testing (Youngblut & Casper, 1993). Authors note an advantage when utilizing single-item measure as the consistency among studies regardless of the format within the responses.

Single-item indicators in the study were constructed with guidance from Youngblut and Casper (1993). Participants were asked within this study to answer single-item indicator questions with a Likert-type scale regarding the corresponding variables

(Social support, coping, COVID-19 stress, COVID-19 anxiety, and general health). The scale included the following answers: 0=Strongly disagree; 1= Disagree; 2= Unsure; 3- Agree; & 4= Strongly agree. “Single-item indicators often have acceptable psychometric properties and, thus are a viable alternative for measuring global concepts of interest to nursing” (Youngblut & Casper, 1993, p. 461).

Data Analysis

Research questions within a mixed methods study should be developed with consideration of the integration of both quantitative and qualitative data, which is necessary to represent the integration of the two databases (Creswell & Clark, 2018). Research questions within this study were constructed with guidance from Creswell and Clark (2018) utilizing a question from the quantitative database, qualitative database, and the mixed methods database. Table 2 provides an overview of the research questions, corresponding variables, and analysis.

Table 2

Research Questions, Corresponding Variables, and Analysis

Research Questions	Variables	Analysis
What is the relationship between the students' social support, coping, COVID-19 stress/perceived stress, COVID-19 anxiety, general health, educational environment, and other demographic factors on psychological distress?	Demographics- Independent	Quantitative- Demographics survey
	Social support- Independent	Quantitative- Single-item survey
	Coping- Independent	Quantitative- Single-item survey
	COVID-19 stress- Independent	Quantitative- Single-item survey
	COVID-19 anxiety- Independent	Quantitative- Single-item survey
	General health- Independent	Quantitative- Single-item survey
	Educational environment- Independent	Quantitative- DREEM-12
	Perceived stress- Independent	Quantitative- PSS-4
	Psychological distress- Dependent	Quantitative- K6

Table 2 (continued).

What are nursing students' perceptions of social support, coping, COVID-19 stress/perceived stress, COVID-19 anxiety, general health, educational environment, and psychological distress?	Educational environment- Independent Stress- Independent Social support- Independent General health- Independent Psychological distress- Dependent	Qualitative- Open-ended questions Qualitative- Open-ended questions Qualitative- Open-ended questions Qualitative- Open-ended questions Qualitative- Open-ended questions
To what extent do students' perceptions of social support, coping, COVID-19 stress/perceived stress, COVID-19 anxiety, general health, and educational environment, confirm outcome data on a psychological distress measure?	Demographics- Independent Social support- Independent Coping- Independent COVID-19 stress- Independent COVID-19 anxiety- Independent General health- Independent Educational environment- Independent Perceived stress- Independent Psychological distress- Dependent	Integration of Mixed Methods Data and Meta-inferences

Quantitative Data Analysis

Quantitative data analysis includes procedural steps within data collection, including transforming raw data into a usable form within a database, filtering out errors within the database, developing variables, and adjusting those variables to appropriately represent the measurement tools used (Creswell & Clark, 2018). Analyzing software, IBM SPSS version 27, was utilized to analyze quantitative data within the study using various calculated methods such as means and standard deviations. Coefficient alpha was also calculated and determined for the K6, PSS-4, and the DREEM-12. Descriptive statistical analysis, bivariate analysis, multivariate multiple linear regression, and binary logistics regression analysis ensued to define any predictive effects of independent variables on psychological distress. Analyses were run first using demographic variables only, then independent variable scales, and finally both demographic variables and

independent variable scales. Quantitative validity and reliability were established by the selection of quality instruments and by analyzing their data (Creswell & Clark, 2018).

Quantitative Variables

Kessler Psychological Distress Scale

A total of 202 Participants answered six questions using the Kessler Psychological Distress Scale (K6) to measure the likelihood of psychological distress. K6 questions were presented with Likert type scale answers. Participants chose answers with corresponding numerical values. Answers includes responses such as: All the time, most of the time, some of the time, a little of the time, and none of the time.

Table 3

Kessler Psychological Distress Scale (K6) Questions

K6 Questions

1. *How often do you feel nervous?*
 2. *How often do you feel hopeless?*
 3. *How often do you feel restless or fidgety?*
 4. *How often do you feel so depressed that nothing could cheer you up?*
 5. *How often do you feel that everything was an effort?*
 6. *How often do you feel worthless?*
-

The sum of the answers determines the level of likelihood of psychological distress. Should a participant score under 20 then they are likely to be well. Should a participant score a 20-24, then they are likely to have a mild mental disorder. Should a participant score 25-29, then they are likely to have a moderate mental disorder. Should a participant score a 30 or over, then they are likely to have a severe mental disorder. Descriptive statistical analysis was conducted on the K6 as seen in Table7, and the following scores were determined: 53% of the participants scored under 20 with a

likelihood to be well; 25% scored 20-24 with a likelihood to have a mild mental disorder; 16% scored 25-29 with a likelihood to have a moderate mental disorder, and 2% scored 30 or above with a likelihood to have a severe mental disorder. To predict multiple outcome variables, multivariate multiple linear regression analysis was conducted between the dependent variable, psychological distress, and multiple independent variables as seen in Table 10. From the R² in Table 10, Model 2 = 0.230, which means that only 23% of the variation in psychological distress can be explained by the independent variables. Cronbach's alpha was established and the K6 was found to be highly reliable (6 items; $\alpha = .86$). Many sources indicate the reliability of a survey tool can be established with a coefficient alpha above 0.70, while a coefficient alpha of 0.80 or greater is preferred (Cortina, 1993). The higher the coefficient alpha, the higher the reliability.

Dundee Ready Education Environment Measure (DREEM 12)

A total of 202 Participants answered 12 questions using the Dundee Ready Education Environment Measure (DREEM 12) to measure their interpretation of the educational environment. Likert-type scale questions were utilized. Participants chose answers with corresponding numerical values. Answers included responses such as: Strongly disagree, disagree, unsure, agree, and strongly agree.

Table 4

Dundee Ready Education Environment Measure (DREEM 12) Questions

DREEM12 Questions

1. The teaching helps to develop my confidence
2. The teaching encourages me to be an active learner
3. The course organizers are knowledgeable
4. The course organizers have good communication

Table 4 (continued).

5. *The course organizers give clear examples*
 6. *I feel I am being well prepared for my profession*
 7. *My problem-solving skills are being well developed here*
 8. *Much of what I have to learn seems relevant to a career in healthcare*
 9. *I can concentrate well*
 10. *The atmosphere motivates me as a learner*
 11. *There is a good support system for students who get stressed*
 12. *My social life is good*
-

The sum of the answers determines the participants' interpretation of their educational environment with scores ranging from 0 to 48 with corresponding values of very poor to excellent perceptions of educational environment. The higher the score, the better the perception that the participant has of their educational environment. Descriptive statistical analysis was conducted on the DREEM 12 as seen in table 7, and the following scores were determined: 1% of the participants scored 0-12 with an interpretation of a very poor educational environment; 3% scored 13-24 with an interpretation of an education environment with plenty of problems; 28% scored 25-36 with an interpretation of more positive than the negative educational environment, and 64% scored 37-48 with an interpretation of an excellent educational environment. Cronbach's alpha was established and the DREEM 12 was found to be highly reliable (12 items; $\alpha = .83$).

Bivariate analysis was conducted to determine any statistical association between psychological distress and the DREEM 12 as identified in table 8. Psychological distress is related to the DREEM 12 scale with a test statistic of 5.814 and $P < .05$. Multivariate multiple linear regression analysis was conducted to predict multiple outcome variables between psychological distress and the DREEM-12 scale as seen in Table 10. From

Model 2 in Table 10, there exists a linear relationship between the DREEM-12 and psychological distress at the significance level of 0.05.

Perceived Stress Scale (PSS4)

A total of 202 Participants answered four questions using the Perceived Stress Scale (PSS4) to measure perceived stress. Likert-type scale questions were utilized. Participants chose answers with corresponding numerical values. Answers included responses such as: Never, almost never, sometimes, fairly often, and very often.

Table 5

Perceived Stress Scale (PSS4) Questions

PSS4 Questions

-
- 1. In the last month, how often have you felt that you were unable to control the important things in your life?*
 - 2. In the last month, how often have you felt confident about your ability to handle your personal problems?*
 - 3. In the last month, how often have you felt that things were going your way?*
 - 4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?*
-

Before data analysis can ensue, coding adjustments to questions 2 and 3 must be conducted. Adjustments included reverse coding to any positive items. The sum of the scores was utilized to predict perceived stress. Scores can range anywhere from 0 to 16 with the higher score indicating higher perceived stress. Descriptive statistical analysis was conducted for the PSS-4 as seen in table 7, and the mean score for all participants was 12.86. Cronbach's alpha was established and the PSS-4 was found to be reliable (4 items; $\alpha = .73$).

Bivariate analysis was conducted to determine if there is a statistical association between psychological distress and the PSS-4 as seen in Table 8. An ANOVA test was

conducted to compare the variables, psychological distress, and the PSS-4 scores. From the results, the analysis revealed that there exists a relationship as the p-value is less than the significance level of 0.05. Multivariate multiple linear regression analysis was conducted to determine multiple variable outcomes between psychological distress and the PSS-4 scale as seen in Table 10. From Model 2 in Table 10, there exists a linear relationship between the PSS-4 and psychological distress at the significance level of 0.05.

