ANALYZING THE MENTAL HEALTH AND RESILIENCE OF
UNDERGRADUATE NURSING STUDENTS
DURING THE COVID-19 OUTBREAK

by
ABBY GRAMMER HORTON

MICHAEL A. LAWSON, COMMITTEE CHAIR
BECKY M. ATKINSON
MICHELLE H. CHESHIRE
UTZ L. MCKNIGHT
VIVIAN H. WRIGHT

A DISSERTATION

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ABSTRACT

The study of risk, resilience, and mental health is timely and important to nursing education because today’s students are experiencing a global pandemic (COVID-19). This crisis requires documentation about pre-service healthcare professionals’ reactions to the pandemic. COVID-19 has uniquely positioned nurses as first responders who must risk their lives in order to provide patient care. This experience will likely have a profound effect on the profession and those entering the profession. The purpose of this descriptive-exploratory study was to understand the relationship of risk (e.g., anxiety, stress, and COVID induced factors), resilience, and mental health factors among undergraduate nursing students enrolled in the upper division of a four-year BSN program at a large, public institution in the southeastern United States in response to COVID-19. This study was designed as a descriptive-exploratory study to describe and explore the immediate reactions of nursing students to the COVID-19 pandemic that profoundly affected nurses and other healthcare professionals. Data was collected in the spring semester of 2020 using an online Qualtrics© survey emailed to participants via a student email list-serv with prior approval and after IRB approval was obtained. Students answered one survey with six instruments that were self-report measures for resilience, grit, stress, coping, depression, and anxiety. Students also answered demographic questions that addressed life events and environment changes due to COVID-19. Since many of today’s nursing pre-service professionals will enter the workforce while the current global crisis is on-going, research is needed that highlights the social, psychological, and instrumental supports that may protect the profession from undesirable attrition.
DEDICATION

For truly, I say to you, if you have faith like a grain of mustard seed, you will say to this mountain, ‘Move from here to there,’ and it will move, and nothing will be impossible for you.
Matthew 17:20

To my wonderful family, I dedicate this dissertation work and manuscript.

Christopher, you are my inspiration, best friend, life partner, and strongest supporter. You have stood in my corner, coached from the sidelines, offered an understanding shoulder to cry on, and have lent a mostly sympathetic ear throughout this process and for that I am truly thankful. You have been my greatest teacher and the unsung hero of our story. Thank you for all that you do. This work is for you.

To my children, Recie, Jack, Gramm, Maryclaire, and Charlie you are my best work, my ultimate joy, my crowning achievement, and my lasting legacy. I am eternally grateful to be your mother. Thank you for your love, support, and sacrifices over the last several years. I pray that you always understand that you are my “why,” and I thank you for so unselfishly sharing me with the rest of the world, my students, and my work.

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LIST OF ABBREVIATIONS AND SYMBOLS

\( a \)    Cronbach’s index of internal consistency

\( df \)  Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data

\( F \)   Fisher’s F ratio: A ratio of two variances

\( M \)   Mean: the sum of a set of measurements divided by the number of measurements in the set

\( p \)   Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value

\( r \)   Pearson product-moment correlation

\( t \)   Computed value of \( t \) test

\(<\)    Less than

\(=\)    Equal to
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CHAPTER I:

INTRODUCTION

This study was designed to analyze the mental health and resilience of undergraduate nursing students during the coronavirus disease 2019 (COVID-19) outbreak to describe and explore the immediate responses of nursing students to the COVID-19 Pandemic, a crisis that has profoundly affected nurses and other healthcare professionals. This novel crisis and circumstances require research that documents how pre-service healthcare professionals react and cope with the current global pandemic. This research need was evident because COVID-19 has re-positioned nurses as first responders who must risk their lives and wellbeing to provide direct patient care.

This transformational role and moment in healthcare have the potential to exact a profound effect on the nursing profession. Since today’s nursing pre-service professionals will likely enter the workforce while the current global crisis is on-going, research is needed that highlights the social, psychological, and instrumental supports that may protect the profession from undesirable attrition as a result of mental health challenges, stress, and burnout. For this reason, this study was designed to describe the risks, stressors, coping mechanisms, social and emotional needs, and mental health of pre-service nurses at a large university in the Southeastern United States.
Research Questions

The research questions were as follows:

1. What are the psychological and logistical challenges nursing students experience during the onset of COVID-19;
2. What risks are they experiencing, including mental health challenges; and
3. What resilience factors or coping mechanisms might nursing students draw from to respond positively and adaptively to COVID-19 related risks and challenges?

Risk, Resilience, and Mental Health: An Overview

COVID-19 has introduced several psychosocial and structural risk factors that may heighten the stress and anxiety of nursing students. The risk factors nursing students might experience include but are not limited to COVID-19 Induced Risk Factors, existing stress and anxiety, and sociodemographic risk factors. Some of the identified COVID-19 risk factors include social isolation, social distancing, employment insecurity, food insecurity, access to basic household supplies, access to primary belongings, access to academic resources/study materials, changing family dynamics, and new living arrangements. Sociodemographic risk factors may include individuals from low socio-economic backgrounds, marginalized communities, non-US citizens, non-native English speakers, students of color, and students lacking social support, among others. It is important to understand individual risk factors and how they influence the relationship of risk, resilience, and mental health amid the outbreak of COVID-19. Risk factors will be discussed in more detail in Chapter II.

Student resilience is conceptualized in this study as a multi-dimensional construct that encompasses self-determination, grit, and coping. Self-determination refers to self-beliefs that help individuals manage, and perhaps overcome, difficult situations (Perlman et al., 2018).
According to Duckworth (2016), grit refers to the passion and perseverance that enables individuals to successfully pursue long-term goals. While coping refers to the set of social-psychological skills and cognitive processes that enable individuals to adapt to stress (Duckworth, 2016).

This study was designed with the premise that the constellation or interaction of these constructs (self-determination, grit, and coping) determines students’ abilities to mitigate risk and maintain their mental health, especially their experiences with anxiety and depression. In this study, mental health is defined as “a state of well-being whereby individuals recognize their abilities, are able to cope with the normal stresses of life, work productively and fruitfully, and make a contribution to their communities” (World Health Organization, 2003, p. 7).

**Statement of the Problem**

Today’s nursing students are presenting with increased mental health challenges including higher levels of depression, anxiety, and stress. These negative mental health challenges pose serious threats to the optimal learning and development of student nurses and nursing professionals. Thus, to combat this mounting challenge in nursing education, programs need to do more to support mental wellbeing and to provide student services that address negative psychosocial concerns among the nursing student population. This need is especially acute during the COVID-19 Pandemic.

**Statement of Purpose**

The purpose of this study was to analyze the relationship between mental health and resilience of undergraduate nursing students during the COVID-19 Pandemic. To understand these relationships, I surveyed the population of junior and senior nursing students admitted to the upper division of an undergraduate BSN program at a large, four-year, public institution of
higher education in the Southeastern United States. All eligible students were invited to participate. Data collection occurred in the Spring of 2020, approximately one month after the advent of the COVID-19 Pandemic in the United States.

**Significance of the Study**

This study was significant because it offered several contributions to nursing education and its theory, research, and policy. Specifically, this study contributed to an understanding of risk, resilience, and mental health in the face of COVID-19, what it means for nursing students and what it portends for nursing education in the here and now, but also potentially in the future. Findings from this study have the potential to contribute to the knowledge base for nursing education around student mental health; at the same time, they offer an action-oriented view for how nursing educators can improve student support services, particularly during times of crisis, such as during the COVID-19 Pandemic. Specifically, this research provides nursing educators and student support professionals with more actionable knowledge about how to address student mental health needs as well as positive, adaptive coping strategies. More concretely, results from this study provide clues on how to better assess and support the mental health and wellbeing of nursing students and to identify what psychosocial resources might be needed to help students weather or overcome adversity associated with the COVID-19 Pandemic.
CHAPTER II:
LITERATURE REVIEW

This chapter is structured to provide a selective review of studies that examine the different components of resilience highlighted in the literature as well their relationship to social and mental health outcomes, consequences, and difficulties. This review provides the background and rationale for the presentation of the conceptual framework presented later in the chapter. Together, these sections frame the rationale for my research questions and study design, which is featured in Chapter III.

Impact of Stress on Nursing Students

Students may be vulnerable to the untoward effects of stress due to the transitional nature of college life and the entry into young adulthood. Nursing students particularly encounter a variety of unique stressors such as navigating challenging educational curriculum, managing pre-professional expectations, and experiencing difficulties acclimatizing to new and changing learning environments in both the academic and clinical settings (Gomathi et al., 2017). A recent study showed that one-third of nursing students experience severe stress associated with mental health problems, such as anxiety and/or depression (Gomathi et al., 2017). Another study comparing the stress levels of various health professional students interestingly found that nursing students experience higher levels of stress than medical, social work, and pharmacy students (Gomathi et al., 2017). The same study found that students are
subjected to different kinds of stressors unique to academic life such as the pressure of academic performance, the perceived obligation to succeed, an uncertain future, and difficulty integrating into the nursing profession. In addition, these stressors are often associated with negative health consequences (Gomathi et al., 2017). For these reasons, nursing schools are now widely considered highly stressful environments by nurse educators and researchers alike.

Research has indicated that the stress posed by today’s learning environments may result in a negative impact on the academic performance, health, and wellbeing of its students (Del Prato et al., 2011). For example, in a nationally representative sample of 5,000 nursing students, Clark (2014) found that high levels of stress significantly impacted student mental health. In a similar study, students described their responses to stress as “feeling overwhelmed, fearful, anxious, helpless, and incompetent” (Clark, 2018, para. 13). Some students reported feeling “threatened, intimidated, angry, and frustrated” while other students reported feeling marginalized, detached, and withdrawn due to the stressful experiences (Clark, 2018, para. 13). Clark (2018) found that some students’ coping strategies were positive or adaptive, while others were considered sub-optimal or maladaptive. Healthy, or adaptive, coping strategies included seeking social support from their network of family, friends, and peers; consulting a counselor; engaging in physical activity or exercise; praying and meditating; and goal setting. Students reported their most effective coping strategies were engaging in quality time with friends and family, being physically active, prioritizing responsibilities, and practicing self-care (Clark, 2018). According to the study, unhealthy coping strategies included self-medicating with substance use (e.g., drugs and alcohol), relying on prescription medications, and emotionally overeating (Clark, 2018). Students indicated that they experienced stress in ways that exceed their capacity to positively or adaptively cope and some students expressed contemplating withdrawing from nursing school.
An earlier study found that the effects of stress on nursing students include somatic and psychic anxiety, depressive symptoms, cognitive symptoms, and neurovegetative symptoms (Jimenez et al., 2010). In response to stress, coping responses which emerge include physical symptoms (i.e., nausea, vomiting, diarrhea, chest pressure), emotional symptoms (i.e., anxiety, nervousness, fear, depression), and social-behavioral symptoms (i.e., lack of optimism, loss of productivity, brain fog, impaired decision making, feeling undervalued) (Del Prato et al., 2011). The effects of stress can extend beyond physical, emotional, and behavioral symptoms as students may experience difficulty in attaining educational goals (Del Prato et al., 2011).

The ability to cope with multiple stressors is an important determinant of retention for nursing students (Wells, 2007; Glogowska et al., 2007). Wells (2007) explored why a sample of eleven students withdrew from their baccalaureate nursing program. Students in this study reported withdrawing due to disillusionment with the nursing profession and nursing program practices; perceived lack of support and caring; disillusionment related to campus life; and external stressors unrelated to the nursing program. According to Wells’ (2007) findings, the accumulation of two or more academic, social, and/or external stressors was associated with academic failure or voluntary withdrawal from nursing school.

In response to increasing numbers of students reporting and demonstrating difficulties with stress, anxiety, depression, and other mental health challenges, some colleges and universities are developing resources and support services designed to foster resilience and positive adaptation to depression, anxiety, and stress (Harris & Horton, 2017). This search for improved educational and social support services tends to focus on improving students’ personal and interpersonal resources, such as social support and coping. This focus on improving students’ resources closely mirrors the extant literature on student resilience. Research has indicated that the development of resilience or resilience-related competencies is an important
way to offset student stress and mental health challenges.

Resilience

The social construct of resilience was important to this study because it describes factors and processes that can help students persevere despite adverse experiences and circumstances (Stephens, 2013). Given the high-stress environment within nursing education and healthcare today (Gomathi et al., 2017), it is important to understand how resilience might help mitigate or buffer the effects of mental health challenges and stress among today’s undergraduate nursing students, especially as they cope with the emergence and spread of a global pandemic like COVID-19.

