Exploring the associations among Life Stress, State Anxiety, Academic Resilience, and Program Completion for Baccalaureate Nursing Students

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ABSTRACT

EXPLORING THE ASSOCIATIONS AMONG LIFE STRESS, STATE ANXIETY, ACADEMIC RESILIENCE, AND PROGRAM COMPLETION FOR BACCALAUREATE NURSING STUDENTS

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Northern Illinois University, 2022
Carrie Kortegast, Director

Background: Nursing schools across the country are struggling to respond to the rising demand for registered nurses. Factors that impact baccalaureate nursing student attrition must be addressed to increase the number of well-educated and skilled nurses. Method: Utilizing a non-experimental, longitudinal, survey design, the relationships among life stress, state anxiety, academic resilience and targeted program completion were explored with one cohort of baccalaureate nursing students (n=46). Results: No statistical association was found between life stress levels or scores and graduating on target, or between academic resilience scores and graduating on target. However, there was an association between level of state anxiety and graduating on target (p = .009). Having a moderate level of state anxiety predicted whether students graduated on target (p = .044) in that students with moderate levels of state anxiety were 4.7 times more likely to graduate on target than their counterparts who reported high levels of state anxiety. Further, state anxiety admission scores predicted whether students graduated on target (p = .002). Being an English Second Language (ESL) student was associated with graduating on target (p = .004) and being an English second language learner was associated with state anxiety (p = .031). Conclusion: These findings are valuable in identifying students who may have difficulty graduating on target and need additional support in persisting to graduation.
Further research is needed to determine how state anxiety impacts nursing students’ ability to complete their program on target, especially English second language students. Additional research is also needed to identify what resources can best support students and reduce attrition.

Keywords: baccalaureate nursing students, life stress, state anxiety, academic resilience, targeted program completion
NORTHERN ILLINOIS UNIVERSITY
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EXPLORING THE ASSOCIATIONS AMONG LIFE STRESS, STATE ANXIETY, ACADEMIC RESILIENCE, AND PROGRAM COMPLETION FOR BACCALAUREATE NURSING STUDENTS

BY

MARY JO FRICHTL
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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF EDUCATION

DEPARTMENT OF COUNSELING AND HIGHER EDUCATION

Doctoral Director:
Carrie Kortegast
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I found completing this dissertation to be extremely challenging and rewarding, as I navigated the process of data collection and analysis in the midst of the Covid-19 pandemic. I grew in countless ways, as I sought to explore the associations among life stress, state anxiety, academic resilience, and targeted program completion for baccalaureate nursing students. Despite my hard work, my success would not have been possible were it not for the support and guidance of my Chair, Dr. Kortegast, and other committee members: Dr. Hu, Dr. Dalstrom, and Dr. Matheson. Thank you all for your insight, encouragement, thoughtful and timely feedback, and ongoing support.

Special thanks to my amazing husband for his continual love and support, to my parents for instilling the values of hard work and a love of learning, to my students for inspiring me more than I can say, and most of all for God who called me to nursing and nursing education and who walks with me every moment of every day.
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PREFACE

The purpose of this dissertation was to explore the associations among life stress, state anxiety, academic resilience, and targeted program completion for baccalaureate nursing students. This correlational study involved 46 nursing students from a small college of nursing in the Midwest. Students were surveyed regarding their life stress, state anxiety, and academic resilience at the beginning of their nursing program. Two years after admission, when students were expected to graduate, student outcome data were reviewed to determine whether students graduated on target. The following chapters describe this research project including the proposal, the findings, and a scholarly reflection of the study.

Chapter 1 is an artifact from the dissertation proposal defense. The proposal was defended in March of 2022 and outlines the initial plans to carry out the study. The original theoretical framework for this study was resiliency theory. During the study, it was determined that the theory would not be appropriate, and therefore it was removed from the study. While the purpose of the study remained consistent from the proposal to its conclusion, the original research questions were revised to align with the data that were collected and analyzed.