Single Item Indicators

A total of 202 Participants answered five questions using single-item indicators to measure Social Support, Coping, Stress related to COVID-19, Anxiety related to COVID-19, and General Health. The questions were answered utilizing a Likert-type scale response: 0- Strongly Disagree; 1- Disagree; 2- Unsure; 3- Agree; 4- Strongly Agree.

Table 6

Single Item Indicators Questions

Single Item Indicator Questions

- 1. I have adequate social support during nursing school?*
- 2. I am able to cope well in nursing school?*
- 3. I have experienced stress related to COVID-19 during nursing school?*
- 4. I have experienced anxiety related to COVID-19 during nursing school?*
- 5. My overall general health is good?*

Each single item indicator variable will be reviewed in the following sections.

Descriptive statistics will be discussed for each variable. See Table 7 for complete descriptive statistical information on each variable.

Social Support

Regarding social support, the highest percentage of participants selected agree (51%). Strongly agree had the second-highest percentage of participants selected strongly agree (33%). Some participants selected disagree (7%). Other participants selected unsure (6%), and the least percentage of participants selected strongly agree at 2%.

Coping

Regarding coping, the highest percentage of participants selected agree (46 %). The second-highest percentage of participants selected unsure (24%). Some of the participants selected disagree (15%). The least percentage of participants selected strongly agree (10%) and strongly disagree (3%).

COVID-19 Stress

Regarding COVID-19 stress, the highest percentage of participants selected strongly agree (58%). The second-highest percentage of participants selected agree (31%). Some participants selected disagree (5%). The least percentage of participants selected unsure (3%) and strongly disagree (2%).

COVID-19 Anxiety

Regarding anxiety, the highest percentage of participants selected strongly agree (43%). The second-highest percentage of participants selected agree (32%). Some participants selected unsure (18%). The least percentage of participants selected disagree (4%) and strongly disagree (1%).

General Health

Regarding general health, the highest percentage of participants selected agree (39%). The second-highest percentage of participants selected strongly agree (33%).

Some participants selected unsure (23%). Other participants selected disagree (4%), and no participants selected strongly disagree.

Qualitative Data Analysis

The process of analyzing qualitative data includes recognizing how to approach each research question and then transcribing the data manually or electronically using data analysis software (Creswell & Clark, 2018). The phone and zoom interviews were prepared for analysis by transcribing them verbatim. Using a directed content analysis approach with guidance from Creswell and Clark (2018), coding of the transcripts was conducted. Coding within qualitative data analysis involves categorizing themes and evidence as well as defining ideas and concepts to represent reflect participants' responses. A directed approach within content analysis utilizes a more organized and structured method in comparison to a conventional approach by defining concepts and variables derived from existing research and theory (Hsieh & Shannon, 2005). The coding process included two independent reviewers. One of the reviewers was the researcher. The process of consensus coding was conducted after themes and patterns were identified by each coder. Inter-rater reliability (IRR) was established within the coding. IRR is achieved when 80% agreement between coders on 95% of the codes occurs (Miles & Huberman, 1994). Qualitative validity in the study was established using methodological triangulation which includes several methods to analyze a single problem. Supporting evidence within research has noted that methodological triangulation has been deemed beneficial by increasing validity. Achieving validity within methodological triangulation can lead to a better understanding of a concept or

phenomena (Bekhet & Zauszniewski, 2012). Quantitative and qualitative data will be used to test for consistency in the study findings.

Mixed Methods Analysis

The application of analytic methods among qualitative and quantitative data, along with the integration of both data sets, which can occur once or at various points anytime within the process is included in mixed methods analysis (Creswell & Clark, 2018). An enhancing approach was utilized as an integration strategy for analysis in the mixed methods design in order to interpret both quantitative and qualitative data and to derive meta-inferences. Enhancing results in an increased understanding of meaningfulness and interpretability by utilizing data from the quantitative research findings as well as from the qualitative research findings (Fetters, 2020). These findings were applied in discussion and findings.

Summary

Chapter III included a discussion of the methodology, design, sample and setting, procedures, data collection, instruments, and data analyses. Chapter IV will discuss the results from data analysis. Analysis was conducted within the quantitative and qualitative data sets. All measurement tools and any interview questions included in the study will be reviewed.

CHAPTER IV – RESULTS

The results from the quantitative and qualitative analysis will be reviewed in this chapter. First, quantitative data will be discussed. Each survey tool used in the study will be reviewed and the results list. Next, qualitative data will be discussed. Each interview question in the study will be reviewed and the results list.

Quantitative Data General

The various response sets within the quantitative survey from 202 questionnaires were imported from the Qualtrics platform. Analyzing software, SPSS version 27, was utilized to upload data from Qualtrics. Descriptive statistical analysis, bivariate analysis, multivariate multiple linear regression, and binary logistics regression analysis ensued. Hypothesis are presented and included analytical details and information.

Demographic Information

A total of 202 participants completed the demographics section of the survey. Most of the participants were young adults with a mean age of 22 years ($SD=4.38$). Regarding race, the highest percentage of participants selected white ($n=160$, 79%); Participants that selected African American had a selection of 28 (14%). Participants that selected others accounted for 14 (7%). The selection of others included races such as Native Hawaiian, Pacific Islander, Asian, Alaskan Native and American Indian. This was noted to be the smallest portion of the sample. The majority of the students were female at 86%, and the other 28 (14%) participants were male. Participants had the opportunity to select multiple options for marital status. Regarding marital status, the highest percentage of participants selected single 193 (95%); participants that selected married had a selection of 9 (5%) and participants that selected either widowed or divorced had a

selection of 1 (1%) each. Regarding employment, the highest percentage of participants were not working 129 (64%); however, some participants reported that they worked part-time ($n=70$, 35%). Very few participants reported working ($n=3$, 2%). See Table 7 Descriptive Statistics of Variables for the complete demographic information on the data.

Bivariate analysis was conducted between psychological distress and the following demographic variables, which can be seen in Table 8 and Table 9: Race, sex, employment status, age, and marital status. The analysis intends to determine whether a statistical association exists between psychological distress and the demographic variables, thus utilizing statistically significant variables for multivariate analyses later. From the results in Table 8 and Table 9 consisting of the bivariate analysis, we observe that marital status and psychological status are related to the outcome variable as the p -value is less than the significance level of 0.05.

A multiple linear regression analysis was conducted between psychological distress and demographic variables as identified in Table 10. The intention of the analysis is to predict multiple outcome variables utilizing one or more independent variables. Evidence from Model 1 in Table 10 does not show a linear relationship among the variables describing demographics and psychological distress at a significance level of 0.05. From Model 2 in Table 10, there does exist a linear relationship among the variables, which include the PSS4 and DREEM12 scale and the dependent variable, psychological distress. We can conclude that there is a statistically significant association between the PSS4 and DREEM12 scale with a p -value of less than or equal to the significance level of 0.05. If one score increases in the DREEM12 scale holding the PSS4 scale, the psychological distress score will increase around 2.6 points. If one score

increases in the PSS4 scale holding the DREEM12 scale, the psychological distress score will decrease almost 6 most. The R-squared for model 2 = 0.230. R-squared of a multiple regression model explains how close the data are to the fitted regression line so, within this model, only 23% of the variation in psychological distress can be explained by the independent variables of the PSS4 and DREEM12 scale.

A logistic regression analysis was conducted between psychological distress and the 5 single-item indicator questions to obtain an odds ratio. Psychological distress was converted into a binomial response variable; thus, the logistic regression analysis is appropriate. Odds ratios are obtained between one or more explanatory variables and a binomial response variable within a logistic regression analysis (Sperandei, 2014). As identified in Table 11, the overall test results are statistically significant, which means a nonlinear relationship is identified between psychological distress and other independent variables ($\chi^2 = 65.004$, $df = 3$, $p < 0.001$). Three independent variables are statistically significant with psychological distress. With an odds ratio greater than 1, there is a positive correlation identified among stress and psychological distress. Should the stress level increases, there will be more likely to be distressed. For every 1 unit increase in stress, the predicating odds are changing by a factor of 1.648.

If a randomly selected participant thinks he or she gets more social support during nursing school, there are around 65% fewer odds to be distressed. If a randomly selected participant thinks he or she copes well, there are about 48% less odds to be distressed. The goodness of fit of the model was measured by Hosmer and Lemeshow test. The combination of evaluating a statistical model and establishing the Hosmer-Lemeshow goodness of fit test is imperative to assessing goodness of a fit within a logistic regression

model (Fagerland & Hosmer, 2012). A larger p-value means that the model is a good fit so we can determine that the logistic regression model is a very good fit with a chi-square test statistic of 3.199 and a p-value of 0.921.