Resilience is a multidimensional, multifaceted, multi-construct concept. It is often defined as the “dynamic process encompassing positive adaptation within the context of significant adversity” challenges, hardships, or risk (Luthar et al., 2000, p. 543). Resilience may also be defined as the ability to successfully navigate personal challenges (Tugade & Fredrickson, 2004). While Windle (2011) defined resilience as “a dynamic process encompassing positive adaptation within the context of significant adversity” (p. 152). And, according to the American Psychological Association (2019), resilience is “the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress — such as family and relationship problems, serious health problems or workplace and financial stressors” (para. 4).

Overall, resilience researchers tend to operationalize resilience as a social construct that is malleable and amenable to change by way of intervention (Stephens, 2013). Many researchers define resilience as a “dynamic and changeable phenomenon involving growth and development” (Reyes et al., 2015, p. 36). This process view tends to define resilience as a latent set of personal and interpersonal competencies and assets that can facilitate positive action
Despite difficult circumstances, guidance, and practice (Stephens, 2013). Resilience has also been defined by researchers as a developmental process and event. Here, research tends to operationalize resilience as a set of latent competencies that can be taught and learned (Ginsburg, 2015).

In a comprehensive literature review of resilience in nursing education, Reyes et al. (2015) found that resilient students were more likely to perform better academically. Stephens (2013) described resilience as a process of applying personal protective factors to cope with adversities. Resilient students have more personal protective factors and appear better able to cope socially with their challenges (Stephens, 2013). Furthermore, resilient students appear to present with fewer mental health challenges (Stephens, 2013). The absence of these psychosocial barriers may represent an important mediating factor that may explain why some students do better academically.

In studies of nurse educators, student reports of hope and optimism were positively associated with the development of more resilience in coping with challenges through sharing their concerns and expressing vulnerability (Carroll, 2011; Glass, 2007). These findings have suggested that resilience can be an important component of student academic success and development. Given these findings, this study was designed to examine these possibilities with a particular emphasis on how resilience may relate to mental health as described in the next section.

**Mental Health**

Recent studies report a general increase in the severity and extent of mental health challenges among college/university students, which is also a notable finding among nursing students who report high levels of stress, anxiety, and depression (Chernomas & Shapiro, 2013). This section provides a selective review of the research literature on mental health challenges.
among undergraduate students.

**Depression, Anxiety, and Stress**

Research has indicated that college life is often stressful for students, and this stress has been shown to especially acute for nursing students (Manpreet & Maheshwari, 2015). Although stress is viewed as essential for motivating and stimulating students to achieve their academic goals (Ellawela & Fonseka, 2011), stress can become toxic in ways that limit the positive and adaptive function of some students. When students experience difficulty coping with or managing stress, depression and anxiety may occur (Rathnayake & Ekanayaka, 2016).

According to research, depression, anxiety, and stress are common among nursing students (Rathnayake & Ekanayaka, 2016). A recent study showed that one-third of nursing students experience severe stress that induces mental health challenges such as anxiety and/or depression (Gomathi et al., 2017). This study compared the stress levels of various healthcare professional students reports that nursing students experience higher levels of stress as compared to medical, social work, and pharmacy students (Gomathi et al., 2017). As such, nursing schools are now recognized as stressful environments, which often “exert a negative effect on the academic performances and psychological wellbeing of the students” (Gomathi et al., 2017, p. 107). Furthermore, research has indicated that high stress can lead to other personal difficulties, such as poor physical health (Rathnayake & Ekanayaka, 2016). However, despite these initial findings, more research on the relationship between stress and mental health is needed, particularly among nursing students. As Brennan (2017), suggested that

Nursing is a physically and emotionally demanding profession. High role expectations and difficult working conditions place some nurses at risk of burnout and stress-related illness. In spite of the challenges in the current healthcare system, nurses continue to
deliver high-quality patient care, retain resilience and progress professionally in the face of adversity (p. 43).

Thus, it is important to examine the relationship between resilience and mental health to better understand this dynamic. For example, Kumaraswamy (2013) found that 10-20% of the student population experiences mental health challenges, as defined by student reports of high stress, anxiety, and depression. The common stressors identified in this study included greater academic demands, newfound independence, new and changing environments, changes in family dynamics, changes in social life, and exposure to new people, ideas, and temptations. Most commonly, students sought medical treatment for depression and anxiety, and those students who are taking psychiatric medications increased by 10% in the last decade (Kumaraswamy, 2013). Other studies have indicated that depression and anxiety are commonly reported symptoms of stress with those students reporting depression using maladaptive coping strategies, such as disengagement (Eisenbarth et al., 2013).

Depression, anxiety, and stress are important to this study and its focus on relationships between nursing student mental health and resilience. The seminal work of Lazarus and Folkman (1984) defined stress as an individual’s appraisal or perception of the environmental threats to their perceived wellbeing. Although stress is widely viewed as a necessary condition for growth and development, it can also lead to a host of negative cognitive and behavioral outcomes (e.g., poor sleep habits, loss of appetite or emotional eating, coping with illicit substances, among others) especially when it becomes too “high” or reaches “toxic” levels. This kind of toxic stress has been shown to negatively impact the education of nursing students (Reyes et al., 2015). Lazarus and Folkman (as cited in Del Prato et al., 2011) suggested an inverse relationship between stress and learning in which learning decreases as stress increases.
While nursing students face similar challenges as other college students, they also may be presented with unique stressors. For example, Reyes et al. (2015) conducted a study that highlighted several unique stressors for nursing students. These stressors included their clinical experiences and expectations (Thomas, Jack, & Jinks, 2012); culture shock (meaning acclimatization to the culture of nursing) in the clinical setting (Brennan & McSherry, 2007); negative attitudes and interactions with clinical staff (Hoel, Giga, & Davidson, 2007; Pearcey & Elliott, 2004), death of patients and other social concerns (Mackintosh, 2006; McGowan, 2006); and anxiety about making clinical errors (Levett-Jones & Lathlean, 2008; Sharif & Masoumi, 2005). Students may also encounter incivility, which adds to their stress and negatively impacts their learning and self-confidence (Clark, 2008).

Research has indicated that nursing students may be at a higher risk of experiencing stress and anxiety compared to students enrolled in other academic disciplines (Chernomas & Shapiro, 2013). For instance, recent research has suggested that nursing students may often be at an increased risk of stress and anxiety due to the unique demands of nursing education. This finding is corroborated by research that indicates that stress and anxiety are pervasive among nursing students in the United States and worldwide (Chernomas & Shapiro, 2013; Cheung et al., 2017; Rathnayake & Ekanayaba, 2016; Villanueva, Heale, Rietze, & Carter, 2018). Further, the competitive nature of nursing program admissions, in addition to the complexities of clinical and didactic experiences, are two commonly identified sources of stress and anxiety among nursing students (Chernomas & Shapiro, 2013; Raymond & Sheppard, 2018). Importantly, research has indicated that students report high rates of stress and anxiety early in their program (Del Prato et al., 2011). This finding specifically highlighted the need for nursing research to attend to “grade level” as a key variable in analyzing the risk and resilience relationship.
Stress and anxiety may exert negative effects on both the mental and physical health of nursing students while also amplifying existing mental health challenges and vulnerabilities (Chang, Hancock, Johnston, Daly, & Jackson, 2005). At the same time, stress can provide important opportunities for student development and growth. For example, Crane et al. (2019) asserted that stress is necessary for positive growth and development stress, provided that individuals manage their stress using adaptive coping strategies. Moreover, stress has the potential to provide individuals with important opportunities to develop and strengthen coping strategies that can both foster and improve their resilience.

**COVID-19 Induced Risk Factors**

As previously discussed, early data have indicated that students who represent vulnerable groups may be unduly impacted by national and global business closures, restricted travel, cancellations, extended shelter-in-place orders, and the rapid transition to online and now hybrid learning. While the COVID-19 Pandemic was on-going at the time of this study, some preliminary research has been emerging that addresses the widespread needs and concerns of college students, particularly those training in and entering health professions (Dewart et al., 2020). Pressing concerns within nursing education include the wellbeing, safety, and needs of current and future nursing students (Dewart et al., 2020). Dewart et al. (2020) reported that students’ concerns center on the interruption in their nursing education, their future careers as registered nurses, and worry over potential COVID-19 exposures and the risks to their families. Some of the early identified risk factors for nursing students of the COVID-19 Pandemic include social isolation, social distancing, employment insecurity, access to supplies, access to healthcare, access to food, family dynamics, and living arrangements (Son et al., 2020).
When students were informed of a transition to online learning in mid-March 2020, many students had already left campus early for spring break. In some cases, this early and unanticipated departure from school meant that students only had access to the belongings that they packed for a week-long spring break; many students were not able to immediately return to their student housing (both on and off campus) to retrieve their personal belongings due to travel restrictions, financial considerations, or several other logistical challenges. Based on anecdotal accounts and demographic data collected via the survey, many students were displaced during the early period of the pandemic and were forced to find temporary living arrangements for the remaining weeks of the semester. Thus, students may not have had access to their primary belongings or academic resources/study materials needed to complete their coursework in the Spring Semester, during the time of data collection.

The undue impact of COVID-19 and the transition to online learning at that time may have been especially hard on those who were already struggling to secure the financial, social, and instrumental resources they need to combat educational stress. This study offered a timely opportunity to better understand how students managed the stress and hardship brought forth by these important transitions and events.

**Individual-Level Protective Factors**

Protective factors, or resilience factors, are variables that research indicates can help buffer or mitigate against the presence or onset of student risk, including mental health challenges. This study was based on the view that resilience, the ability to overcome adversity and adverse circumstances, results from interactions among various protective factors. In this study, I examined how resilience, as measured by the protective factors self-determination, grit, and coping, may help to buffer against student mental health challenges.
Self-determination

Generally, the research literature highlights several different models and conceptions of resilience. Key among them is Ginsburg’s (2015) 7 C’s Model of Resilience, which perhaps best captured the developmental view of resilience. Ginsburg defined resilience as the constellation of the following core individual competencies: (1) competence, (2) confidence, (3) connection, (4) character, (5) contribution, (6) coping, and (7) control. When present, these competencies are thought to act as a mechanism that acts as a safeguard against negative outcomes (Ginsburg, 2015). Theoretically, the presence of these seven individual-level competencies can foster resilience by way of self-determination.

Within the last thirty years, resilience has become a prominent focus of mental health research due to its potential to positively impact mental health, wellbeing, and quality of life (Perlman et al., 2018). According to Perlman et al. (2018), research findings have identified that resilience positively correlates with an individual’s sense of wellbeing and overall decreased mental health challenges. That is, resilience may manifest when students feel that they have the competence, social resources, and autonomy needed to overcome barriers in their life. Given the potential benefits of resilience as a protective factor for those living with mental health challenges, research should explore ways in which resilience can be enhanced or supported.

Grit

Another important resilience-related protective factor is grit (Duckworth, 2016). According to Duckworth (2016), grit encompasses both the passion and perseverance for long-term goals and the emotional stamina to keep going when others have given up. Surprisingly, grit is not often modeled as a part of resilience, despite its close definitional and operational relationship with it. However, in a recent study of the relationship among grit, academic
resilience, and psychological wellbeing for nursing students in Korea, Kim (2017) found that psychological wellbeing in nursing students was significantly correlated with academic resilience ($r=.65$, $p<.001$) and grit ($r=.52$, $p<.001$). The significant predictors of psychological wellbeing for nursing students were academic resilience ($β=.47$, $p<.001$), grit ($β=.26$, $p<.001$), and major satisfaction ($β=.20$, $p<.001$). These variables collectively explained 53.1% of the variance in psychological wellbeing. The results of this study indicate that improvements in the psychological wellbeing of nursing students may require enhanced grit and academic resilience programs.

According to Duckworth (2013), grit may have greater explanatory power for students’ successes than cognitive ability. This claim is noteworthy given meta-analytic findings that show a positive correlation ($r=0.50$) between cognitive ability and performance in academic and work settings (Sackett et al., 2012; Schmidt & Hunter, 1998). While there is growing enthusiasm for viewing grit as a potentially novel predictor and determinant of performance, there are also empirical and theoretical concerns with this approach, which warrants a critical reappraisal of the nature of the grit construct and its contribution to our understanding of performance (Credé et al., 2017). Proponents of viewing grit as a predictor of success and performance maintain that between-person differences in grit can help to explain why individuals with the same level of ability in a given domain often perform at substantially different levels (Credé et al., 2017).

**Coping**

The final protective factor included in this study was student coping. In much of the nursing literature, coping is positioned analytically as a predictor of resilience. In this study, however, coping was operationalized as a social, cognitive, and emotional process that can indicate students’ adaptive responses to stress and mental health challenges. Toward this end,
several recent studies conclude that nurses use a variety of positive coping strategies to enhance their resilience (e.g., social support, mentorship, and professional development). Findings from these studies indicated that resilience can be taught and learned through intervention (Turner, 2015). Many of these intervention strategies target the development of positive coping strategies in nursing students. Some examples of positive coping strategies employed by nursing students are the cultivation of intentional behaviors, support networks, self-reflection, and work-life balance (Turner, 2015). However, studies have shown that negative coping strategies may amplify the negative effects of stress (Turner, 2015).