Chapter 2 is a report of the findings in the form of an academic paper. This chapter details the procedures carried out from September 2019 through February 2021. All major components for a publishable research article were thoroughly developed and included in this chapter. This chapter includes an abstract, purpose of study, research questions, review of
Chapter 3 is a scholarly reflection of the process I engaged in to see this study from inception to conclusion. The reflection presents the development of the study, the research process which I used in conducting the study, successes, and challenges I encountered, and the many things I learned through engaging in this research project. I gained a great deal of knowledge, experience, and confidence in conducting research that will assist me in practice and in conducting future research. Further, I learned the importance of proper planning, collaboration, and remaining flexible in the face of adversity.
The United States is anticipating an extensive shortage of registered nurses, which is expected to intensify with the aging of baby boomers and the expansion of universal healthcare needs. This issue is further complicated by nursing schools across the country struggling to increase capacity to respond to the rising demands for care and the move toward healthcare reform. The shortage of registered nurses in the United States is expected to spread throughout the United States from 2009 to 2030. The Bureau of Labor Statistics projects the need for an additional 203,700 registered nurses each year until 2026 to fill positions to replace retiring nurses (Jurascheck et al., 2012).

An increasing body of knowledge has linked nurses’ educational level with patient outcomes. Specifically, an increased number of baccalaureate-prepared nurses caring for hospitalized patients was associated with decreased morbidity and mortality and failure-to-rescue rates (Blegen et al., 2013; Kutney et al., 2013). A landmark report, “The Future of Nursing,” called for an increase of baccalaureate-prepared nurses in the workforce. The goal was to have 80% of nurses by 2020 be baccalaureate-prepared as well as to double the number of nurses with doctoral degrees (Institute of Medicine, 2011). Currently, the nursing workforce falls far short of these recommendations, with only 55% of registered nurses having baccalaureate or graduate degrees (American Association of Colleges of Nursing [AACN], 2012a). Considering these findings, efforts should be made to not only address the nursing shortage but to do so with a
greater focus on preparing nurses at the baccalaureate level to help ensure access to high quality and safe patient care.

While research supports increasing baccalaureate-prepared nurses at the bedside, there are several challenges to meeting this goal. Two major issues include a decreasing applicant pool for baccalaureate nursing programs and attrition from baccalaureate programs. Obtaining a four-year degree can be both arduous and intimidating for potential students. As a result, students may choose instead to pursue an associate degree in nursing. A decrease in baccalaureate enrollment may also be related to the smaller number of baccalaureate programs. According to the National League for Nursing (NLN, 2015b), of the 1,869 nursing programs in the United States, 710 are baccalaureate, 1,092 are associate, and 67 are diploma programs. While increasing the number of baccalaureate nursing programs is a worthwhile goal, so are addressing student retention and completion of such programs as well as the factors that may impact student success.

Baccalaureate nursing programs experience significant attrition due to the unique stressors encountered in nursing education, including competing personal responsibilities of students (Ascend Learning, 2012). While admission requirements for various baccalaureate nursing programs may be similar across institutions, personal factors and academic outcomes for individual students often vary. Many students enrolling in nursing programs may have difficulty coping with the stressors associated with baccalaureate nursing education once admitted. Ultimately, students who are unable or unwilling to meet the rigors associated with nursing school may withdraw or potentially be dismissed from their program of study. Further, identifying students who are at-risk for academic failure continues to be a challenge for nursing faculty, staff, and administration.
To meet the nursing shortage demand and optimize patient outcomes, there is a need to increase the number of baccalaureate prepared nurses. As programs and students who choose to enroll are limited, student retention becomes much more critical. Further study is needed to determine whether and how student stress, anxiety, and resiliency impact program completion and what additional support may be needed to enhance student retention and program completion.

The purpose of this quantitative study was to explore the associations among life-stress, state anxiety, and academic resilience in baccalaureate nursing students and how these personal characteristics impact students’ ability to persist to graduation. This study is grounded in resilience theory. Life-stress was defined and measured using the Holmes-Rahe Stress Inventory, anxiety was defined and measured using the State Trait Anxiety Inventory (STAI), state anxiety only, and academic resilience was defined and measured using the Academic Resilience Scale (ASR-30). In addition, sociodemographic and academic data were gathered from each participant.

Research Questions

The research questions for this study are

1. How do nursing students rate their levels of life-stress, state anxiety, and academic resilience?
   a. Is there a relationship between these levels and nursing student demographics?

2. Are levels of life-stress, state anxiety, and academic resilience associated with program completion in nursing students?
   a. If so, does it vary by specific demographic and personal characteristics?
Review of Relevant Literature

This study was guided by the literature on stress, anxiety, and resiliency as experienced by baccalaureate nursing students. The presence, predictors, sources, and personal characteristics associated with stress in baccalaureate nursing students are presented. Next, the presence and negative effects of anxiety are presented. State and trait anxiety are then specifically addressed. Afterwards, the presence and negative effects of cognitive test anxiety are addressed, with special focus on academic performance. Resiliency literature is then presented, including the concept/attribute of resiliency, the value of resiliency, and factors that impact resiliency in baccalaureate nursing students. Finally, resiliency is presented as the theoretical perspective through which this study was viewed.