Table 7

Descriptive Statistics of Variables

Variable	Frequency (%)	Mean (SD)
Race		
Caucasian	160 (79.2%)	
African American	28 (13.9%)	
Others	14 (6.9%)	
Gender		
Male	28 (13.9%)	
Female	174 (86.1%)	
Employment		
Working (full-time)	3 (1.5%)	
Working (part-time)	70 (34.7%)	
Not Working	129 (63.9%)	
Marital Status		
Married	9 (4.5%)	
Widowed	1 (0.5%)	
Divorced	1 (0.5%)	
Single	191 (94.6%)	
Age		22.61 (4.38)
DREEM		
Very Poor	1 (0.5%)	
Plenty of Problems	6 (3.0%)	
More Positive than Negative	56 (27.7%)	
Excellent	129 (63.9%)	
Perceived Stress (PSS4)		12.86 (1.59)
Psychological Distress (K6)		
Well	107 (53.0%)	
Mild Mental Disorder	51 (25.2%)	
Moderate Mental Disorder	33 (13.6%)	
Severe Mental Disorder	3 (1.5%)	
I have adequate social support during nursing school		
Strongly Disagree	3 (1.5%)	
Disagree	14 (6.9%)	
Unsure	13 (6.4%)	
Agree	102 (50.5%)	
Strongly Agree	66 (32.7%)	

Table 7 (continued).

I am able to cope well in nursing school		
Strongly Disagree	6 (3.0%)	
Disagree	31 (15.3%)	
Unsure	48 (23.8%)	
Agree	93 (46.0%)	
Strongly Agree	20 (9.9%)	
I have experienced stress related to COVID-19 during nursing school related to COVID-19		
Strongly Disagree	3 (1.5%)	
Disagree	9 (4.5%)	
Unsure	5 (2.5%)	
Agree	63 (31.2%)	
Strongly Agree	118 (58.4%)	
I have experienced anxiety related to COVID-19 during nursing school		
Strongly Disagree	1 (0.5%)	
Disagree	8 (4.0%)	
Unsure	37 (18.3%)	
Agree	65 (32.2%)	
Strongly Agree	87 (43.1%)	
General Health		
Strongly Disagree	0 (0.0%)	
Disagree	7 (3.5%)	
Unsure	46 (22.8%)	
Agree	78 (38.6%)	
Strongly Agree	67 (33.2%)	

Table 8

Bivariate Analyses Between Psychological Distress and Independent Variables.

VARIABLE	INDEPENDENT VARIABLE	TEST	TEST STATISTIC	P
Psychological distress	Race	χ^2	2.191	0.901
	Sex	χ^2	0.564	0.905
	Employment status	χ^2	8.611	0.197
	Marital status	χ^2	13.086	< 0.05
	Age	F	1.488	0.120

Table 8 (continued).

DREEM -12	MH*	5.814	< 0.05
PSS4	F	3.4661	< 0.05

* Mantel Haenszel Chi-square test was performed because both variables are ordinal scale variables.

Table 9

Bivariate Analyses with Outcome Variable, Psychological Distress (Dichotomous)

Variable	Distress n (%) / mean (SD)		Test Statistic	P
	Yes	No		
Gender				
Male	12 (13.8%)	16 (15.0%)	$\chi^2 = 0.052$	0.082
Female	75 (86.2%)	91 (85.0%)		
Age	22.88 (5.75)	22.24 (2.44)	$t = -1.024$	0.307
Caucasian				
Yes	70 (80.5%)	82 (76.6%)	$\chi^2 = 0.414$	0.520
No	17 (19.5%)	25 (23.4%)		
Married				
Yes	5 (5.7%)	4 (3.7%)	$\chi^2 = 0.438$	0.508
No	82 (94.3%)	103 (96.3%)		
Employment				
Yes	27 (31.0%)	44 (41.1%)	$\chi^2 = 2.104$	0.147
No	60 (69.0%)	63 (58.9%)		
Perceived Stress (PSS4)	12.23 (1.73)	13.38 (1.25)	$t = 5.437^*$	< .001
DREEM				
Very Poor	0 (0.0%)	1 (1.0%)	Spearman γ = 0.162	0.024
Plenty of Problems	0 (0.0%)	6 (5.7%)		
More Positive Than Negative	22 (25.3%)	34 (32.4%)		
Excellent	65 (74.7%)	64 (61.0%)		
Social Support				
Strongly Disagree	0 (0.0%)	3 (2.8%)	$\chi^2 = 25.07$	< .001
Disagree	3 (3.4%)	10 (9.3%)		
Unsure	1 (1.1%)	12 (11.2%)		
Agree	40 (46.0%)	60 (56.1%)		
Strongly Agree	43 (49.4%)	22 (20.6%)		
Coping				
Strongly Disagree	2 (2.3%)	4 (3.7%)	$\chi^2 = 35.91$	< .001
Disagree	5 (5.7%)	25 (23.4%)		
Unsure	13 (14.9%)	35 (32.7%)		
Agree	49 (56.3%)	41 (38.3%)		
Strongly Agree	18 (20.7%)	2 (1.9%)		

Table 9 (continued).

Stress-related to COVID-19					
	Strongly Disagree	2 (2.3%)	1 (0.9%)	$\chi^2 = 12.58$	0.014
	Disagree	5 (5.7%)	4 (3.7%)		
	Unsure	4 (4.6%)	1 (0.9%)		
	Agree	36 (41.4%)	26 (24.3%)		
	Strongly Agree	40 (46.0%)	75 (70.1%)		
<hr/>					
Anxiety-related to COVID-19					
	Strongly Disagree	1 (2.3%)	0 (0.0%)	$\chi^2 = 5.71$	0.222
	Disagree	5 (5.7%)	3 (2.8%)		
	Unsure	16 (18.4%)	20 (18.7%)		
	Agree	33 (37.9%)	30 (24.3%)		
	Strongly Agree	32 (36.8%)	54 (70.1%)		
<hr/>					
General Health					
	Strongly Disagree	0 (0.0%)	0 (0.0%)	$\chi^2 = 20.95$	< .001
	Disagree	2 (2.3%)	4 (3.7%)		
	Unsure	12 (13.8%)	34 (31.8%)		
	Agree	29 (33.3%)	47 (43.9%)		
	Strongly Agree	44 (50.6%)	22 (20.6%)		

Table 10

Multiple Regression Model

OUTCOME VARIABLE	MODEL	T	P	F (p)
Psychological distress	Model1			
	Race	-0.743	0.458	0.989 (0.420)
	Sex	-0.841	0.401	
	Employment status	0.608	0.544	
	Marital status	-0.052	0.959	
	Age	1.55	0.123	
Psychological distress	Model2			
	PSS4	-5.90	0.000*	7.583 (0.000)*
	DREEM-12	2.59	0.004*	
	Race	-1.06	0.288	
	Age	1.48	0.138	
	Sex	-0.35	0.724	
	Marital status	-0.76	0.447	
	Employment status	0.125	0.901	

*Statistically significant at 0.05 significance level. R² for model 2= 0.230

Table 11

Logistic Regression Analyses with Single Item Indicators

Variable	β (<i>p</i>)	Odds Ratio (CL)
Social Support	- 0.812 (0.002)	0.444 (0.265 – 0.744)
Coping	- 0.660 (0.002)	0.517 (0.342 – 0.781)
Stress	0.500 (0.006)	1.648 (1.150 – 2.362)

Summary of Quantitative Results

Data analysis was conducted on the dependent variable, psychological distress, and the following 13 independent variables: Age, ethnicity, gender, location/year, employment status, marital status, social support, coping, COVID-19 stress, COVID-19 anxiety, general health, perceived stress, and educational environment. Descriptive statistical analysis, bivariate analysis, multivariate multiple linear regression, and binary logistics regression analysis ensued and found multiple correlational relationships between the dependent and independent variables. The bivariate analysis results showed a significant relationship between the dependent variable, psychological distress, and the following independent variables: marital status, educational environment, and perceived stress. The logistic regression analyses showed a nonlinear relationship between the dependent variable, psychological distress, and the following independent variables: COVID-19 stress, social support, and coping.

Qualitative Data General

Response data sets from 11 participants via phone and zoom interviews were included in the qualitative survey. Interviews were recorded and transcripts were downloaded into Excel so that analysis could be conducted. Coding and content analysis ensued and the hypothesis presented included the details.

Ten students from The University of Southern Mississippi volunteered to participate in the follow-up interview study. To obtain a more diverse sample from more than one institution, one more randomly selected participant was recruited from a different institution located in one of the Southeastern states. Out of the sample, there were 10 (91%) participants who scored a 20 or greater on the K6. A 20 or greater on the K6 indicates mental distress. One (9%) participant scored less than a 20 on the K6, indicating no mental distress. These 11 participants were recruited for the qualitative follow-up interview. Eight qualitative research questions were proposed within the interviews. Participants' interviews were audio-recorded. The researcher accurately transcribed each interview verbatim. Times of the interviews lasted an average of 12 minutes. Data from the interviews were uploaded into a categorization matrix within Excel and coded. Each interview question was addressed within a created corresponding worksheet tab. Each respondent was assigned a number to ensure that one participant wasn't given more voice than others. Themes were organized in separate columns. If a theme was identified in response, then that specific theme would receive a flag. Flagged items were summed to identify how prevalent a theme was compared to the others. The data were reviewed for content, word choice, extensiveness, frequency, and intensity. The data was then coded for correspondence to the identified categories and documented within flowcharts to depict the process of coding breakdown. When categories in the categorization matrix sufficiently represent the concepts, the matrix is deemed trustworthy and valid (Schreier, 2012). The two methods used in the study include coding and qualitative content analysis. Coding and qualitative content analysis generate a categorical information foundation that can be utilized to identify patterns and themes

within the data in efforts to develop theoretical explanations (Glaser & Laudel, 2014).