**Conceptual Framework**

In this study, participants were surveyed to determine their COVID-19 Induced Risk Factors, their self-report stress levels, as well as their self-report resilience (specifically, self-determination, grit, coping), depression, and anxiety. In the framework for this study, COVID-19 Induced Risk Factors and stress act as risk factors for nursing students, while resilience (specifically self-determination), grit, and coping act as mediators for student mental health. Mental health challenges (i.e., depression and anxiety) are potential outcomes in this model with unknown protective factors interacting with mediators to affect outcomes. The model proposed that COVID-19 Induced Risk Factors act on existing stress levels which then affect the outcomes of mental health, specifically depression and anxiety. Resilience components (i.e., self-determination, grit, and coping) are depicted as mediators in the model—that is, their presence was hypothesized to act as a safeguard against more severe mental health difficulty.

The conceptual framework follows in Figure 1. As illustrated in the figure, indicators, or components, of resilience were measured by self-report data on self-determination, grit, and coping. Stress, COVID-19 Induced Risk Factors, and sociodemographic variables (e.g., age,
gender, ethnicity, socioeconomic status, marital status, employment status, and first-generation college status, and grade level) are being treated as risk factors. Mental health, specifically depression and anxiety, are depicted as the hypothesized outcomes of unmitigated social, psychological, and structural risk (e.g., poverty, food/housing constraints).

In this mediating framework, stress is hypothesized to lead to mental health challenges for nursing students provided that it is not mitigated by resilience-related competencies and challenges. So, for example, a nursing student who was displaced from educational resources (e.g., textbooks and primary belongings) would be expected to experience higher anxiety and perhaps depression if the student was not able to marshal the resources needed to address the educational challenges posed by COVID-19. In contrast, this same model highlights a more positive scenario. Here, a student who experiences similar educational challenges may be able to overcome those by drawing on personal protective factors related to self-determination, grit, and coping/problem-solving.

Figure 1. Conceptual framework

Summary

In summary, the review of the research literature highlights a pressing need for more research on the mental health and resilience of undergraduate nursing students. Little research
has been done to explore nursing student responses to crises and the relationship between risk factors, resilience, and mental health, particularly during a crisis such as the COVID-19 Pandemic. More research is needed on how student resilience may help to buffer mental health challenges (i.e., depression and anxiety) and affect risk, specifically stress and COVID-19 Induced Risk Factors, particularly during times of crisis. Given the prevalence of one in four college students reporting being diagnosed with, or treated for, a mental health condition (National Institutes of Mental Health [NIMH], 2017), nurse educators need to understand the complex nature of risk, resilience, and mental health challenges to better foster student development, encourage stress management and coping skills, and support student mental health. As previously outlined, the research questions guiding this study were as follows:

1. What are the psychological and logistical challenges nursing students experience during the onset of COVID-19;

2. What risks are they experiencing, including mental health challenges; and

3. What resilience factors or coping mechanisms might nursing students draw from to respond positively and adaptively to COVID-19 related risks and challenges?
CHAPTER III: RESEARCH METHODS

This descriptive-exploratory study examined the relationship between mental health and resilience of undergraduate nursing students amid the COVID-19 Pandemic. The conceptual framework advanced in Chapter II indicated that three primary types of protective factors, that when present, may buffer the threat or onset of mental health challenges. This chapter highlights the research methods that were used to explore these important relationships and dynamics.

Data was collected in the Spring of 2020 using an online Qualtrics© Survey emailed to participants via a list-serv with prior approval from the Institutional Review Board (IRB) and the nursing school administration. The researcher was responsible for the recruitment process, data collection, data maintenance, and data analysis to expedite the study. Sociodemographic data were collected on each participant’s age, gender, ethnicity, socioeconomic status, marital status, employment status, first-generation college status, and grade level. Self-reported data on resilience, depression, anxiety, stress, coping, and COVID-19 Induced Risk Factors was also collected.

Research Setting and Procedures

This research was conducted by the completion of a Qualtrics© Survey, a web-based questionnaire. The data collection process, including recruitment and informed consent, required up to 30 minutes of the participants’ time to complete. Recruitment and
Data collection took place during four weeks of the Spring 2020 Semester after IRB approval was obtained. The principal investigator (PI) used a college email list-serv for recruitment. Participants received written (informed consent) explanations of this study as well as an invitation to participate. The recruitment email contained a URL link to the online survey. Informed consent was obtained when the participant accessed the provided URL link, selected “yes” for consent, and completed the survey. Initial data collection took place over two weeks and was extended in an effort to obtain the target sample size of 500 participants. Data collection remained open for an additional two weeks, and recruitment email reminders were sent via the college email list-serv of nursing students.

As an incentive, participants had the option of providing their university identification number and email address at the end of the survey (or upon clicking “no” for the consent), in a separate linked Qualtrics© Survey, to enter a drawing for a chance to win a $75 Visa™ gift card. Four winners were randomly selected after correctly answering a nursing-related trivia question. Participant responses, and other information that could be used to identify students, were deidentified by the PI before data analysis.

Students voluntarily participated and were informed that their participation, or lack thereof, would not impact their academic performance. Students were encouraged to complete the survey in a private location using a secure internet connection to ensure their privacy. Students were informed that if at any time they felt their privacy had been compromised, they should exit the survey and choose not to participate. Students were not compensated and there were no direct benefits to students for participating in this research study. Students were informed that they may feel some benefit by knowing they have helped to identify issues related to mental health and resilience in the nursing program of study during times of crisis, such as with the COVID-19 Pandemic.
Participants were asked to self-report their levels of self-determination, grit, depression, anxiety, stress, and coping. If participants experienced emotional distress while taking this survey or following the completion of the survey, they were informed that they could choose not to complete it and contact the university’s counseling center or psychiatry clinic for assistance. The contact numbers for the counseling center and the psychiatry clinic are located within the informed consent document. Participants were also reminded that they could choose not to participate in this study or not complete the survey at any time, simply by exiting or closing the survey.

**Setting and Participant Selection**

A population-based sample was used for this study, with the population defined as nursing students who attend a flagship university in the Southeastern United States. All eligible participants, those currently enrolled and positively progressing in the upper division (all five semesters) of the nursing program, were recruited by the researcher via recruitment emails. At the time of data collection, 498 students were enrolled in the nursing program. Eligible participants were between the ages of 19-24 years old and were either juniors or seniors enrolled in the upper division of the nursing program. Exclusionary criteria included interested participants who were not within good standing, not currently enrolled in the upper division of the nursing program, or who did not meet the age eligibility of 19-24 years old. Participation occurred voluntarily and recruitment was done primarily through college email list-servs due to the rapid transition to online learning.

**Design**

The study can best be classified as a descriptive-exploratory study that focused on the mental health and resilience of undergraduate nursing students and the relationship between risk, resilience, and mental health factors. This study design was used to capture how students act and
react to the personal challenge of the COVID-19 Pandemic, which is firmly anchored in healthcare and impacts the nursing profession. Students were recruited from all five semesters of the upper division of an undergraduate BSN program at a large, four-year, public institution of higher education in the Southeastern United States. All eligible students were invited to participate, and data collection occurred in the Spring of 2020.

Quantitative data were collected via the use of one survey including questions from six instruments: Resilience Scale Survey, Short Grit Scale, PHQ-9, GAD-7, Perceived Stress Scale, and Proactive Coping Scale. Sociodemographic data were obtained and included questions about age, gender, ethnicity, socioeconomic status, marital status, employment status, first-generation college status, and grade level. The importance of collecting and analyzing this sociodemographic data is discussed later in this chapter. All responses were self-reported.

**Measures and Instruments**

This section describes the measures and instruments that were used to measure the central constructs in this study. These constructs are resilience—as defined by grit, self-determination, and coping—stress, anxiety, and depression. The instruments used to measure these constructs were: Resilience Scale Survey (self-determination), Short Grit Scale (grit), Proactive Coping Scale (coping), GAD-7 (anxiety), Perceived Stress Scale (stress), and PHQ-9 (depression). Table 1 presents descriptive information about each instrument, including the Cronbach’s Alpha’s coefficients for each scale.
Table 1

Description and Psychometric Properties of Instruments

<table>
<thead>
<tr>
<th>Instrument Alpha</th>
<th>Outcome Measure</th>
<th>No. of Items</th>
<th>Scale</th>
<th>Scoring</th>
<th>Coefficient</th>
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<tbody>
<tr>
<td>Resilience Scale</td>
<td>Resilience Grit</td>
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<td>1-7</td>
<td>7-49</td>
<td>.87-.95</td>
</tr>
<tr>
<td>Short Grit Scale</td>
<td>Grit</td>
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<td>1-5</td>
<td>1-5</td>
<td>.73 to .83</td>
</tr>
<tr>
<td>Proactive Coping</td>
<td>Coping</td>
<td>14</td>
<td>1-4</td>
<td>14-56</td>
<td>.71-.85</td>
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<tr>
<td>Perceived Stress</td>
<td>Stress</td>
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<td>0-4</td>
<td>0-40</td>
<td>&gt;.70</td>
</tr>
<tr>
<td>GAD-7</td>
<td>Anxiety</td>
<td>7</td>
<td>0-3</td>
<td>0-21</td>
<td>.93</td>
</tr>
<tr>
<td>PHQ-9</td>
<td>Depression</td>
<td>9</td>
<td>0-3</td>
<td>0-27</td>
<td>&gt;.70</td>
</tr>
</tbody>
</table>

Resilience

The Resilience Scale (RS) is a survey developed to collect data on self-perceptions of resilience (Wagnild & Young, 1993). The survey provides data on students’ perceived level of resilience, which is paramount to the study and the scale attends to the definitional components outlined in Chapter II. The RS has performed as a reliable and valid tool to measure resilience and has been used with a wide range of study populations (Wagnild, 2009). The RS is the original resilience measure and considered the “gold standard” for resilience assessments among researchers around the world (The Resilience Center, 2019). It is a highly valid and reliable, 25-item measure and can measure resilience in any setting. The survey uses a Likert Scale of 1-7. It was first published in 1993 and is the first resilience assessment to measure resilience directly.

The RS measures those strengths and competencies that are associated with individual self-determination. In this study, these competencies include confidence, competence, connection, character, contribution, coping, and control. The RS measures these competencies by asking the participant to rank statements on a scale of 1 (strongly disagree) to 7 (strongly agree).
Survey items are paired with the indicator that it measures in Table 2, below. In this study, self-determination and competence will be measured with the RS. Prior research indicates that the RS has yielded Cronbach’s alphas ranging from .87 to .95. A variety of methods have been used to assess the construct validity of the RS and mounting evidence continues to support the construct validity. These methods include content analysis, known groups, convergent/discriminant studies, correlation studies, factor analysis, and pretest-posttest intervention studies (The Resilience Center, 2019).

Table 2

The Resilience Scale and the 7 C’s Model of Resilience

<table>
<thead>
<tr>
<th>7 C’s Model of Resilience Indicator</th>
<th>Survey Item #</th>
<th>Resilience Scale Survey Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>13</td>
<td>I can get through difficult times because I've experienced difficulty before.</td>
</tr>
<tr>
<td>Confidence</td>
<td>17</td>
<td>My belief in myself gets me through hard times.</td>
</tr>
<tr>
<td>Connection</td>
<td>8</td>
<td>I am friends with myself.</td>
</tr>
<tr>
<td>Character</td>
<td>18</td>
<td>In an emergency, I'm someone people can generally rely on.</td>
</tr>
<tr>
<td>Contribution</td>
<td>21</td>
<td>My life has meaning.</td>
</tr>
<tr>
<td>Coping</td>
<td>7</td>
<td>I usually take things in stride.</td>
</tr>
<tr>
<td>Control</td>
<td>14, 20</td>
<td>I have self-discipline. (14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sometimes I make myself do things whether I want to or not. (20)</td>
</tr>
</tbody>
</table>

Grit

The Short Grit Scale (Grit-S) is a brief self-report and informant-report instrument, which measures trait-level perseverance and passion for long-term goals. Grit is measured as a part of
the resilience framework and is important to explore in relation to mental health challenges.

Duckworth and Quinn (2009) defined grit as passion and sustained persistence applied toward long-term achievement, without concern for rewards or recognition along the way. Grit–S retains the two-factor structure of the original Grit Scale (Duckworth, Peterson, Matthews, & Kelly, 2007) with four fewer survey items and improved psychometric properties. Confirmatory factor analyses of the Grit-S supported a two-factor structure of the self-report version where consistency of interest and perseverance of effort both loaded on grit as a second-order latent factor (Duckworth & Quinn, 2009). Both factors showed adequate internal consistency and were significantly and moderately intercorrelated, r = .59, p < .001 (Duckworth & Quinn, 2009).