This study is important because it adds to the current body of knowledge on life stress, anxiety, and resilience among baccalaureate nursing students. Uniquely, this study explored all three variables in one study and did so from a longitudinal perspective following one cohort of students from admission to graduation. In doing so, this study has the potential to inform the practice of nursing education by studying how these variables correlate to program completion. In gaining this insight, nurse education administration, faculty, and staff can develop and implement resources for student support, and potentially decrease student attrition.

Stress and Baccalaureate Nursing Students

Stress encountered by baccalaureate nursing students has been well documented. Nursing students reported more stress and stress related illness, such as anxiety and sleep disturbances, than undergraduate students studying in other disciplines (Barlett, Taylor, & Nelson, 2016).
While psychosocial and biological responses in nursing students were found to be within normal ranges, one third of students were found to experience moderate to high levels of stress (Kang et al., 2015). Moreover, several studies supported the findings that nursing students experience moderate to severe stress in their programs (Ali & Ali, 2016; Goff, 2011; Hegge & Larson, 2008; Labrague, 2013; Labrague et al., 2017; Liu et al., 2015).

One contributor to nursing students’ stress is the amount of time students spend on their coursework. Stress levels were found to be significantly increased in students who spent more than 20 hours per week on homework and/or studying for exams (Jones et al., 2018). However, it was unclear whether the stress experienced was a result of the number of hours spent on coursework or whether the stress caused students to spend more time studying. However, high levels of personal and academic stress in nursing students have not been found to be predictive of academic performance (Goff, 2011).

Nursing student demographics and backgrounds have been linked with perceptions of stress during their program. Overall, there have been mixed findings regarding links between gender and stress for nursing students. Female nursing students reported higher stress levels than male students did (Murdock & Perlow, 2010). However, Jones et al. (2018) found no difference in stress levels based on gender. These divergent findings suggest that varied stressors and the perception of such stressors may be impacted by gender. Further, the body of literature reviewed on stress and gender in baccalaureate nursing students was limited in scope, as only male and female gender identities were explored.

Minority students faced additional barriers, which included discrimination from faculty, peers, nursing staff, and patients. These barriers included bias in faculty grading practices and isolation (Graham et al., 2016). Major stressors for female African American students were
academic, environmental, financial, interpersonal, and personal (Kirkland, 1998). While these stressors were common among all students, they may be compounded for minority students. Students of color reported encountering prejudice, discrimination, and racism in their nursing education program and during clinical experiences (Amaro et al., 2006). These findings suggest that minority students face additional challenges and unique stressors as they pursue a baccalaureate degree in nursing and, thus, may need additional support to be successful in fulfilling program requirements.

Additionally, several personal characteristics were associated with stress in nursing students. For instance, a history of depression, year in program, emotional support, and self-esteem were significantly related to stress in senior nursing students. Specifically, history of depression and year in program had a positive relationship to stress, with fourth year students having a higher level of stress than their third-year counterparts. Further, students with higher self-esteem reported lower levels of stress than their peers with lower self-esteem did. Finally, students who had emotional support from friends and family reported less stress than students who had more limited support (Wolf et al., 2015). However, at the end of the first semester, self-efficacy increased, suggesting that self-efficacy may increase at the end of the first semester of the junior year as students learn to overcome difficult circumstances (Taylor & Reyes, 2012). In addition, nursing students who engaged in more self-care behavior reported less stress as they progressed through their program of study (Hensel & Laux, 2014).

Sources of Stress

The major stressors for nursing students identified in the literature were academics, clinical experiences, and personal issues. Academic stressors most frequently identified included
heavy coursework, with a large volume of material to be learned in a short period of time, frequent writing assignments, group assignments, and examinations (Gibbons et al., 2011; Hegge & Larson, 2008; Labrague, 2013; Labrague et al., 2017; LeDuc, 2010; Liu et al., 2015; Weitzel & McCahon, 2008). Specifically addressed were high stakes testing in senior level students, resulting in stress that ranged from fear of not graduating to social isolation and withdrawal (Gannon-Tagher & Robinson, 2016).