Determining the best approach to address each research question in data collection will contribute to the trustworthiness of content analysis. Different approaches to data collection can include different methods or a combination of different methods such as observations, diaries, interviews, and other written documents (Schreier, 2012).

Trustworthiness was established using an interview method via phone and zoom to gather information from the participants.

Coding and qualitative content analysis include identifying emerging themes and patterns within the data. These emerging themes and patterns can include multiple occurring sequences of events, outcomes, processes, or a combination of each (Glaser & Laudel, 2014). Each interview was coded by identifying emerging themes and patterns. Qualitative data analysis was processed by the researcher and included carefully listening to the audio-recordings of each interview in addition to reading the corresponding transcript to ensure accuracy and correctness. The transcripts were carefully reread multiple times to ensure that contextual information, such as background noise and other verbal signifiers were not included. This was done to establish the conformability of the findings. Conformability of the findings adds to the trustworthiness of the analysis and means that the researcher did not add any information to the participants' data and that the data is accurately representative of the participants' responses (Polit & Beck, 2012). Coding was initiated with the third reading of the transcript where relevant themes were identified. Supporting quotes were established for each code which adds to the conformability and trustworthiness of the analysis. In efforts to remove any of the researcher's perspectives or biases from transcription and to also ensure that the

transcriptions are representative of the participants, researchers will include supporting quotes within the transcription to establish trustworthiness (Polit & Beck, 2012). Selected codes were refined even further for each research question. The research then repeated the procedure for each of the 11 interviews. All interview question will be reviewed and discussed in the sections to follow.

Interview Question One

IQ1: In what ways has the COVID-19 pandemic changed your academic performance?

The first question concerned how participants felt the COVID-19 pandemic influenced their academic performance. One overarching theme that was identified for nearly all the participants and included that students reported online learning changed their academic performance. For instance, one participant stated, “I like in-person teaching, but then I like recorded lectures.” Other participants stated things such as, “I think I had a hard time adjusting you know like to online from in-person,” “I think it has made me lazier with not wanting to go to class and the convenience of zoom calls,” “I feel like my participation had maybe gone down a little bit because we are not face-to-face as often,” “I definitely think that it has changed a lot just because it has been online.” Some participants spoke about the cons of online learning and included statements such as, “So, first of all, I have to switch to online learning and I am one of those people that does better in person and I like the teacher in front of me,” “I have to study a little extra because of I guess online lecture,” “It just made it harder to learn overall and the online setting has been a setback,” “I don’t learn as well online like I do in the classroom,” and “I think it has definitely isolated me more, which is not good with my history of depression. With all the changes to online, I have had a hard time keeping

myself motivated.” The overarching theme that students reported that online learning changed their academic performance was then broken down to the theme that students learn better face-to-face and then broken down even further and coded to *online learning*.

Interview Question Two

IQ2: What are some stressors or things that have caused you stress or psychological stress during your time in nursing school?

The second question asked participants to identify perceived stress or psychological stress during their time in nursing school. Three overarching themes were identified in the various responses from all participants. The first overarching theme included that students reported a large amount of content/workload as a cause for stress and psychological stress. Participants stated things such as, “I feel like I don’t have enough time,” “I am behind all the time with tests and assignments,” “Definitely the amount of content that we are required to know,” and “Just really that it’s a large amount of information.” Other participants stated things such as, “that’s been really difficult for me here lately is the amount of workload,” and “I have been really stressed out about the workload.” The first overarching theme was then broken down to the amount of content/workload and then further coded as *workload*.

The second overarching theme identified among the participant’s responses was the need for finances as a cause for stress or psychological stress. For instance, participant’s statements included things such as, “Finances and money is always a stressor,” “I also work part-time to help with finances and it has been hard to work since I am so busy,” and “Finances for sure have a been a big stressor.” The second overarching theme was broken down to lack of finances and then further coded to *finances*. The Third

overarching theme included that students reported missing out on hands-on experience as a cause for stress or psychological stress. The third overarching theme was broken down to lack of hands-on experience and then further coded to *experience*. Participants' statements included: "The hardest thing is not being able to do clinical," "For having lack of clinical put a damper on our experiences," and "I would say that maybe just not having the hands-on with nursing." One participant stated, "I feel like I am kind of missing out on the hands-on experience and just like practice."

Interview Question Three

IQ3: What things have you done to cope with stressors caused as a result of the COVID-19 pandemic?

The third question is a follow-up question to IQ2 and concerned participants in exploring how they cope with the stressors that they listed in the previous question. One overarching theme was identified and included that students reported that taking breaks has helped them to cope with their stressors. Participants included statements such as, "hanging out with my close friends. I also like to work out with my friends and go for walks," "I also like to take breaks when I get stressed," "I try to exercise because that always helps my mental health. I try to get outside and get fresh air," and "I try to schedule breaks for when I am studying and I also try to get as much done during the day as much as possible and that way I have a break during the night." Other participants included statements such as, "I try to hang out with my friends as much as possible," and "My girlfriend has kept me company and has been a huge help with coping with isolation and I don't think I would make it without her, she makes me take breaks when it seems like I get overwhelmed." The theme was broken down even further and coded to *breaks*.

Interview Question Four

IQ4: During the COVID-19 pandemic, what are some stressors or things that have caused you anxiety during your time in nursing school?

The fourth question concerned participants with stressors that have caused them anxiety. Two overarching themes were identified and included that students reported that not having enough time and the unknown of what was going to happen were stressors that caused anxiety. The first overarching theme was broken down to lack of time and then broken down even further and coded into *time*. Participants mentioned a lack of time in numerous statements. For instance, “I would say time, yea time, like not having enough time,” “not having enough time I would say,” “The main thing would be keeping up with everything,” and “I guess the workload in the short amount of time and maybe just learning how to study has caused me anxiety.” Other participant’s statements included time and tests. For instance, “Having multiple tests in one week doesn’t help either,” and “Sometimes the information runs together because I am studying for two different tests at the same time.”

The second overarching theme was broken down to fear of the unknown and then broken down even further and coded to *unknown*. Participants mentioned the unknown multiple times and included statements such as, “I think a lot of the unknown of what’s going to happen had given me a lot of anxious thoughts,” “I question, do I know enough,” and “The pandemic, in general, had caused me anxiety, all of the unknown.”

Interview Question Five

IQ5: What things have you done to cope with anxiety caused as a result of the COVID-19 pandemic?

The fifth question is a follow-up question to IQ4 and concerned participants in exploring how they cope with the anxiety that they listed in the previous question. One overarching theme was identified and included that students reported that their friends and family have helped them cope with anxiety. Participants included statements of how they cope with anxiety such as, “Hanging out with my friends when I have time,” “I try to hang out with my friends when I can,” “I lean on my support system and my family about it,” “I really just talk to my friends and family about it and gain encouragement from them,” and “Again, my girlfriend has been there to help support me so that has eased my anxiety as well.” The theme was broken down to students use their support system to cope with anxiety and then broken down even further and coded to *support*.

Interview Question Six

IQ6: How has your social support system, such as family and friends and the nursing school, helped you progress through the nursing program?

The sixth question concerned participants in exploring how their social support system has helped them to progress through nursing school. One overarching theme seen among numerous responses was identified and included that students reported that they have a good support system that has helped them. For instance, “My family and friends are very supportive,” “I have supportive friends and classmates who are going through the same thing so that has helped me,” “My best support is probably my family,” “Friends are definitely there for support,” “my friends have also been very supportive like

very understanding and my family, in general, has been very supportive,” and “I have an awesome support system at home who encourage me so much, my mom, my aunt, and my friends here.” Other participant’s responses included statements such as, “I have had luckily had a lot of social support, my family just wants me to do my best and they have supported me through that,” “My family and friends have been really great and supportive,” and “My girlfriend and my parents have been great and I really don’t think I would be able to get through this without them.” One participant stated that “I have also been able to confide in some of my teachers and they have been so helpful and supportive.” The theme was broken down to family and friends encourage students and then broken down even further and coded to *encouragement*.

Interview Question Seven

IQ7: What could your family and friends and nursing school have done differently to support your progress through the nursing program?

The seventh question was a follow-up question to IQ6 and concerned participants with exploring what their support system could have done differently. Two overarching themes were identified and included that some students reported that there was nothing that their family and friends could have done differently, and some students reported that they wanted to improve communication and encouragement from faculty. The first overarching theme was broken down to students already have good support systems and then broken down even further and coded into *unchanged*. Some of the participant’s statements regarding what family and friends could have done differently included things such as, “not really anything,” “I don’t think they could have done anything different really,” “I don’t think so, I think I got a lot out of my family, friends, and teachers,” and

“I don’t think there is anything anyone could have done differently. Everyone has been so great and helpful.” The second overarching theme was broken down to students who could have improved communication and then broken down even further and coded to *communication*. Participant’s responses included communication such as, “building a relationship between student and professor would help, professors were quite bland with their encouragement,” “I think maybe that with just some classes that they would communicate more,” and “I wish the school would have given us a little more heads up and that would have made that transition easier.”