Additionally, the collective studies reviewed provide evidence of predictive validity, consensual validity, and test–retest stability of the Grit–S instrument (Duckworth & Quinn, 2009). The Grit–S has 8-items which are rated on a scale from “not like me at all” to “very much like me.”

**Coping**

Coping was measured using The *Proactive Coping Inventory (PCI)*. Understanding coping is central to this study because much of the extant literature on resilience treats resilience, sometimes implicitly, as adaptive coping. The PCI is an inventory to assess skills in coping with distress, as well as those that promote greater wellbeing and greater satisfaction with life. Proactive coping is defined as a method of assessing future goals and setting the stage to achieve them successfully (Sohl & Moyer, 2009). The PCI was constructed to assess different dimensions of a proactive approach to coping and consists of seven subscales (Sohl & Moyer, 2009). The PCI is a 14-item survey with items that are measured using a four-point Likert Scale. The PCI was used to assess skills in coping with distress and in promoting wellbeing and life satisfaction. The subscales of the PCI have high internal consistency (Cronbach alphas reported
range from .71 to .85 for all 7 scales), good item-total correlations, and acceptable skewness as an indicator of symmetry around the mean.

**Risk Factor: Stress**

The *Perceived Stress Scale (PSS)* is used to measure stress in this study. The PSS is a 10-item survey with items that are measured using a four-point Likert scale. It is a widely used measure of stress (Cohen et al., 1983). The PSS items, as a global stress measure, are general rather than event-specific, and evaluate individuals’ perceptions of their lives as being “unpredictable, uncontrollable, and overloading” (Cohen et al., 1983, p. 387). Internal consistency reliability for the PSS total scores was adequate for the full sample (α = .82). As anticipated, the PSS total and subscale scores were significantly correlated with scores on measures of anxiety (GAD-7) and depression (PHQ-9), for the total sample (Baik et al., 2019).

**Mental Health Indicator: Anxiety**

Anxiety is typically defined as a feeling of worry, nervousness, or unease. In this study, anxiety is treated as an indicator of mental health. It is measured using the *GAD-7*, which measures *Generalized Anxiety Disorder*. The GAD-7 is a seven-item survey used to measure the presence and severity of anxiety. The GAD-7 is widely viewed as a reliable and valid instrument (Spitzer et al., 2006). Research on the GAD-7 indicates that it has good internal validity (Cronbach α = .92), good test-retest reliability (intraclass correlation = 0.83), and criterion, factorial, and procedural validity (Spitzer et al., 2006). A cut point was identified that optimized sensitivity of 89% and specificity of 82%. Increasing scores on the scale were strongly associated with multiple domains of functional impairment (Spitzer et al., 2006).

**Mental Health Indicator: Depression**

The PHQ-9 is a short assessment that is used to determine the presence or severity of
depression. In this study, depression is being treated as a key indicator of student mental health. The PHQ-9 is a nine-item measure with a four-point Likert Scale. The survey asks questions related to mental health and depression wellness for the last two weeks. Scoring of the individual items is done to determine the level of depression severity with a score of 1-4 resulting as “minimal depression” and a score of 20-27 resulting as “severe depression.” The PHQ-9 is considered a reliable and valid instrument. The diagnostic validity of the PHQ-9 was established in studies involving patient screenings in 15 clinics. Results showed that individuals who scored high (≥ 10) on the PHQ-9 were between 7 to 13.6 times more likely to be diagnosed with depression by the mental health professional. Conversely, individuals scoring low (≤ 4) on the PHQ-9 had a less than a 1 in 25 chance of having depression (Kroenke et al, 2001). PHQ-9 scores > 10 had a sensitivity of 88% and a specificity of 88% for Major Depressive Disorder (Kroenke et al, 2001). Reliability and validity indicate sound psychometric properties. Internal consistency of the PHQ-9 is considered high as evidenced by a study involving two different patient populations with Cronbach alphas of .86 and .89. Criteria validity was established by conducting 580 structured interviews with mental health professionals.

**Data Analysis**

Descriptive analysis techniques were used in this study to describe the prevalence of risk, resilience, and mental health factors among nursing students, and to also highlight how sociodemographic factors might inform students’ immediate reactions to COVID-19 and survey responses. Exploratory, relational analyses were conducted using ordinary least squares regression as well as basic, linear correlations. The IBM SPSS® software platform was used to clean and analyze the data collected. M-plus software was used to conduct an additional post-hoc analysis of the relationship between mental health and resilience.
CHAPTER IV:
RESULTS AND DATA ANALYSIS

Introduction

This chapter contains the results of a descriptive-exploratory analysis of my survey data. My analysis was conducted in relation to three primary research questions:

1. What are the psychological and logistical challenges nursing students experience during the onset of COVID-19;
2. What risks are they experiencing, including mental health challenges;
3. What resilience factors or coping mechanisms might nursing students draw from to respond positively and adaptively to COVID-19 related risks and challenges?

Three distinct kinds of data analysis were employed in relation to these questions: (a) descriptive analyses, and (b) exploratory, correlational analysis; and (c) latent class analysis (LCA). Descriptive analyses were used in this study to describe the prevalence of risk, resilience, and mental health factors among nursing students, and to also highlight how sociodemographic factors might have informed students’ immediate reactions to COVID-19 and survey responses. Exploratory, relational analyses were conducted to analyze relations between mental health and resilience among nursing students. And finally, latent class analysis (LCA) was used to estimate different “profiles” of mental health as well as their relationship to student resilience, stress, and coping.
Results

Sample Description

This study was designed to yield a population-based sample, with the population defined as nursing students who attend a flagship university (a large, four-year, public institution of higher education) in the Southeastern United States. All eligible participants, those currently enrolled and positively progressing in the upper division (all five semesters) of the nursing program, were recruited by the researcher via recruitment emails. At the time of data collection, 498 students were enrolled in the upper division of the nursing program at the preferred research site. Eligible participants were between the ages of 19-24 years old and were either juniors or seniors enrolled in the nursing program. Exclusionary criteria included students who were not in good academic standing, were not currently enrolled in the upper division of the nursing program, and who did not meet the age eligibility of 19-24 years old. Age was a selection and exclusion criterion for participants in this study as resilience, grit, coping, and other mental health factors may be influenced by the lived experience of older, non-traditional students. Participation occurred on a voluntary basis and recruitment was done primarily through college email list-servs due to the university’s rapid transition to online learning beginning in March of 2020.

Of the 498 eligible participants, 320 accessed the study via the Qualtrics© Survey link with 306 of those 320 students consenting to voluntarily participate in the study. Of the 306 consented participants, 277 responses were complete (or nearly complete) and were included in the data analysis, leaving 29 responses, which were partially complete or incomplete and were excluded in the data analysis. Missing data reduces the
representativeness of the sample and can distort inferences about the population. Two approaches were used to manage missing data in this study. In the descriptive analyses, samples with invalid or incomplete data of the nearly complete surveys were discarded from further analysis. In LCA, maximum likelihood estimation allows for missing data provided that participants have at least one response to the items that were employed as latent class indicators or manifest variables.

**Descriptive Statistics**

The demographic data highlight the backgrounds of the study participants and can be used to understand the extent to which the study’s findings might be generalizable to other nursing student populations. The recruited sample size was 498 participants, however only 277 provided complete (or nearly complete) survey responses and met the inclusion criteria. In this study, the results indicate that the sampled nursing student population (students enrolled in all five semesters of an upper-division nursing program) is highly resilient and homogenous. Demographic data reported by participants included age, gender, ethnicity, sexual orientation, parental income, student employment status, and first-generation college student status.

Participants were primarily upper-middle class, white, female participants in their early 20s. Participant ages ranged from 19 to 23 years old with 80% (197) of the participants between the ages of 20-21. Most students in this sample were college juniors and seniors. Of the 300 participants who reported their gender, 93% (280) were female. With ethnicity, the sample was overwhelmingly white. Only 23 of the 300 (8%) participants reported being of a race/ethnicity other than white, who account for 92% of the sample population.

With respect to sexual orientation, most of the students in this sample were cis-
gendered (96%). The majority of students identified themselves as uncoupled, while about 41% of participants were married, engaged, or in a committed relationship. First-generation college students make up 14% (40) of the sample population and 49% (145) of participants were employed in some capacity. Table 3 provides descriptive statistics gleaned from my data set.
Table 3

*Descriptive Statistics*

<table>
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<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Total</th>
</tr>
</thead>
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### Variable Frequency Percentage (%) Total

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<th>Variable</th>
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<tr>
<td>Employed Part Time</td>
<td>111</td>
<td>37.50</td>
<td></td>
</tr>
<tr>
<td>Employed Work Study</td>
<td>9</td>
<td>3.04</td>
<td></td>
</tr>
<tr>
<td>Unemployed Not Looking</td>
<td>83</td>
<td>28.04</td>
<td></td>
</tr>
<tr>
<td>Unemployed Looking</td>
<td>68</td>
<td>22.97</td>
<td></td>
</tr>
</tbody>
</table>

### Mental Health Challenges

I began my analysis with an exploration of mental health challenges (MHC), specifically depression, because the data were collected at the onset of COVID-19 and interest resided in understanding how students were coping with the pandemic. It is important to note that some participants may have already been challenged by mental health issues prior to the onset of COVID-19. For this reason, I am unable to discern whether or not COVID-19 lead or contributed to any mental health challenges (MHC) that students may have experienced.

To better understand students’ mental health challenges (MHC), I analyzed students' PHQ-9 scores for depression, as well as how other psychosocial factors (e.g., stress and anxiety) were related to them. As noted in Chapter III, the PHQ-9 is a measure designed to facilitate the recognition of depressive disorders and depressive symptoms, and primarily serves as a clinical screening tool.
Higher scores indicate more severe symptomology. Specifically, scores ranging from 5-14 on the PHQ-9 are considered “mild” to “moderate” severity of depression symptoms. Scores ranging from 15-19 on the PHQ-9 are considered “moderately severe” and scores ranging from 20-27 are considered “severe” for depression. In these analyses, students with scores from 15-27 were collapsed into a “moderately severe to severe” category due to the low number of students with severe scores.

**Depression and anxiety.** The prevalence of depression and anxiety in this sample population is of interest due to their known relationship and co-morbidity (Salcedo, 2018). Of the participants surveyed, 44% (122) reported depression or depressive symptoms, while 48% (135) reported anxiety or anxiety symptoms. The depression findings were particularly concerning since 18 participants reported having thoughts of “being better off dead” or thoughts of harming themselves several days each month. Moreover, four participants reported having thoughts of self-harm more than half the days of the month.

In total, 8% (22) of the sample population, reported self-harm ideation. More research is needed to better understand and support this sub-population of students who are expressing MHC and depressive symptoms.

**Depression and Demographics**

In order to understand how depressive symptoms might manifest themselves between different demographic sub-groups, I conducted a series of Chi Square tests. The null hypothesis of these tests is that there are no differences in the frequency of expected and observed responses among categorical variables in the sample population. The results of these Chi Square tests generally did not yield significant demographic differences in depressive symptomology. The results are presented in Table 4.
Table 4

**Depression**

<table>
<thead>
<tr>
<th>Measure</th>
<th>x²</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>4.282</td>
<td>1</td>
<td>0.0385</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>0.349</td>
<td>1</td>
<td>0.5547</td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>0.033</td>
<td>1</td>
<td>0.8559</td>
</tr>
<tr>
<td>FGCS Status</td>
<td>0.003</td>
<td>1</td>
<td>0.9563</td>
</tr>
<tr>
<td>Social Contact</td>
<td>0.024</td>
<td>1</td>
<td>0.8769</td>
</tr>
<tr>
<td>Social Distancing</td>
<td>1.057</td>
<td>1</td>
<td>0.3039</td>
</tr>
</tbody>
</table>

**Gender**

In my data, there were differences in the prevalence of depression between gender groups, when gender was coded as a binary. Specifically, about 76% of the male participants had at least some presentation “of mild to moderate” depression with 18% actually reporting “moderately severe or severe” depression, a higher prevalence compared to that of females, where only 51% reported “mild to moderate” severity of depression with 9% of females reporting “moderately severe to severe” depression. These differences are significant, $x^2(1)=4.282, p=0.0385$. This is an important finding which may extend extant literature on the mental health and wellbeing of young, male nursing students. Several anecdotal and non-peer reviewed editorial articles support that male nurses report higher rates of stress as compared to their female counterparts throughout their nursing education experience (Elite Healthcare, 2018; Minority Nurse, 2013).