Interview Question Eight

IQ8: While you are attending nursing school, did you have any concerns that affected your physical or mental health during the COVID-19 pandemic?

The last interview question concerned participants in exploring concerns they had that affected their physical or mental health during the COVID-19 pandemic. One overarching theme that was commonly seen among responses and was identified included that students reported that they are concerned for their physical health and the possibility of the spread of COVID-19. For instance, participant’s statements included, “In the beginning my family had COVID and I couldn’t see them,” “I was concerned with physical and like when I would be able to work out,” “concerned with just catching COVID,” “At the beginning of the pandemic I was very anxious and worried about myself and my family because we didn’t know much about the virus,” and “I am concerned of contracting COVID-19, but I think as a nurse it comes with the territory.” The overarching theme was broken down to concerns of transmission of the COVID-19 virus and then broken down even further and coded to *transmission*.

Summary of Qualitative Results

Follow-up interviews were conducted on 11 participants regarding qualitative questions exploring the following variables during the COVID-19 pandemic: Academic performance, stress, coping, anxiety, social support, physical, and mental health. Coding and qualitative content analysis were used to identify overarching themes within the interviews. Each interview was carefully analyzed, and the following 12 codes resulted from the analysis of the participant's responses: *Online learning, workload, finances, experience, breaks, time, unknown, support, encouragement, unchanged, communication, and transmission.*

Mixed Methods Integration Results

Integration of the quantitative and qualitative data were conducted in efforts to gain and develop an understanding and validation of the results (Johnson et al., 2007) psychological distress in nursing students during the COVID-19 pandemic. Figure 3 depicts the meta-inferences drawn from the quantitative and qualitative data results. An enhancing approach was used as an integration strategy for analyzing and interpreting both quantitative and qualitative data and to derive meta-inferences or conclusions. Integration of qualitative and quantitative data ensued, and four major meta-inferences were determined. During the COVID-19 pandemic, we can conclude that disruptions in nursing student's educational environment such as online learning, workload, lack of communication, and financial issues can increase psychological distress; Social support in nursing students can increase coping, which decreases psychological distress; Nursing students' coping, such as time management and breaks can decrease stress leading to

decreased psychological distress; and COVID-19 stress, concerns, and isolation in nursing students can increase psychological distress.

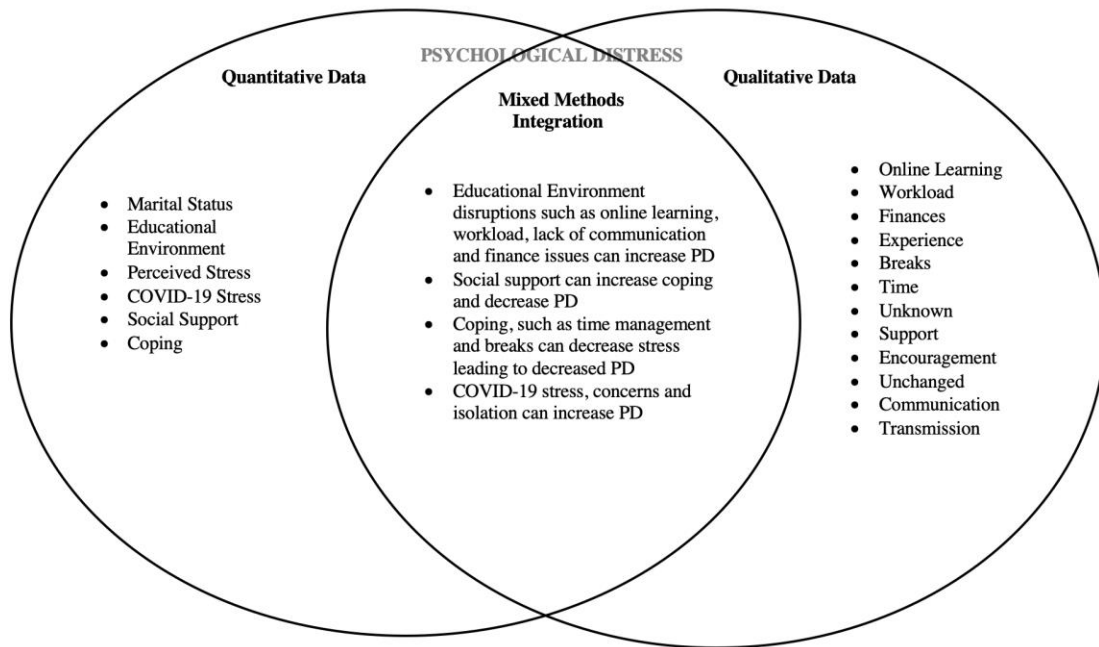


Figure 3. Mixed Methods Integration Results

Summary

Chapter IV included a review of the quantitative and qualitative data analysis. Each survey tool utilized in the study was reviewed and the results listed. Each interview questions in the study was reviewed and the results were listed. Chapter V provides discussion of the conclusions of the study where findings from the quantitative and qualitative analyses will be reviewed.

CHAPTER V – CONCLUSION

Quantitative and qualitative analyses findings will be discussed and reviewed in the final chapter. Each research question and hypotheses will be addressed, and applicable findings will be explored. The study utilized a quantitative and qualitative convergent mixed method design where the quantitative and qualitative findings will be used to corroborate findings from the larger study and will be discussed in this chapter. Figure 4 depicts the schematic of the convergent mixed methods design. Finally, the need for future research in areas as a result of the limitations will be discussed.

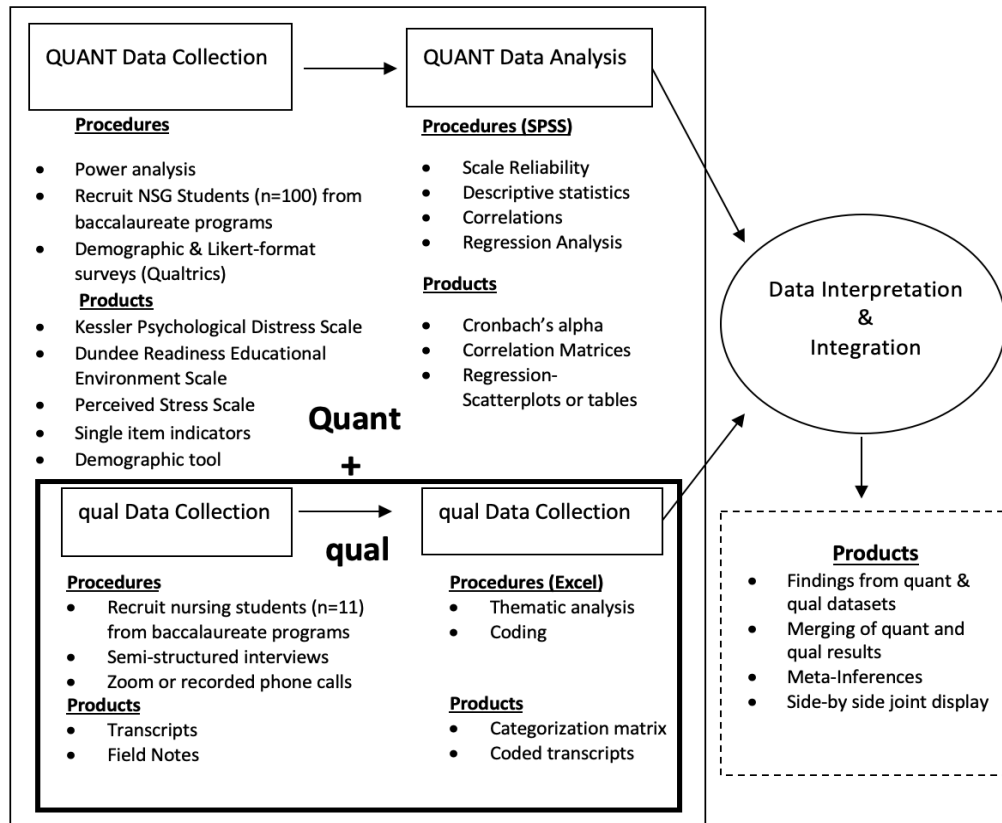


Figure 4. Schematic of the Convergent Mixed Methods Design

Discussion

RQ1: What is the relationship between the students' social support, coping, COVID-19 stress, COVID-19 anxiety, general health, educational environments, perceived stress, and other demographic factors on psychological distress?

Quantitative data analysis was utilized to address research question one and explore the relationship between students' social support, coping, COVID-19 stress, COVID-19 anxiety, general health, educational environments, perceived stress, and other demographic factors on psychological distress. Demographic data were collected, and several validated scales were used in data collection and were seen appropriate to the population of the study. The K6 was used in this study to measure the dependent variable of psychological distress in nursing students during the COVID-19 pandemic. The K6 has been used in multiple studies in nursing students. The K6 was utilized in a recent study by Brouwer et al. (2021) to explore nursing students during the COVID-19 pandemic and the associations of psychological distress and self-care practices. Results found significant negative associations between psychological distress and self-care practice scores.

Another scale, the PSS-4 was used in this study to measure perceived stress in nursing students during the COVID-19 pandemic. The PSS-4 has been used in multiple studies in nursing students. The PSS-4 was utilized in a study by Grobecker (2016) where a descriptive correlational research study aimed to explore the clinical settings of nursing students admitted to a baccalaureate program. The study examined variables associated with perceived stress and feelings of belonging among the nursing students. A significant

low inverse relationship ($r = -.277$) among perceived stress and the belonging variable were noted in the study findings among nursing students within the clinical setting.

One other scale, the DREEM-12, was used in this study to measure nursing students' perception of their educational environment during the COVID-19 pandemic. The DREEM-12 has been used in multiple studies in nursing students. The DREEM was utilized in a study by Shrestha et al. (2019) among the students in a nursing college in Eastern Nepal. A descriptive cross-sectional study design was utilized to evaluate the learning environment among the students. The results indicated a positive perception of the educational environment among the nursing students with an overall DREEM score (131.25 ± 15.82 out of 200). Single item indicator questions were also used in the study to explore social support, coping, COVID-19 stress, COVID-19 anxiety, and general health among nursing students.

To address RQ1, the following variables were found to have a relationship with the dependent variable, psychological distress: marital status, educational environment, perceived stress, COVID-19 stress, social support, and coping. Bivariate analysis showed a significant relationship ($p < 0.05$) between marital status and psychological distress. Descriptive statistics revealed that the mean score for psychological distress within the study population was 20, indicating mild mental disorder or mild psychological distress. The majority of the participants (95%) in the study population were single indicating a positive correlation between being single and having mild psychological distress. Interpretation of this correlation can be attributed to the assumption that having social support, such as a spouse, can help students cope with psychological distress. A study by Kowal et al. (2020) indicated that married individuals are happier, live longer and

healthier lives, and are at a lower risk of committing suicide. The study also found that higher levels of stress were associated with being single.

The bivariate analysis also showed a significant relationship ($p < 0.05$) between the PSS-4 and psychological distress from the ANOVA test conducted. Descriptive statistics revealed a mean score of 12.86 within the PSS-4 results, indicating mild stress. The mean score of 12.86 for the PSS-4 shows a positive correlation with the mean score of psychological distress. Interpretation of this correlation can be attributed to the assumption that those individuals that experience mild psychological distress also experience mild stress. A study by Wang and Wang (2019) found similar results regarding perceived stress and psychological distress. Findings from the study noted a positive relationship between perceived stress and psychological distress as well as a direct and indirect effect of perceived stress on psychological distress.

The bivariate analysis also showed a significant relationship ($p < 0.05$) between the DREEM-12 and psychological distress. Descriptive statistics revealed that 107 (53%) of participants had no psychological distress and 129 (64%) of participants rated their educational environment as excellent. We can assume that students with a perceived excellent educational environment would experience less psychological distress. There is a positive association between improved psychological health and a healthy educational environment (Yusoff & Arifin, 2015). In this study, a multiple regression analysis was conducted and showed supporting evidence of the findings from the bivariate analysis of the relationship found between the independent variables of marital status, the PSS-4, and the DREEM-12 and the dependent variable of psychological distress. Model 2 of the multiple regression model revealed a linear relationship at a significance level of 0.05.

Single item indicator questions were used to explore the relationship between the dependent variable, psychological distress, and the following independent variables: Social support, coping, COVID-19 stress, COVID-19 anxiety, and general health. Single item indicators are appropriate for the study population as well as in nursing research. “Single-item indicators that ask respondents for their global rating of a specific concept are congruent with nursing’s emphasis on wholism and individualism; they allow the subject to take personally salient features of the situation into account when responding” (Youngblut & Casper, 1993, p. 461). In an article by Petrescu (2013), the pros and cons of the use of single-item indicators within research studies were highlighted. Cons for single-item indicators include the inability for calculation of a Cronbach’s α , which may decrease reliability. Another con found in the study noted that single-item indicators can also categorize individuals into a smaller number of groups. The article also highlights the pros for single-item indicators which include “the potential for increased participants response rates due to shorter questionnaires, a decreased potential for common method bias, and an increase in substance from the right conceptual domain” (p.102). According to Petrescu (2013), single-item indicators are useful for distinct concepts such as the variables measured in this study. In a study by Dolan et al. (2015), the use of single-item indicators was used to measure burnout in primary care staff. The study analyzed responses from 8,553 participants of various health care disciplines. The single-item indicators correlated 0.79, the sensitivity of 83.2%, specificity of 87.4%, and area under the curve (AUC) of 0.93, and the study noted that the single-item measures served as a reliable substitute for multiple-item indicators. The conclusion of the study found a prevalence of burnout in 36.7% of its participants.

A logistic regression analysis was conducted on the single-item indicator variables. The results found three independent variables that were statistically significant with psychological distress: social support, coping, and stress. The results indicate that if a randomly selected participant thinks that he or she receives more social support in nursing school during the COVID-19 pandemic, then there are around 65% less odds to be distressed. Social support involves sources such as the community, family, and friends that offer a sense of being respected, valued, loved, and cared about (Gurung, 2006). Social support is concept that has been deemed beneficial in decreasing stress as well as improving the ability to cope and respond to stressful situations (Yasin & Dzulkifli, 2010), which supports the results found from the logistic regression analyses regarding social support. Coping was another variable found to be statistically significant and is defined as management of stress caused by internal and external demands by the use of developmental strategies (Wang & Wang, 2019). Results from the logistic regression analyses found that if a randomly selected participant thinks he or she copes well, then there are about 48% less odds to be distressed. A significant association of psychological distress with cortisol secretion and quality of life have been noted in several studies (Wang & Wang, 2019). A study by Majrashi et al. (2021) aimed to develop definitive stressor factors and coping approaches among nursing students during the COVID-19 pandemic. The variable of strong resilience within the study was noted to be a significant coping strategy among nursing students. The study found similar findings and with these results and we can assume that the ability to cope well with stressors will result in less psychological distress during the COVID-19 pandemic. COVID-19 Stress was another variable found to be statistically significant as a result of the logistic regression analyses.

Results indicate that if the stress level increases, then there will be more likely to be distressed. The findings coincide with the correlation found between the PSS-4 and psychological distress. Majrahschi et al. (2021) uncovered definitive stressors such as stress associated with the COVID-19 virus and the lack of preventative measures within the clinical setting among nursing students in a similar study.

RQ2: What are nursing students' perceptions of social support, coping, COVID-19 stress/perceived stress, COVID-19 anxiety, general health, educational environments, and other demographic factors on psychological distress?

Qualitative data analysis was utilized to address research question two and to explore nursing students' perceptions of social support, coping, COVID-19 stress, COVID-19 anxiety, general health, educational environment, perceived stress, and other demographic factors on psychological distress. A follow-up interview including 8 questions was conducted on 11 participants. The overall perception of social support among the nursing students during the COVID-19 pandemic was found to be very good. Overarching themes were identified from the participants' responses regarding social support and then broken down and coded to encouragement, unchanged, and communication as seen in Figure 5. Participants spoke about how their family and friends were a source of encouragement during nursing school and the COVID-19 pandemic. Data collection revealed that 100% of the participants found that their families and friends were very supportive during the COVID-19 pandemic. A follow-up question asking students what their families and friends could have done differently revealed that students were very satisfied with the support provided. During such a stressful time, students turned to family and friends as a source of support to help them get through their

challenges. Family support is imperative to academic success among college students (DeFauw et al., 2018). Some of the participants did find a lack of support among their nursing schools or instructors. A commonality among the responses indicated that there was a need for improved communication between instructors and students. Participants spoke about the stress and challenges due to the lack of communication. One participant stated, “building a relationship between student and professor would help, professors were quite bland with their encouragement.” Psychological distress, including anxiety, depression, and loneliness can be a result of inadequate social support and deficits found within support systems (Eskin, 2003).

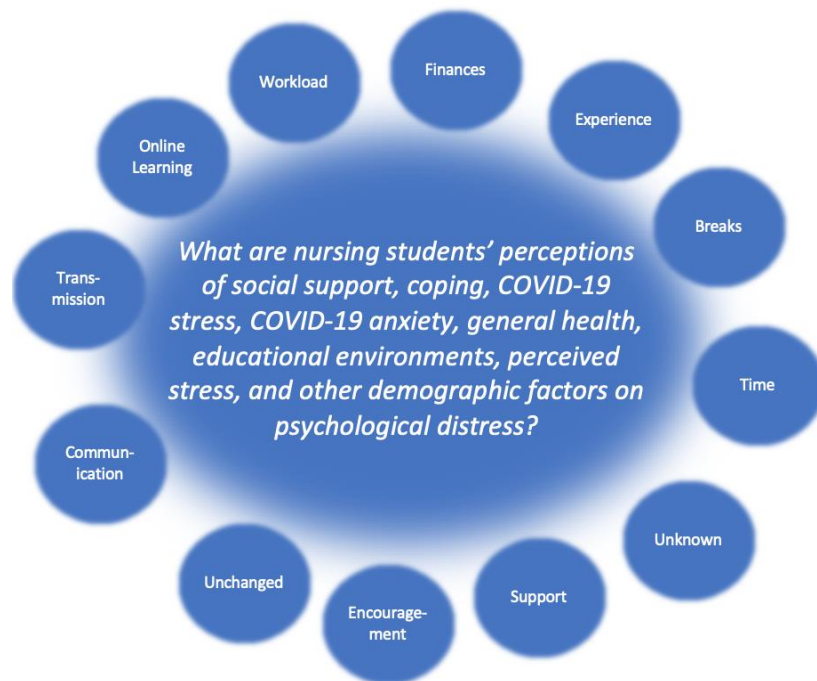


Figure 5. Themes That Emerged from Qualitative Data Collection

The overall perception of coping among the participants was found to be that coping is needed in order to deal with the stressors of nursing school that may cause anxiety and stress during the COVID-19 pandemic. Stressors that accompany students' college experiences can be challenging, but those who can cope with these stressors and pressures can improve their college experience (Kumar & Bhukar, 2013). There were multiple ways of coping presented in the participants' responses, but the common themes among them were breaks and support as seen in Figure 5. Some of the participants reported that they cope with stressors by taking breaks and exercising or engaging in sports as well as hanging out with friends. A study from Pakistan reported similar findings and noted that some positive coping strategies among college students included sports, music, and hanging out with friends (Shaikh et al., 2004).