**Race and Ethnicity**

Race/ethnicity appears to have an uneven relationship to student’s mental health status. For example, 52% of white participants reported at least some presentation of “mild to moderate” depression, while 47% of non-white students had scores that indicated depressive
symptomology. However, non-white students had a higher prevalence of moderate-to-severe depression scores (13%) relative to white students (9%). While these differences are not statistically significant $x^2(1)=0.349$, $p=0.5547$, they represent an unexpected finding. Thus, nursing students may need routine screening for depression throughout their educational experience. It is possible that the data may be skewed by the low number of non-white participants in my sample population. Or, non-white participants may be less likely to report or seek help for stress and mental health difficulty, which is supported by the literature (Negga, Applewhite, & Livingston, 2007). Further research is warranted to explore the relationship of race, stress, and depression, since this raises important questions about race/ethnicity and more broadly, diversity within BSN programs, which are predominately white.

**Sexual Orientation**

Students’ sexuality appears to be another factor that may influence the mental health of nursing students. For instance, 60% of non-cis-gendered students surveyed had at least “mild to moderate” severity of depression with scores that exceed the cut-point for clinical diagnoses. While 20% of non-cis-gendered students reported having at least “moderately severe to severe” severity of depression. In comparison, only 52% of cis-gendered participants have scores that indicate “mild to moderate” severity of depression while 9% of cis-gendered participants reported “moderately severe to severe” severity of depression.

This finding is not statistically significant because of the low number of non-cis-gendered participants, but it is of interest given the expectation, based on extant literature, that non-cis-gendered students would self-report higher depression scores or more prevalence of depression. Nonetheless, these descriptive findings indicate the need for mental health supports for this particular sub-population of students.
First-Generation College Student Status

The research literature indicates that first generation college students may be especially vulnerable to mental health difficulty. However, results of this study indicate that, for this sampled population, generational status does not appear to contribute to differences in the prevalence of mental health difficulty. That is, there was no significance difference in the prevalence of depression between first generation and non-first-generation students, $\chi^2(1)=0.003$, $p=0.9563$.

This null finding is unexpected because the current literature indicates that first-generation college students (FGCS) may be at increased risk of experiencing stress and depression (House, Neal, & Kolb, 2019). Further research is needed to understand the relationship of FGCS status, stress, and depression to explore plausible causes for this null finding.

Social Contact and Distancing

Access to social support is a known correlate of mental health difficulty as well as overall wellbeing. Because these data were collected during the onset of COVID-19, interest resided in understanding how the relative weight of social isolation and confinement might affect these students. My results indicate that students who were isolated prior to COVID-19 had slightly higher incidents of depression (54%) than students who reported frequent social contact (52%) prior to COVID-19. Other possible indicators of depression relate to social contact and social distancing. Participants with little to no previous social contact and participants with previous social contact both have around a 50% chance of having at least “mild to moderate” severity of depression. However, 14% of participants with little to no previous social contact reported “moderately severe to severe” depression as compared to 9% of participants with previous social
contact who reported “moderately severe to severe” depression. These differences were not statistically significant for previous social contact, $x^2(1)=0.024, p=0.8769$ or social distancing, $x^2(1)=1.057, p=0.3039$.

Another key development related to COVID-19 involves the potential relationship between social distancing and student mental health. Here, my data indicate that those who practice social distancing had slightly higher rates of depression, but not significantly so. For example, of the participants who reported that they practiced social distancing, 54% reported at least “mild to moderate” severity of depression with 9% reporting “moderately severe to severe” depression. This is compared to participants who reported not adhering to social distancing guidelines, of which 48% of those participants also reported at least “mild to moderate” severity of depression with 11% reporting “moderately severe to severe” depression.

These findings indicate that students who reported little previous social contact prior to COVID-19 and who reported practicing social distancing at the time of data collection also reported higher scores of depression than those of other participants surveyed. This finding highlights the potential enduring role and effect of social isolation on student mental health and wellbeing.

**Social/Psychological Competencies**

My study was designed with the assumption that students’ resilience scores would be normally distributed across nursing students. That is, some students would be highly resilient, some students’ scores would indicate few resilience-related competencies, while the majority would be somewhere in the middle. However, results from this study indicate that the overall sampled nursing student population is highly resilient. The following statistics reveal the extent to which the sample is resilient.
For example, an analysis of a histogram reveals that students’ resilience scores were generally devoid of negative responses – meaning that few students had “low” resilience scores. In other words, students with the lowest resilience scores in my sample had total scores that were generally high, indicating that students possessed multiple resilience-related competences. For example, about 98% of students positively endorsed all items on the RS.

This finding which supports the resilience of nearly all of this study’s sample calls into question resilience’s relationship to the other social-psychological constructs that were used in this study. For example, my findings indicated that while some participants reported high depression, anxiety, and stress scores, they also had high resilience and coping scores. This unexpected finding indicates that resilience and coping may not mitigate against mental health difficulty as the resilience literature often postulates (Gomathi et al., 2017).

**Correlates of Depression**

This section details the result of my initial exploratory analysis of correlates of mental health challenges in my sample population of nursing students. These initial analyses were conducted using bi-linear correlations. Because these analyses are bi-directional, causality is not asserted.

After running multiple analyses, the factors that were significantly related to Mental Health using bi-linear correlations were stress, sexual orientation, enthusiasm for nursing, age, and academic semester (the number of semesters the students had completed in the program). Conversely, gender, race/ethnicity, first generation college status, housing, parental income, employment status, relationship status, social distancing, and social contact were not significantly related to depression. Most of the significant correlations in my data indicated small effects—that is, they were significantly but weakly correlated with each other.
For example, in addition to depression, my data supported significant linear relationships between stress and some of my social demographic data. My data analysis yielded a weak positive association between sexual orientation (non-cis-gendered) and depression ($r(277) = .272$, $p = .000$) and anxiety ($r(277) = .177$, $p = .003$) scores. My data also revealed that participant enthusiasm for nursing appears to decrease with an increase in age ($r(277) = -.171$, $p = .004$) and in later semesters ($r(277) = -.197$, $p = .001$).

A plausible explanation for why enthusiasm decreases with age could be related to the tendency for students to experience burnout, compassion fatigue, and decreased emotional intelligence as they progress through nursing programs (Cheshire, 2013). Another potential factor for decreased enthusiasm among this sample population of nursing students could be related to them being on the verge of entering the workforce, where they will be frontline workers endangering their lives and risking their wellbeing due to the COVID-19 Pandemic. Further investigation is needed to understand the relationship of enthusiasm and academic semester more fully in undergraduate nursing programs.

**Resilience and Mental Health**

Research tends to find that resilient students are less likely to experience mental health challenges than non-resilient students (Stephens, 2013; Reyes et al., 2015). For this reason, I hypothesized that students with high levels of resilience scores would have lower depression scores. However, my descriptive analyses did not support my hypotheses. In fact, my results suggest an alternative theoretical pathway or progression between resilience and mental health.

Specifically, results from my study indicate that some participants with high self-reported levels of resilience and coping also report high stress scores and present with at least “mild to moderate” severity of depression. This finding appears to amend the current resilience literature,
which asserts that resilience protects against mental health challenges (MHC) (Gomathi et al., 2017). This surprising finding creates conceptual challenges for this study and affected my overall approach to data analysis. To attend to this challenge, I used latent class analysis to estimate different “profiles” of mental health as well as their relationship to student resilience, stress, and coping using latent class analysis (LCA).

**Post-Hoc Latent Class Analysis**

The unexpected and uneven relationship between resilience-related constructs and mental health invited additional analysis into the patterns and prevalence of students’ presenting problems as they relate to student mental health. Latent class analysis (LCA) provides one such statistical tool. Similar to cluster analysis, latent class analysis (LCA) is a statistical technique that allows research to model different patterns or profiles of risk (Masyn, 2013). This kind of analysis is important because it offers an action-oriented view of the different “kinds” of mental health challenges that might present themselves among different student sub-populations.

Latent class analysis (LCA) assumes an underlying categorical latent variable whose categories define discrete and mutually exclusive sub-populations with varying parameters. In this respect, the latent classes represent groups of individuals who are similar to each other with respect to patterns of item endorsement and the classes are distinguished or separated by differences in item endorsement. This attention to patterned regularities in item responses and more homogeneous sub-groups of individuals within the overall sample has led some researchers to refer to latent class analysis (LCA) as “pattern-centered” and/or “person-centered” analysis (Nylund, 2007).

Latent class analysis (LCA) models, which use categorical response variables, estimate two sets of statistical parameters of interest: Item probabilities and class probabilities. Class-
specific item probabilities correspond to the probability of endorsing a particular item conditional on class membership (Nylund, 2007). For example, if class $k$ had a corresponding item endorsement of 0.85 for an item intended to measure students’ intent to harm themselves, then a student belonging to class $k$ would have a probability of 0.85 of positively endorsing that item. Meanwhile, class probabilities represent the relative size of each latent class—e.g., the estimated proportion of the population with membership in each latent class (ibid).

Model Building Strategy

Determining the “best fitting” unconditional latent class analysis (LCA) model (balancing data-model consistency and model parsimony) is a more exploratory than confirmatory process for this study in that there were no a priori assumptions about the number or nature of latent classes in the data. Using M-Plus version 7.0 (Muthén & Muthén, 2018), I fit my latent class analysis (LCA) models in a progression of iterative steps. I started with estimating a one-class solution, which is the independence model, assuming no relationships between any of latent class indicators. I then successively added classes until such time that there was no empirical or conceptual improvement in the model (e.g., one or more of the classes become too small, one or more of the classes become uninterpretable, and/or the model becomes not well-identified).

Model estimation. All models were estimated using a full-information maximum likelihood procedure which accommodates partial missing data on the latent class indicators under the missing-at-random assumption (Little & Rubin, 2002). Further, since latent class models are notorious for converging during maximum likelihood estimation to local optima rather than the global optimum, I utilized the random start values perturbation facility in M-Plus to examine replication of the optimum solution across multiple sets of start values for each model specified to increase our confidence that the returned solution was the global maximum of the likelihood function given the observed data (Masyn, 2013).
Evaluating model fit. Pursuant to the extant literature (e.g., Nylund, 2007; Van Horn et al., 2008), I used a combination of statistical indicators and substantive interpretation to determine the “best” or best fitting latent class models. As the literature suggests, relying on substantive interpretation as a means of determining model fit is a practical necessity when using latent class analysis (LCA), because, unlike structural equation modeling, there are no universally agreed upon measures of overall goodness of fit (Nylund, 2007; Nylund et al., 2007). I therefore evaluated each model, in relation to other models, using the three most commonly used fit indices for latent class analysis (LCA): the Akaike information criterion (AIC), Bayesian information criterion (BIC), and the adjusted BIC (ABIC). In each case, smaller values on each index indicate that the $K$-class model provides a better fit than the $(K-1)$-class model (Lawson & Masyn, 2015). Last, my evaluation of model fit relied on the Lo-Mendell-Rubin likelihood ratio test (LMR-LRT; Lo, Mendell, & Rubin, 2001), The LMR-LRT provides a $p$-value for a $K$-class model with smaller and significant $p$-values indicating a significant improvement in fit from the $(K-1)$-class model.

Latent Class Analysis (LCA) Results

My latent class enumeration procedures supported a three-class solution—meaning that the data supported three characteristically distinct profiles of student mental health.
Table 5

*Latent Class Models and Fit Indices*

<table>
<thead>
<tr>
<th>Model</th>
<th>BIC</th>
<th>AIC</th>
<th>ABIC</th>
<th>LMR</th>
<th>Entropy</th>
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<tr>
<td>1 Class</td>
<td>4238.12</td>
<td>4172.89</td>
<td>4181.05</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>2 Classes</td>
<td>3824.53</td>
<td>3824.53</td>
<td>3707.21</td>
<td>0.001</td>
<td>0.86</td>
</tr>
<tr>
<td>3 Classes</td>
<td>3808.11</td>
<td>3601.16</td>
<td>3626.54</td>
<td>0.001</td>
<td>0.856</td>
</tr>
<tr>
<td>4 Classes</td>
<td>3849.26</td>
<td>3577.46</td>
<td>3611.45</td>
<td>0.27</td>
<td>0.833</td>
</tr>
</tbody>
</table>

*Note.* BIC, Bayesian information criterion; AIC, Akaike information criterion; ABIC, adjusted Bayesian information criterion; LMR, Lo-Mendell-Rubin likelihood ratio test.

As noted in Table 5, this determination was made based on the values of the Bayesian information criterion (BIC) and Lo-Mendell-Rubin likelihood ratio test (LMR-LRT)—the former of which had values which increased after the three-class solution and the latter of which yielded a non-significant p-value following the three-class model. A graphic depiction of these profiles is presented as Figure 2, with 52% of students in this study reporting at least some mental health difficulty.

*Figure 2.* Latent class profiles
The first mental health profile noted in Figure 2 is the *high vulnerability* class. This class is estimated to include about 9% (or approximately 25 students) of undergraduate nursing students. As noted in the figure, students who belong to this profile present several indicators of mental health difficulty. For example, these students reported sleeping problems, eating problems, image problems, and difficulties with self-concept with high degrees of frequency. They also have better than a 50% chance of reporting thoughts about self-harm. This tendency to endorse most items related to depressive symptomatology on the PHQ-9 renders these students as highly vulnerable for depression, if they are not depressed already.

The second mental health profile culled from latent class analysis (LCA) is the *depression vulnerable* class. This class is estimated to include about 41% (or approximately 119 students) of undergraduate nursing students at the sampled university. As depicted in Figure 3, these students have high probabilities of reporting frequent difficulties with sleeping problems as well as challenges indicative of eating problems/disorders.

*Figure 3.* Profile of high vulnerability class

The second mental health profile culled from latent class analysis (LCA) is the *depression vulnerable* class. This class is estimated to include about 41% (or approximately 119 students) of undergraduate nursing students at the sampled university. As depicted in Figure 3, these students have high probabilities of reporting frequent difficulties with sleeping problems as well as challenges indicative of eating problems/disorders.
These students also have about a 60% chance of endorsing survey items that measure whether or not students feel “down” and have difficulties concentrating. In brief, these students appear to report several elements of depressive symptomology.

The third and final mental health profile yielded from latent class analysis (LCA) is the limited vulnerability class. This class is estimated to represent about half of undergraduate nursing students at the sampled university. Figure 4 illustrates that these students are unlikely to positively endorse any of the indicators of depression surveyed on the PHQ-9 with 40% indicating sleep difficulties or fatigue (representing at least 110 and up to 220 students).
However, it is noteworthy that about 40% of students in the limited vulnerability class report difficulties with sleep and feeling fatigued. While these students do not appear vulnerable to depression, they appear to be slightly vulnerable to fatigue and sleep-related challenges that may inhibit their academic performance and overall wellbeing.

**Correlates of Mental Health Profiles**

Once my profiles of mental health were identified, I conducted a second set of post-hoc analyses. These analyses were designed to explore the relationship between student mental health—as measured by the PHQ-9—and other indicators of student mental health, resilience, and coping. To analyze this associations, I used the *auxiliary* function in M-Plus 7.0, specifying student anxiety, stress, coping, and resilience as a distal outcome (i.e., the *auxiliary* variable) and students’ mental health profiles as a categorical latent class predictor variable. By adopting this approach, I was able to restrict these outcomes from influencing the formation of the latent classes. This specification is important because if I had run a multi-nominal logistic regression,
for example, of anxiety, on my latent profiles of mental health, the formulation of the likelihood function in a simultaneous analysis would have treated each of these outcomes as an *indicator of* mental health profile membership rather than an *outcome* or consequence of it as intended (Masyn, 2013; Muthén & Muthén, 2018).

In addition to these analytic considerations, the auxiliary feature in M-Plus offers researchers several unique advantages. For instance, the output yielded from the auxiliary command provides researchers with a user-friendly point estimate (mean score) for each outcome variable (e.g., anxiety, stress) within each latent class. This output also presents pairwise tests of differences in mean outcome scores between each latent class (i.e., latent class 1 vs. 2, latent class 2 vs. 3, and so forth). The output of a multinomial logistic regression model does not provide a full spectrum of pairwise tests.

**Mental health profiles and anxiety.** Table 6 provides results from my auxiliary analysis of the relationship between nursing students’ mental health profiles and student anxiety.

Table 6

<table>
<thead>
<tr>
<th>Relationship Between Mental Health Profiles and Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Latent Class</td>
</tr>
<tr>
<td>Depression Vulnerable</td>
</tr>
<tr>
<td>High Vulnerability</td>
</tr>
<tr>
<td>Limited Vulnerability</td>
</tr>
<tr>
<td>Between Latent Class</td>
</tr>
<tr>
<td>Overall test</td>
</tr>
<tr>
<td>Depression Vulnerable vs. High Vulnerability</td>
</tr>
<tr>
<td>Depression Vulnerable vs. Limited Vulnerability</td>
</tr>
<tr>
<td>High Vulnerability vs. Limited Vulnerability</td>
</tr>
</tbody>
</table>

*Note. Output derived from M-Plus; S.E., Standard Error*
Table 6 shows that there were significant differences in anxiety between my three latent mental health profiles. Specifically, students who belonged to the high vulnerability profile had significantly higher mean anxiety scores than the depression vulnerable \( (x^2 = 24.03, p<.001) \) and limited vulnerability \( (x^2 = 89.5, p<.001) \) classes. Similarly, students in the depression vulnerable class had significantly higher anxiety scores than students in the limited vulnerability profile \( (x^2 = 75.54, p<.001) \). Consistent with extant research, these findings support the known relationship between depression and anxiety. Students who endorse items associated with depression also tend to be the most anxious of all student subgroups.

**Mental health profiles and stress.** Table 7 provides results from my auxiliary analysis of the relationship between nursing students’ mental health profiles and students’ reported levels of stress at the start of the pandemic.

Table 7

<table>
<thead>
<tr>
<th>Relationship Between Mental Health Profiles and Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Latent Class</strong></td>
</tr>
<tr>
<td>Depression Vulnerable</td>
</tr>
<tr>
<td>Mean 33.588</td>
</tr>
<tr>
<td>S.E. 0.612</td>
</tr>
<tr>
<td>High Vulnerability</td>
</tr>
<tr>
<td>Mean 31.945</td>
</tr>
<tr>
<td>S.E. 0.325</td>
</tr>
<tr>
<td>Limited Vulnerability</td>
</tr>
<tr>
<td>Mean 29.837</td>
</tr>
<tr>
<td>S.E. 0.324</td>
</tr>
<tr>
<td><strong>Between Latent Class</strong></td>
</tr>
<tr>
<td>Overall test</td>
</tr>
<tr>
<td>Chi-Square 30.160</td>
</tr>
<tr>
<td>P-Value 0.000</td>
</tr>
<tr>
<td>Depression Vulnerable vs. High Vulnerability</td>
</tr>
<tr>
<td>Chi-Square 5.428</td>
</tr>
<tr>
<td>P-Value 0.020</td>
</tr>
<tr>
<td>Depression Vulnerable vs. Limited Vulnerability</td>
</tr>
<tr>
<td>Chi-Square 29.330</td>
</tr>
<tr>
<td>P-Value 0.000</td>
</tr>
<tr>
<td>High Vulnerability vs. Limited Vulnerability</td>
</tr>
<tr>
<td>Chi-Square 19.991</td>
</tr>
<tr>
<td>P-Value 0.000</td>
</tr>
</tbody>
</table>

*Note.* Output derived from M-Plus; S.E., Standard Error.

Table 7 shows that there were significant differences in stress between my three latent mental health profiles. Specifically, students who belonged to the high vulnerability profile had
significantly higher mean stress scores than the depression vulnerable \( (x^2 = 5.42, p < 0.05) \) and limited vulnerability classes \( (x^2 = 29.33, p < 0.001) \). Similarly, students in the depression vulnerable class had significantly higher stress scores than students in the limited vulnerability profile \( (x^2 = 19.99, p < 0.001) \). These findings highlight the potential for a dual vulnerability that might exist or emerge for those who are presenting depression-related symptomology—namely, they may experience more stress than students who do not report such vulnerabilities.

**Mental health profiles and coping.** Table 8 provides results from my auxiliary analysis of the relationship between nursing students’ mental health profiles and students’ reported levels of coping at the start of the COVID-19 Pandemic.

Table 8

<table>
<thead>
<tr>
<th>Within Latent Class</th>
<th>Mean</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression Vulnerable</td>
<td>41.562</td>
<td>0.975</td>
</tr>
<tr>
<td>High Vulnerability</td>
<td>42.525</td>
<td>0.380</td>
</tr>
<tr>
<td>Limited Vulnerability</td>
<td>43.294</td>
<td>0.338</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Between Latent Class</th>
<th>Chi-Square</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall test</td>
<td>3.202</td>
<td>0.202</td>
</tr>
<tr>
<td>Depression Vulnerable vs. High Vulnerability</td>
<td>0.830</td>
<td>0.362</td>
</tr>
<tr>
<td>Depression Vulnerable vs. Limited Vulnerability</td>
<td>2.808</td>
<td>0.094</td>
</tr>
<tr>
<td>High Vulnerability vs. Limited Vulnerability</td>
<td>2.153</td>
<td>0.142</td>
</tr>
</tbody>
</table>

*Note. Output derived from M-Plus; S.E., Standard Error.*

Table 8 shows that there were no significant mean differences in stress between my three latent mental health profiles, although students who belong to the limited vulnerability profile had slightly higher mean coping scores. This finding is important because it appears to indicate
that students’ experiences with stress may result from factors other than coping skills. I will return to this finding in the Chapter V.

**Mental health profiles and resilience.** Table 9 provides results from my auxiliary analysis of the relationship between nursing students’ mental health profiles and students’ resilience scores at the start of the pandemic.

Table 9

*Relationship Between Mental Health Profiles and Resilience*

<table>
<thead>
<tr>
<th>Within Latent Class</th>
<th>Mean</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression Vulnerable</td>
<td>66.379</td>
<td>2.690</td>
</tr>
<tr>
<td>High Vulnerability</td>
<td>55.720</td>
<td>1.184</td>
</tr>
<tr>
<td>Limited Vulnerability</td>
<td>50.256</td>
<td>0.993</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Between Latent Class</th>
<th>Chi-Square</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall test</td>
<td>28.891</td>
<td>0.000</td>
</tr>
<tr>
<td>Depression Vulnerable vs. High Vulnerability</td>
<td>13.017</td>
<td>0.000</td>
</tr>
<tr>
<td>Depression Vulnerable vs. Limited Vulnerability</td>
<td>31.476</td>
<td>0.000</td>
</tr>
<tr>
<td>High Vulnerability vs. Limited Vulnerability</td>
<td>11.697</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Note.* Output derived from M-Plus; S.E., Standard Error.

Table 9 shows that there were significant differences in resilience between my three latent mental health profiles. Specifically, students who belonged to the high vulnerability profile had significantly higher mean resilience scores than the depression vulnerable \((x^2 = 13.07, p<.001)\) and limited vulnerability \((x^2 = 31.47, p<.001)\) classes. Similarly, students in the depression vulnerable class had significantly higher resilience scores than students in the limited vulnerability profile \((x^2 = 11.69, p<.001)\).
Summary

There were significant differences in resilience between my three latent mental health profiles. These findings, though intuitive, run somewhat counter to what is typically reported in the resilience literature. That is, while the resilience literature tends to depict resilience as a buffer against the onset of mental health difficulties (Gomathi et al., 2017), these findings signal an alternative view. Namely, resilience may be a social construct that is developed precisely because students experience adversity. If this proposition is valid, then it makes sense that students who belong to the two profiles most consonant with depression symptoms (i.e., the high vulnerability and depression vulnerable profiles) would be the most likely candidates to report higher levels of anxiety and stress and would be the most likely to develop resilience-related skills and competencies. For this reason, it would appear that supporting these students’ mental health needs should proceed with due recognition of their existing resilience and coping skills, and should therefore target the source of their vulnerability—that is, the presence of depression and anxiety symptoms, as well other sources of internal and external stress. The final chapter will be a discussion of the analysis and major findings for this study.
CHAPTER V: 
DISCUSSION

Introduction

The purpose of this study was to analyze relations between the mental health and resilience of undergraduate nursing students during the COVID-19 Pandemic and to describe and explore the immediate responses of nursing students to the COVID-19 Pandemic. The research questions for this study were designed to attend to the psychosocial challenges experienced by today’s nursing students, who are presenting with increased levels of stress and mental health challenges, including higher levels of depression and anxiety.

Research Questions and Methods

Guided by this purpose, this study was structured to explore the following research questions:

1. What are the psychological and logistical challenges nursing students experience during the onset of COVID-19;

2. What risks are they experiencing, including mental health challenges; and

3. What resilience factors or coping mechanisms might nursing students draw from to respond positively and adaptively to COVID-19 related risks and challenges?

In pursuit of this purpose, 277 undergraduate nursing students completed a survey on resilience, grit, stress, coping, depression, and anxiety. Data were collected using a Qualtrics® Survey designed to measure resilience and mental health among upper-division nursing
students. These students were overwhelming upper-middle class, white, cis-gendered, female participants in their early 20s. Several findings were gleaned from the data using a combination of descriptive and correlational statistics, as well as latent class analysis (LCA). While the participants self-reported high resilience, grit, and coping scores, they also self-reported high scores associated with depression, anxiety, and stress. Some participants also self-reported suicidal or self-harm ideations. These findings offer several important implications for nursing education, research, and policy. I begin with implications related to student mental health during the COVID-19 Pandemic.