The overall perception of stress or psychological stress among the participants included a common response that workload, finances, and lack of experience were the main causes as seen in Figure 5. The workload was mentioned numerous times throughout the interviews. Some participants stated that "I feel like I don't have enough time," and "I am behind all the time with tests and assignments." Nursing students are expected to practice long hours outside of class time as well as long hours studying and have insufficient time for other activities (Shadaifat et al., 2018). In a study by Savitsky et al. (2020), similar findings were noted and indicated that increased workload and assignments were a significant stressor among nursing students during the pandemic. The study also noted staff shortages within hospitals as a result of the increased cases of COVID-19 patients, which led to the need to hire nursing students. Moreover, financial burden, which was another commonality among participants, struggling to manage time,

and using high-tech machines are all additional stressors (Seyedfatemi et al., 2007).

Participants find it challenging to balance work and school life. Finances are a necessity, but the busy schedule of a nursing student makes it difficult for participants to work. For those nursing students that do work, most work part-time. One participant stated, “money is always a stressor and I work part-time to help with finances, but it has been hard to work since I am so busy with school.” Another commonality among the participants’ responses was the lack of experience and hands-on experience as a cause of stress or psychological stress. The changes from the COVID-19 pandemic have greatly affected the platform of nursing education. Dewart et al. (2020) some of the effects on nursing education:

Many courses were converted to an online format and clinical sites were shut down to nursing students for fear of spreading the virus. COVID-19 has already disrupted universities and academic institutions, and within the health field, schools of nursing are bracing for unique challenges related to the role in helping develop the next generation of care providers. (p. 92)

Participants felt that the changes have taken away from their educational experience. One participant stated, “I feel like I am kind of missing out on the hands-on experience and practice.”

The overall perception of the causes of anxiety during the COVID-19 pandemic among participants is that lack of time and the fear of the unknown are the main stressors contributing to feelings of anxiety as seen in Figure 5. It is not surprising that lack of time was a commonality of stressors that cause anxiety among the participants. Again, the large amount of workload that nursing school demands are causing a lack of time and the

need for time management. Some of these stressors can be related to many hours spent in the clinical setting that takes up most of the student's time (Shriver & Scott-Stiles, 2000). One participant explains that "the main stressor would be just keeping up with everything and having multiple tests in one week doesn't help either." Another common cause of anxiety among the participants was the fear of the unknown that the COVID-19 pandemic has caused. Questions regarding nursing education in a society effected by the challenges and precautions as a result of the COVID-19 pandemic remain unanswered (Dewart, 2020, p. 92). Savitsky et al. (2020), conducted a study among nursing students in Israel measuring anxiety utilizing the generalized anxiety disorder scale during the COVID-19 pandemic. Study results included an anxiety score of 13.7, indicating increased anxiety associated with fear of transmitting or contracting the COVID-19 infection. Participants voiced concerns about not knowing what future nursing courses will look like and whether they will be able to return to in-person classes and clinical settings. Concerns of the unknown regarding the pandemic, in general, were also noted as seen in Figure 5. Participants responded by stating things like, "I think a lot of the unknown of what's going to happen has given me a lot of anxious thoughts," and "the pandemic, in general, had caused me anxiety, all of the unknown."

The overall perception of general health among participants is fear of contracting or transmitting the COVID-19 virus as well as concerns for their families and friends as seen in Figure 5. COVID-19 has, to date, killed thousands worldwide (World Health Organization, WHO, 2020). Predictions of the well-being of our health care systems remain unknown as the COVID-19 data, including cases, deaths, and tests continue to change on an hourly and daily basis (Dewart, 2020, p. 92). For nursing students, patient

care is a major part of their education. Participants voiced concerns about working with COVID-19 positive patients and the worry of not only contracting the virus but also spreading it to loved ones. Some participants spoke about the concern for missing school due to quarantine if they were ever exposed. With most universities requiring anywhere up to 10 to 14 days of quarantine as recommended by the CDC (2021), nursing students cannot afford to miss any school days with the amount of workload they are required to complete. A study conducted by Begam et al. (2020) in Turkey on nursing students found similar findings and noted stress factors included worries about transmitting or contracting the virus and worries about their families transmitting or contracting the virus.

The overall perception of the educational environment during the COVID-19 pandemic for nursing students seems to be a negative experience with online learning as seen in Figure 5. In a scoping review study by Majrashi et al. (2021), eight articles found an association between the COVID-19 pandemic and nursing students' stress with a focus on multilevel stressors, including distance learning. The study notes that during the COVID-19 pandemic, online learning is a significant source of stress for nursing students. Participants voiced concerns about having to adjust to an online platform so quickly when a face-to-face environment is what they are used to as well as what they learn best in. One participant stated, "I don't learn as well online as I do in the classroom and I think it has definitely isolated me more." A highlighted disadvantage of online learning included the lack of human interaction, which is needed in development and learning with associated variables that come with peer relationships and group discussions (Sit et al., 2005). A qualitative study by Loveric et al. (2020), explored

perceptions of study experiences during the COVID-19 pandemic among nursing students. The study identified similar findings and included factors such as challenges in learning, interruptions in concentrating and disadvantages of online learning.

The results of the qualitative survey have highlighted the effects of the COVID-19 pandemic on the participants' experiences through nursing school. The many variables explored, all contribute to the severity and possibility of psychological distress for all the participants. Different factors have played into causes for psychological distress and common themes have been identified through analyses. Responses from countries around the world regarding the COVID-19 outbreak have been noted to negatively affect individual's psychological and mental well-being (Kowal et al., 2020) and nursing students are not immune to those effects and have to face those challenges on top of the challenges that already come with nursing school in general.

RQ3: To what extent do students' perceptions of social support, coping, COVID-19 stress, COVID-19 anxiety, general health, perceived stress, educational environment, and psychological distress confirm outcome data on a psychological distress measure?

The mixed methodology of this study plays an important role in answering RQ3. With such limited information on the new phenomenon of the COVID-19 pandemic, mixed methodology adds an increased understanding to either quantitative or qualitative research. An increased understanding of a new phenomenon utilizing mixed methodology can reduce uncertainty regarding study results compared to results from a quantitative or qualitative study alone (Robinson & Harris, 2014). There are many dimensions of psychological distress, but this study intends to explore factors that cause psychological distress in nursing students during the COVID-19 pandemic. Multiple variables were

measured to gain a general knowledge of what those factors may be, as well as to answer the research questions presented by highlighting the assets and strengths of each variable. Consistencies between the quantitative and qualitative data highlight a deeper value within the data, such as understanding how the COVID-19 pandemic truly affects the psychological well-being of nursing students. The COVID-19 pandemic brings another level of stressors to the table. The COVID-19 pandemic has negatively affected and impacted clinical leaders and staff as well as numerous organizations and communities, including nursing students, who are our future healthcare providers that have unique needs and concerns (Dewart et al., 2020). As a result of both the quantitative and qualitative data analyses, factors such as social support, coping, COVID-19 stress/perceived stress, COVID-19 anxiety, general health, and educational environments, are relevant to predict the psychological well-being of nursing students during a pandemic. Higher levels of psychological distress can be associated with being single, having less social support, having less coping ability, a negative educational environment, and higher levels of stress/perceived stress among nursing students during the COVID-19 pandemic. These findings can be applied back to the Neuman Systems Model that was discussed in Chapter I, which proposes that all clients, including nursing students, have specific functions that include coping patterns, lifestyle factors, developmental, sociocultural, and belief system influences that play an important role in their levels of stress and psychological distress. Within the NSM, we can conclude those specific elements such as being single, having less social support, having less coping ability, negative educational environment and higher levels of stress/perceived stress are

factors that can penetrate the defense systems of nursing students and ultimately harm their health and well-being.

Limitations and Delimitations

The study revealed multiple limitations and delimitations. One delimitation found was that the study was restricted to only nursing students attending a BSN program in Southeastern US. This delimitation of the study may not generalize to other nursing students from different geographical areas and other different types of nursing programs. Primarily female students were found to be another limitation within the study. Within the study results, approximately 86% of the participants were female. This limitation of the study may not generalize to other BSN programs that include more male students. Another limitation of the study included a time frame of 8 weeks where the data was cross-sectionally collected and may not include such in-depth responses and discoveries that a longitudinal study may encounter. The study was limited by the honesty and clarity of the participants' responses on online questionnaires and phone interviews. It is assumed that all of the participants answered truthfully and accurately, but there is always a potential for dishonest respondents. Even with all the controls and measures taken in recruiting and motivating participants, dishonest respondents can occasionally provide dishonest answers (Zijlstra et al., 2007).