**COVID-19 and Depression**

Results from my study indicate that undergraduate nursing students may be viewed as a highly resilient group. Important in its own right, this finding of resilience is noteworthy because data were collected near the onset of the COVID-19 Pandemic. For this reason, all students who participated in this study figure to have faced significant social-psychological adversity. Notwithstanding students’ resilience, my data indicated that a significant portion of nursing students were experiencing mental health difficulty at the time that the data were collected. This mental health difficulty was evident in my latent class analysis (LCA) analysis findings. Specifically, study participants who identified as male, white, non-cis-gendered, and first-generation college students had higher mean rates of mental health difficulty.

Since this is a cross-sectional study, the extent to which the students had prior mental health challenges (MHC) before the onset of COVID-19 is unknown. This selection bias impacts the generalizability of this study’s findings as well as the inferences and conclusions that may be drawn from them. In the following section, I describe the empirical and theoretical contributions of the present research. I then offer implications for nursing research, education, practice, and policy.
Resilience and Student Mental Health

The primary novel contribution of this study appears to reside in my findings that examine relations between resilience and student mental health. As noted previously, prior research indicates that resilience is supposed to buffer against, if not prevent mental health challenges. My findings related to resilience, grit, stress, coping, depression, and anxiety indicate that resilience may help students cope—perhaps successfully—with mental health difficulty, even if resilience does not prevent that difficulty from occurring. In fact, my findings—i.e., students’ depression, anxiety, and resilience scores—indicate that students who experience mental health challenges may represent the most resilient students in my sample.

Based on the results of the exploratory, relational analysis and the latent class analysis (LCA) modeling, participants reported high levels of resilience and coping but also reported higher stress scores along with co-occurring mental health issues, such as depression and anxiety. This finding appears to amend the extant literature that has assessed resilience and mental health factors in nursing education (Reyes et al., 2015). According to Reyes et al. (2015), little is known about the resilience of nursing students, but resilience is believed to be a safeguard against mental health difficulty—that is, resilient students appear to present fewer mental health challenges, like depression (Stephens, 2013). However, the results of my study indicate that high levels of resilience and coping is not preventative in this sample population because participants who reported high levels of resilience and coping also generally reported high depression scores.

The literature indicates that resilient students are more likely to have personal protective factors and therefore appear better able to cope socially with their challenges and to perform better academically (Stephens, 2013). Inconsistencies with this finding and existing literature
may be explained by emerging schools of thought which suggests that nursing students with mental health challenges (MHC) have by necessity developed the resilience and coping skills needed to be successful in highly competitive nursing programs. Thus, researchers should consider that future evaluations of the resilience-related competencies and their relationship to mental health may be confounded by selection effects.

The elevated resilience scores evident in my study sample highlights the utility of alternative analytic frameworks, like latent class analysis (LCA), that help to model population heterogeneity in samples that otherwise might appear to be homogeneous. In this study, latent class analysis (LCA) proved to be useful in helping further elucidate students’ mental health challenges and how they might relate to other risk indicators like stress and anxiety.

For example, the high vulnerability mental health profile modeled by latent class analysis (LCA) is estimated to include about 9% of undergraduate nursing students, who present several indicators of mental health difficulty. These students reported sleeping problems, eating problems, image problems, and difficulties with self-concept with high degrees of frequency. Most concerning, they have more than a 50% chance of reporting thoughts about self-harm. Participants in this mental health profile are highly vulnerable for depression, if they are not depressed already.

The depression vulnerable mental health profile is estimated to include about 40% of undergraduate nursing students, who have about a 60% chance of endorsing survey items that measure whether or not students feel down and have difficulties concentrating. These students appear to report several elements of depressive symptomology. And, in the third and final mental health profile, the limited vulnerability class is estimated to represent about 50% of undergraduate nursing students at the sampled university. These students are unlikely to
positively endorse any of the indicators of depression surveyed on the PHQ-9. However, approximately 40% of students in the limited vulnerability class report difficulties with sleep, and they also have about a 40% of reporting feeling fatigued. This is notable because both sleep difficulties and feelings of fatigue may impact overall wellbeing and academic performance.

In summary, these latent class analysis (LCA)-derived classes or profiles provide key indicators of participant mental health and academic outcomes. For some, stress is a positive motivator and facilitator for action. For others, it can become overwhelming and even paralyzing. Of importance, the data indicate that coping scores do not differ much among the three classes, but the mental health issues remain, including tendencies for self-harm. This finding is novel and warrants further investigation to better understand this dynamic and to best serve the mental health needs of this most vulnerable sub-population of students.

**Implications for Research**

This study contributes to the growing body of literature on the mental health of undergraduate nursing students and provides a better understanding of how psychosocial or behavioral factors influence nursing students and nursing education during times of crisis. As discussed, these negative mental health challenges pose serious threats for the optimal learning and development of student nurses and nursing professionals (Gomathi et al., 2017; Stephens, 2013). Research indicates that increasing stress may result in a negative impact on the academic performance, health, and wellbeing of its students (Del Prato et al., 2011). However, current resilience literature indicates that the development of resilience or resilience-related competencies is a key way to offset student stress and/or mental health challenges. Thus, to combat this mounting challenge in nursing education, existing research recommendations focus on the need for nursing programs to foster student resilience.
However, my study findings indicate that nursing student participants in this sample population are highly resilient and report high levels of coping but still present with high frequencies of depression. As such, this is an important potential amendment and novel contribution to the extant resilience literature.

Another important finding from this study concerned the overall distribution of students’ resilience scores. At the beginning of the study, I assumed that students’ resilience scores would be normally distributed. Moreover, as a part of that distribution, I assumed that some students would have high scores and that some students would have low scores—indicating lesser resilience.

As described in the previous chapter, students with the lowest resilience scores had total scores that were indicative of resilient students. There are two potential reasons for this curious finding. First, it could be that the highly selective nursing program that was the subject of this study recruits and attracts students who are highly resilient. As mentioned earlier in this chapter, it is important for researchers to better anticipate the competencies that might exist among students attending highly competitive degree programs, who are likely to be resilient due to the “selection effect.” The “selection effect” is a phenomenon that occurs in response to the nursing program’s rigorous eligibility requirements, which poses problems for both internal and external validity of inferences made about the study findings.

A second potential explanation for this finding of highly resilient participants who report high levels of coping but still present with high frequencies of depression, may be traced to the COVID-19 Pandemic. The higher resilience scores could be because the data were collected during COVID-19, when presumably the participants were all experiencing stress and adversity – which could have ignited their resilience-related competencies. If true, participants may have had elevated resilience scores relative to their pre-COVID-19 standing.
According to Crane et al. (2019) stress is necessary for positive growth and development, provided that individuals manage their stress using adaptive coping strategies. Thus, stress has the potential to provide individuals with important opportunities to develop and strengthen coping strategies that can both foster and improve their resilience (Crane et al., 2019). Based on my latent class analysis (LCA) findings, stress can be beneficial, if the participant positively adapts and copes in response to the stress. However, stress can be detrimental and overwhelming, especially if students’ mental health challenges impede their coping skills.

Nursing students need mental health support and access to student support services to help them in the development of their coping skills and in the management of their depression.

The need exists for nurse educators to better support students in identifying and managing their stress, depression, and anxiety levels during critical times in their nursing education (Chernomas & Shapiro, 2013). It is also essential that nursing programs periodically assess student mental health and provide student support services that address negative psycho-social and emotional concerns among the nursing student population, particularly given the acute needs arising during the COVID-19 Pandemic.

The research literature indicates that nursing students report more stress and anxiety at the beginning of their nursing program, and during their first clinical experience (Del Prato et al., 2011). Results from my study appear to amend the research finding that the first and second semester of nursing school are times of higher stress for nursing students (Gomathi et al., 2017), That is, participants did not report higher rates of stress in the first and second semesters of the upper-division nursing program, as compared to those in later semesters. Here, it is important to note that I have limited data due to low First-Semester participation in my study. A plausible explanation for this finding may be that nursing students in highly competitive nursing programs with higher resilience and coping scores respond and report stress differently from their peers in
other, less competitive programs. Another plausible explanation for similar self-reported rates of stress by participants across all academic semesters is that due to COVID-19, the participants were all experiencing the same set of external stressors, which may have impacted their self-report measures of stress.

This study also extends our existing knowledge of nursing student mental health challenges (MHC) given the vast array of data collected on participants’ depression, anxiety, and stress in relation to their resilience, grit, and coping. Future exploration of nursing student mental health also carries the potential to extend what we now know and to close the knowledge gap on risk, resilience, and mental health of undergraduate nursing students, particularly during times of crisis, such as with the COVID-19 Pandemic.

**Summary of Implications**

Risk, resilience, and mental health factors are emerging areas of interest within nursing education. My study findings call attention to the importance of assessing student mental health and the subsequent need to promote social-emotional learning and self-care for today’s nursing students. Future research recommendations will follow, which may impact nursing research, education, practice, and nursing program policy.

Based on the results of my profile findings, efforts to support nursing students should focus on reducing student stress and supporting their mental health, especially with regard to depression. To attend to this need, assessment of student depression should be routinely conducted in nursing programs. Nurse educators and nursing program administrators may wish to assess nursing student mental health particularly during critical points in the nursing program (e.g., first and second semesters) when students tend to express more stress as the extant literature indicates (Gomathi et al., 2017). Recommendations within nursing education include offering social-psychological support; creating caring, student-centered
learning environments; engaging in formal and informal mentorship programs; introducing a reflective learning model; and cultivating a more inclusive faculty role and behaviors (Reyes et al., 2015).

Findings from this study can be used by nurse educators and nursing program administrators to further investigate how student support services, social-emotional learning, and self-care can be incorporated into traditional nursing education to support the mental health of nursing students. To start, nurse educators need to be reflective of their own capacity to be or become resilient. Reflection and self-assessment of resilience can be achieved through various methods: during professional development training; faculty meetings; and through personal, critical reflection, journaling; and so forth.

By recognizing the importance of resilience development, stress management, and mental health support, nurse educators have the unique opportunity to promote open discourse and foster mental wellbeing in their nursing students. Faculty should support students in the management of their stress by being “available, approachable, and inclusive” because frequent, high quality contact between faculty and students, both inside and outside the classroom, helps establish positive and supportive relationships with students (Clark, 2018).

One important initiative to support student stress reduction may be the implementation of formal and informal mentorship programs, which may contribute to positive coping and stress management “by improving positive and supportive professional relationships, by supporting optimism, emotional insight, life balance and spirituality” (Yilmaz, 2017. P. 11). Nursing students who develop a deeper level of resilience in their nursing programs may transfer those competencies into their professional practice which, theoretically, can help them cope (and perhaps thrive) when faced with high-stress, clinical environments. In addition, a caring, supportive learning environment may enhance faculty-student relationships and promote
professional socialization and empowerment (Reyes et al., 2015). Promoting a supportive learning environment can readily become incorporated into the educational experience within the classroom and clinical settings by implementing reflection – a teaching strategy that integrates personal knowledge, clinical practice, and faculty–student engagement to better understand the implications of one’s care (Reyes et al., 2015).

Moreover, further research and evaluation of the relationship between resilience and mental health is needed to determine if inclusion of resilience and student mental health content in the nursing curricula could benefit the mental health of nursing students. Since resilience, stress management, and mental health are paramount to the nursing profession, nurse educators should consider how to best foster and support the development of these skills in nursing students to support student mental wellbeing and to potentially enhance their academic success.

**Recommendations for Further Research and Development**

The existing knowledge gap and scant literature on the relationship of resilience and mental health highlights a pressing need for more research on student risk factors, resilience, and mental health of undergraduate nursing students, particularly now that they are facing COVID-19, a global health crisis that directly impacts nurses as frontline workers. This need is underscored by the lack of knowledge on the relationship of risk factors, resilience, and mental health for nursing students, especially during the global pandemic.

More research is needed on the ways in which student resilience and coping may help to buffer depression and risks factors such as stress, and now COVID-19 Induced Risk Factors. Although this study provides insight and informs nursing research, education, practice, and policy, there is more to be learned regarding student mental health and its impact on undergraduate nursing education, including future research on the impact of academic performance, student life, and student wellbeing. More specifically, research is needed to better
identify risk factors, indicators, and predictors of depression and anxiety that may exist with the undergraduate student population so that university faculty and support staff can better attend to and support their Mental Health needs.

This study helps to highlight other important priorities for research. For example, longitudinal research on students’ resilience-related competencies is needed. This research is important because nurse clinicians and nurse educators need to know if depression is consistent, chronic, or episodic. Next steps might include conducting longitudinal intervention research on the same participant pool to determine if the present curricula and the clinical experiences in subsequent semesters impact their scores. This research is needed to see if these resilience-related competencies can be enhanced through support-oriented interventions.

A second research need is to examine the resilience and Mental Health of nursing students using a larger, more nationally representative sample. This kind of research is needed in order to enhance the generalizability of my findings, including the depression profiles modeled using my localized sample. One way to improve on this study’s design would be to ask students about their prior mental health challenges (MHC) and to report any mental health challenges (MHC) changes since the onset of COVID-19. This study would afford an understanding of participants’ baseline mental health prior to COVID-19 and the findings may lend greater understanding and generalizability of the pandemic’s impact on the participants’ mental health challenges with the larger, national sample.

A third research need is to better understand the correlates (e.g., stress, sexual orientation, enthusiasm for nursing, age, and academic semester) and antecedents of student resilience and mental health. These analyses were not possible in this study due to limited sample size and because of the largely homogeneous sample of white, cis-gendered women. Future research would therefore benefit by conducting research on nursing programs that enroll more
demographically diverse student populations.

**Limitations**

Limitations for this study include the sample size and population, the rapid transition to online learning in response to COVID-19, the lack of sufficient in-person access to the site and participants for data collection, the inability to conduct in-person recruitment, and the unknowns surrounding prior mental health challenges (MHC) in the sample population.

The study used population-based sampling and the sample was demographically homogeneous particularly in the categories of age, gender, and ethnicity. Additionally, with only 277 complete (or nearly complete) responses, there is a chance that my sample was not entirely representative of the university’s nursing student population and it may not allow for the statistical result to be generalized to other similar nursing programs.

In addition, the sudden onset of COVID-19 and the rapid transition to online learning may have affected (or resulted in hurried) participant responses, which is a potential limitation for this study. It is also important to note that due to the transition to online learning, there was a lack of sufficient in-person access to the site and participants for data collection and in-person recruitment.

Last, since this is a cross-sectional study, the extent to which the students had prior mental health challenges (MHC) before the onset of COVID-19 and the extent to which the students are doing well despite mental health challenges (MHC) is unknown. This begs the question: Were students’ mental health needs adequately supported prior to the pandemic? And if not, what are nursing educators and administrators doing to address student needs for mental health and wellness support? Given the ongoing COVID-19 Pandemic, there is a chance that students’ mental health needs are not being sufficiently assessed and supported.

Moving forward, future research should attend to students’ prior Mental Health
experiences and how those experiences might inform their current Mental Health status and standing. This research need calls for additional attention to another important limitation of this study: it is unknown if participants were struggling with mental health challenges prior to the onset of COVID-19. Indeed, students’ past-present mental health needs remain an important priority for future research and development on undergraduate nursing student populations.

**Conclusions**

A growing body of research on resilience and mental health in nursing education has identified student resilience and mental health as important to the profession. However, little research has been done to explore the relationship between student risk, resilience, and mental health factors. Further, there is scant literature on the relationship between student risk, resilience, grit, coping, depression, anxiety, and stress for nursing students, particularly during times of crisis, such as during the COVID-19 Pandemic. In response to this knowledge gap, my study was designed to attend to relationships between student perceptions of resilience and its relationship with other psychosocial and mental health factors.

My analyses yielded surprising relationships between student mental health and resilience. Specifically, while my descriptive results largely failed to uncover relationships between student resilience and mental health, my latent class analysis (LCA) profile analyses yielded several significant relationships. Key among them were that students who had the most severe/concerning depression scores appeared to, on average, have the highest resilience scores. This finding appears to amend the extant resilience literature, which maintains that resilience acts as a buffer against the onset of mental health difficulties (Gomathi et al., 2017). Rather, my findings indicate that resilience might be better viewed as a social construct that is developed as students experience adversity, which leads to a plausible explanation of why students belonging to the two profiles most consistent with depression symptoms (i.e., the high vulnerability and
depression vulnerable profiles) would be likely to develop resilience-related skills and competencies. Ultimately, supporting student mental health needs should focus on their greatest source of vulnerability, the presence of depression and anxiety symptoms, since students with mental health needs already appear to be using the bulk of the personal competencies to address them.

Increasingly, nurse educators are concerned that while nursing students may excel academically, student mental health may be negatively impacted by the high stress, highly competitive learning environment present in nursing education, today (Chernomas & Shapiro, 2013; Gomathi et al., 2017; Reyes et al., 2015). Consequently, it is imperative for nurse educators to be aware and knowledgeable of the complex nature of mental health to better foster stress management skills among students, to engage students in formal and informal mentoring, and to create caring, supportive, and inclusive learning environments for students, which may eventually lead to the development of healthier work environments for practicing nurses. My study lays the foundation for more research that can lead to practices that enhance the likelihood that students’ social-emotional and mental health needs are supported throughout their programs of study. If this study helps inform the development of better and more targeted student support programs for nursing education, it will have achieved one of its primary purposes.
REFERENCES


Rosychuk, R. J., Bailey, T., Haines, C., Lake, R., Herman, B., Yonge, O. et al. (2008). Willingness to volunteer during an influenza pandemic: Per-spectives from students and staff at a large Canadian university. Influenza and Other Respiratory Viruses, 2(2), 71-79.


APPENDIX A:

INSTRUMENT

Answered using a Likert Scale with responses ranging from Strongly agree to Strongly disagree; Very much like me or Not at all like me; Not at all to Nearly every day; Never to Very Often; or Not at all true to Completely true.

1. When I make plans, I follow through with them.

2. I usually manage one way or another.

3. I am able to depend on myself more than anyone else.

4. Staying interested and engaged in life is important to me.

5. I can be on my own if I have to.

6. I feel proud that I have accomplished things in my life.

7. I usually take things in stride.

8. I am friends with myself.

9. I feel that I can handle many things at a time.

10. I am determined.

11. I seldom wonder what the point of it all is.

12. I take things one day at a time.

13. I can get through difficult times because I've experienced difficulty before.

14. I have self-discipline
15. I keep interested in things.

16. I can usually find something to laugh about.

17. My belief in myself gets me through hard times.

18. In an emergency, I'm someone people can generally rely on.

19. I can usually look at a situation in a number of ways.

20. Sometimes I make myself do things whether I want to or not.

21. My life has meaning.

22. I do not dwell on things that I can't do anything about.

23. When I'm in a difficult situation, I can usually find my way out of it.

24. I have enough energy to do what I have to do.

25. It's okay if there are people who don't like me.

26. New ideas and projects sometimes distract me from previous ones.

27. Setbacks don't discourage me.

28. I have been obsessed with a certain idea or project for a short time but later lost interest.

29. I am a hard worker.

30. I often set a goal but later chose to pursue a different one.

31. I have difficulty maintaining my focus on projects that take more than a few months to complete.

32. I finish whatever I begin.

33. I am diligent.
34. I have little interest or pleasure in doing things.

35. I feel down, depressed or hopeless.

36. I have trouble falling asleep, staying asleep, or sleeping too much.

37. I feel tired or have little energy.

38. I have a poor appetite or overeat.

39. I feel bad about myself - or I feel that I am a failure or I have let myself or my family down.

40. I have trouble concentrating on things, such as reading the newspaper or watching television.

41. I move or speak so slowly that other people could have noticed. Or, the opposite - I am so fidgety or restless that I have been moving around more than usual.

42. I have thoughts that I would be better off dead or of hurting myself in some way. Not at all, Several Days, More Than Half the Days, Nearly Every Day)

43. I feel nervous, anxious, or on edge.

44. I am not able to stop or control worrying.

45. I worry too much about different things.

46. I have trouble relaxing.

47. I am so restless that it's hard to sit still.

48. I become easily annoyed or irritable.

49. I feel afraid as if something awful might happen.

50. In the last month, how often have you been upset because of something that happened unexpectedly?

51. In the last month, how often have you felt that you were unable to control the important things in your life?
52. In the last month, how often have you felt nervous and “stressed?”

53. In the last month, how often have you felt confident about your ability to handle your personal problems?

54. In the last month, how often have you felt that things were going your way?

55. In the last month, how often have you found that you could not cope with all the things you had to do?

56. In the last month, how often have you been able to control irritations in your life?

57. In the last month, how often have you felt that you were on top of things?

58. In the last month, how often have you been angered because of things that were outside of your control?

59. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

60. I am a “take charge” person.

61. I try to let things work out on their own.

62. After attaining a goal, I look for another, more challenging one.

63. I like challenges and beating the odds.

64. I visualize my dreams and try to achieve them.

65. Despite numerous setbacks, I usually succeed in getting what I want.

66. I try to pinpoint what I need to succeed.

67. I always try to find a way to work around obstacles; nothing really stops me.

68. I often see myself failing so I don't get my hopes up too high.

69. When I apply for a position, I imagine myself filling it.

70. I turn obstacles into positive experiences.
71. If someone tells me I can't do something, you can be sure I will do it.

72. When I experience a problem, I take the initiative in resolving it.

73. When I have a problem, I usually see myself in a no-win situation.

**Demographic Questions**

Please indicate your Academic Class.

- Sophomore
- Junior
- Senior
- 5th Year Senior

Please indicate your (currently enrolled) Semester of Upper Division.

- 1st Semester
- 2nd Semester
- 3rd Semester
- 4th Semester
- 5th Semester

Please indicate your age.

- 19 years old
- 20 years old
- 21 years old
- 22 years old
- 24 years old

Please indicate your gender.

- Male
- Female
- Other (specify)

Please indicate your sexual orientation.

- Heterosexual
- Homosexual
- Bisexual
- Other
- Prefer not to say
I am Hispanic, Latino(x), or of Spanish origin.

- Yes
- No

Please indicate your ethnicity.

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Other

Please indicate your parent's yearly income.

- Less than $24,999
- $25,000 - $49,999
- $50,000 - $74,999
- $75,000 - $99,999
- $100,000 - $124,999
- $125,000 - $149,999
- More than $150,000

Please indicate your employment status

- Employed Full Time
- Employed Part Time
- Employed Work Study Student
- Unemployed not looking for work
- Unemployed looking for work

Please indicate your relationship status.

- Married
- Single
- Divorced
- Separated
- Engaged
- Committed Relationship

I am a First Generation College Student.

- Yes
- No
I have been tested for COVID-19.

- Yes
- No

I have been diagnosed with COVID-19.

- Yes
- No

Someone that is close to me has been diagnosed with COVID-19.

- Yes
- Maybe
- No

I am separated from my primary belongings (e.g., clothes, vehicles, etc.) or primary learning materials (e.g., books, notes, devices, etc.).

- Yes
- No

I am practicing social distancing.

- Yes
- Somewhat
- No

I currently have social contact with friends or family.

- A great deal
- Alot
- A moderate amount
- A little
- None at all

I previously had social contact.

- A great deal
- Alot
- A moderate amount
- A little
- None at all
I am currently living in this type of housing.

- House
- Apartment
- With Parents
- With Family or Friends
- Homeless

I previously lived in this type of housing this semester.

- On-campus Housing
- Fraternity/Sorority House
- House
- Apartment

I am currently leaving my home this often.

- Daily
- 4-6 times a week
- 2-3 times a week
- Once a week
- Never

I previously left my home this often.

- Daily
- 4-6 times a week
- 2-3 times a week
- Once a week
- Never
APPENDIX B:

IRB APPROVAL

March 31, 2021

Abby Horton, MSN, RN
Clinical Instructor
Capstone College of Nursing
The University of Alabama
Box 870358

Re: IRB # 19-12-3131-R1 “Immediate Reactions to COVID-19 Pandemic: Exploring Resilience and Mental Health Factors Among Undergraduate Nursing Students”

Dear Ms. Horton:

The University of Alabama Institutional Review Board has granted approval for your renewal application. Your renewal application has been given exempt approval according to 45 CFR part 46.101(b)(2) as outlined below:

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

The approval for your application will lapse on March 30, 2022. If your research will continue beyond this date, please submit the annual report to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Good luck with your research.

Sincerely,

[Signature]

Carpettato T. Myles, MSN, CIP, CIP
Director & Research Compliance Officer
April 20, 2020

Abby Horton, MSN, RN
Capstone College of Nursing
Box 870350

Re: IRB # 19-12-3131: "Immediate Reactions to COVID-19 Pandemic: Exploring Resilience and Mental Health Factors among Undergraduate Nursing Students"

Dear Ms. Horton,

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given exempt approval according to 45 CFR part 46. Approval has been given under exempt review category 2(i) as outlined below:

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if: (ii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects; and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

The approval for your application will lapse on April 19, 2021. If your research will continue beyond this date, please submit the annual report to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the IRB-approved flyer and informed consent form to obtain consent from your participants.

Sincerely,

[Signature]

[Position]

cc: Dr. Michael Lawson