Recommendations for Practice

Practice recommendations include preventative measures such as screening tools or surveying to monitor the potential for psychological distress in nursing students. These screening tools can be incorporated within nursing programs and conducted throughout each course. Educators are often the first line of defense for their students, (Barlie, 2021)

and can implement these measures within their courses and conduct them throughout the semester. A simple questionnaire asking open-ended questions about their mental well-being can help to open up communication about mental health issues. The importance of nursing faculty being able to recognize mental health problems amongst nursing students should also be highlighted. Nursing educators should be provided with tools to recognize signs of developing psychological distress and given opportunities around the awareness and management of mental health crises which, include risk for suicide (Barlie, 2021). Providing nursing educators with the appropriate tools can be established by faculty training and education. NAMI (2021) provides resources to educators that include support for student wellness. Through NAMI, educators are prompted to look for the following amongst their students; increasingly more socially withdrawn, missing multiple days of school, falling behind academically, and expressing interest in harming themselves. Resources on how to appropriately respond to these situations should also be provided to nursing educators.

Other recommendations include incorporating content into the nursing curriculum to address psychological distress such as burnout and self-care. Faculty should work to promote mental health awareness with their students. Nurse educators that incorporate self-care into the curriculum can improve nursing student's self-awareness of the importance of reduction in stress while they endure the challenges of the rigorous workload within the program (Green, 2019). Teaching self-care behaviors that are proactive will contribute to maintaining a safe practice in their clinical environments (Green, 2019).

Recommendations for Future Research

Recommendations for future research include exploring psychological distress factors that affect nursing faculty during the COVID-19 pandemic. The COVID-19 pandemic has not only affected nursing students but has affected nursing faculty as well. A study by Besser et al. (2020), noted that educators have accumulated high levels of stress since the beginning of the pandemic and have suffered from having to adapt in a short amount of time to provide online classes. Stress from the pandemic has often been accompanied by symptoms of sleep disturbance, anxiety, and depression as a consequence of increased workload in adjusting to the effects of the pandemic (Besser et al., 2020). Findings from a study conducted by Ozamiz-Etxebarria et al. (2021), indicated the importance of protecting the mental well-being of educators to ensure both the high quality of teaching as well as the mental well-being of the students.

After a year since the COVID-19 pandemic turned the world upside down, we continue to see the long-term effects on nursing education. Nursing students worry about their future due to disruption to their nursing education and what effects will result on their careers as nurses (Dewart et al., 2020). The results of this study have opened up avenues for more research of the effects that the COVID-19 pandemic may have, not only on nursing students but on nursing education and what that means for our future nurses.

Nursing education and faculty are encouraged to uncover those students with an increased risk for exposure to difficulties and risks to their academic success. These precautions are ongoing challenges as a result of the COVID-19 pandemic (Gaffney et al., 2021) and will be necessary for efforts to ensure that our future nurses are

appropriately equipped to face the challenges in health care that the pandemic has caused. Knowing the factors of psychological distress in nursing students during the COVID-19 pandemic can help faculty to better prepare nursing students and create an educational environment that accommodates a new type of patient care.

APPENDIX A – Initial Questionnaire

DEMOGRAPHICS QUESTIONS

1. What is your year of birth?
2. Choose one or more races that you consider yourself to be:
 - ☐ White
 - ☐ Black or African American
 - ☐ American Indian or Alaska Native
 - ☐ Asian
 - ☐ Native Hawaiian or Pacific Islander
 - ☐ Other_____
3. What is your sex?
 - ☐ Male
 - ☐ Female
4. What is your ZIP code?
5. Currently, are you married, widowed, divorced, separated, or single?
 - ☐ Married
 - ☐ Widowed
 - ☐ Divorced
 - ☐ Separated
 - ☐ Single
6. Which statement best describes your current employment status?
 - ☐ Working (Full-time)
 - ☐ Working (Part-time)
 - ☐ Not working

APPENDIX B – Single Item Indicator Questions

1. I have **Adequate Social Support** during nursing school
 - 0- Strongly disagree
 - 1- Disagree
 - 2- Unsure
 - 3- Agree
 - 4- Strongly agree
2. I am able to **Cope** well in nursing school
 - 0- Strongly disagree
 - 1- Disagree
 - 2- Unsure
 - 3- Agree
 - 4- Strongly agree
3. I have experienced **Stress R/T COVID-19** during nursing school
 - 0- Strongly disagree
 - 1- Disagree
 - 2- Unsure
 - 3- Agree
 - 4- Strongly agree
4. I have experienced **Anxiety R/T COVID-19** during nursing school
 - 0- Strongly disagree
 - 1- Disagree
 - 2- Unsure
 - 3- Agree
 - 4- Strongly agree
5. My overall **General Health** is good
 - 0- Strongly disagree
 - 1- Disagree
 - 2- Unsure
 - 3- Agree
 - 4- Strongly agree

APPENDIX C – Kessler Psychological Distress Scale (K6)

1. The following questions ask about how you have been feeling during the **past 30 days**. For each question, please circle the number that best describes how often you had this feeling.

- 1- All of the time
- 2- Most of the time
- 3- Some of the time
- 4- A little of the time
- 5- None of the time

- How often do you feel Nervous?
- How often do you feel Hopeless?
- How often do you feel restless or fidgety?
- How often do you feel So depressed that nothing could cheer you up?
- How often do you feel That everything was an effort?
- How often do you feel Worthless?

2. The last 6 questions asked about feelings that might have occurred during the past 30 days. Taking them altogether, did these feelings occur More often in the past 30 days than is usual for you, about the same as usual, or less often than usual? (If you never have any of these feelings, circle response option “4.”)

More often than usual

- 1- A lot
- 2- Some
- 3- A little
- 4- About the same as usual

Less often than usual

- 5- A little
- 6- Some
- 7- A lot

The next few questions are about how these feelings may have affected you in the past 30 days. You need not answer these questions if you answered: “None of the time” to all of the ten questions about your feelings.

3. During the past 30 days, how many days out of 30 were you totally unable to work or carry out your normal activities because of these feelings?

_____ (Number of days)

4. **Not counting the days, you reported in response to 21**, how many days in the past 30 were you able to do only half or less of what you would normally have been able to do, because of these feelings?

_____ (Number of days)

5. During the past 30 days, how many times did you see a doctor or other health professional about these feelings?

_____ (Number of times)

6. During the past 30 days, how often have physical health problems been the main cause of these feelings?

- 1- All of the time
- 2- Most of the time
- 3- Some of the time
- 4- A little of the time
- 5- None of the time

APPENDIX D – Perceived Stress Scale (PSS-4)

For each question choose from the following alternatives:

0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

In the last month, how often have you felt that you were unable to control the important things in your life?

- In the last month, how often have you felt confident about your ability to handle your personal problems?
- In the last month, how often have you felt that things were going your way?
- In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

APPENDIX E – Dundee Ready Education Environment Measure (DREEM-12)

Answer the following questions about the learning environment using the following scale

0- Strongly disagree

1- Disagree

2- Unsure

3- Agree

4- Strongly agree

- The teaching helps to develop my confidence
- The teaching encourages me to be an active learner
- The course organizers are knowledgeable
- The course organizers have good communication
- The course organizers give clear examples
- I feel I am being well prepared for my profession
- My problem-solving skills are being well developed here
- Much of what I have to learn seems relevant to a career in healthcare
- I am able to concentrate well
- The atmosphere motivates me as a learner
- There is a good support system for students who get stressed
- My social life is good

APPENDIX F – Follow-up Interview Questions

Q1: In what ways has the COVID-19 pandemic changed your academic performance?

Q2: What are some stressors or things that have caused you stress or psychological stress during your time in nursing school?

Q3: What things have you done to cope with stressors caused as a result of the COVID-19 pandemic?

Q4: During the COVID-19 pandemic, what are some stressors or things that have caused you anxiety during your time in nursing school?

Q5: What things have you done to cope with anxiety caused as a result of the COVID-19 pandemic?

Q6: How has your social system support system, such as family, friends, and the nursing school helped you progress through the nursing program?

Q7: What could your family, friends, and nursing school have done differently to support your progress through the program?

Q8: While you are attending nursing school, did you have any concerns that affected your physical or mental health during the COVID-19 pandemic?

APPENDIX G - IRB Approval Letter

Office of Research Integrity



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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.
- Face-to-Face data collection may not commence without prior approval from the Vice President for Research's Office.

PROTOCOL NUMBER: IRB-20-551

PROJECT TITLE: Psychological Distress During the COVID-19 Pandemic in Nursing Students: A Mixed Methods Study

SCHOOL/PROGRAM: School of LANP, Leadership & Advanced Nursing

RESEARCHER(S): Mayantoinette Watson, Debra Copeland

IRB COMMITTEE ACTION: Approved

CATEGORY: Expedited

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: February 16, 2021

Donald Sacco, Ph.D.

Institutional Review Board Chairperson

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