Clinical stressors for baccalaureate nursing students were also identified and included fear of making a mistake, fear of clinical failure, clinical incompetence or freezing up, dealing with uncomfortable patient/family situations, incivility by healthcare staff and instructors, inconsistencies, and time constraints (Cowen et al., 2016; Le Duc, 2010; Liu et al., 2015; Reeve et al., 2013; Wallace et al., 2015; Wolf et al., 2015). In contrast, a sense of belonging in clinical placement had an inverse relationship to stress in nursing students (Grobecker, 2016). Personal stressors were also identified by nursing students and included balancing time, work, school, and family responsibilities as well as finding opportunities to relax, concerns about finances, grade competition, difficulty sleeping, faculty incivility, pressure to succeed, and fear of failure (Clark et al., 2014).

Students’ year and semester in program were found to be a predictor of stress in nursing students (Labrague, 2013). First semester nursing students reported the greatest amount of stress when compared to nursing students in subsequent semesters. First semester students often struggled with time management and procrastination and were overwhelmed by the amount of coursework. Year of study significantly correlated with students’ perceived stress, with second year students reporting the lowest level of stress when compared to peers in the other three class groups (Liu et al., 2015). Senior nursing students continued to struggle with time management
overwhelming workloads, family obligations, financial concerns, unclear/unrealistic expectations by faculty, poor communication between professors, and work responsibilities (Critz & Feagai, 2014). Other stressors for senior nursing students included fear of failure, clinical incompetence, and problematic relationships with faculty and fellow students (Wolf et al., 2015). However, Murdock and Perlow (2010) found no difference in the stress levels of students based on semester or educational level.

While both junior and senior baccalaureate nursing students struggled with time management, the findings suggest that senior nursing students may be better able to manage workloads related to program requirements. However, fear of failure, clinical incompetence, relationships with faculty and peers, and a sense of unrealistic program expectations caused a major amount of stress for senior students.

Anxiety and Baccalaureate Nursing Students

Much like the stress identified in baccalaureate nursing students, nursing students reported experiencing higher levels of anxiety than the overall population of college students (Gibbons et al., 2011). Excessive anxiety can result in altered physical health and impaired cognitive function and compromise students’ ability to effectively care for patients (Cheung & Au, 2011; Melincavage, 2011). While various forms of anxiety exist, the following focuses on state anxiety, trait anxiety, and test anxiety.

State anxiety is a temporary emotional state resulting from “exposure to a specific situation or stimulus” (Fernandez-Castillo & Caurcel, 2014, p. 265). State anxiety can have both physical and cognitive manifestations. Such manifestations can include but are not limited to sweating, nausea, increased blood pressure, and increased pulse (Ongel et al., 2015). In addition,
high levels of state anxiety have been found to adversely impact one’s attention (Fernandez-Castillo & Caurcel, 2014). State anxiety can be observed in a variety of settings, including the academic setting. Extremely high levels of anxiety were found in 35% of higher education students during examinations (Alvarez et al., 2012). This is of concern because high levels of anxiety have been associated with a decrease in attention, concentration, and cognitive performance (Alvarez et al., 2012; Gass & Curiel, 2011).

Trait anxiety refers to differences in anxiety-proneness in relatively stable individuals. Specifically, trait anxiety addresses differences between people in the tendency to perceive stressful situations as dangerous or threatening and to respond to such situations with elevations in the intensity of their state anxiety (Mascarenhas & Smith, 2011). Student nurses experienced state and trait anxiety at very high levels when compared to college students overall, with nursing students experiencing the highest levels in beginning clinical courses (Stevens et al., 2019; Wedgeworth, 2016).

While both state and trait anxiety were discussed in the literature, most studies exploring anxiety in baccalaureate nursing students focused specifically on test anxiety. Test anxiety involves two components that are distinct and co-varied and include worry and emotionality (Spiegler et al., 1968). Since this condition was first described, various studies have explored test anxiety as well as other variables that may affect academic achievement in undergraduate students. Two major stressors affecting undergraduate nursing students included the vast amount of information that must be learned in a relatively short period of time as well as the frequent tests (LeDuc, 2010). Frequent testing of nursing students, however, is important to not only ensure safe practice but to verify attainment of appropriate knowledge and skill acquisition. Further, frequent testing serves as a valuable tool by which to prepare students for success on the
National Council Licensure Examination for Registered Nurses (NCLEX-RN), an examination that all students must pass following graduation to practice as a registered nurse. While frequent testing is a common practice in most successful undergraduate nursing programs, these tests can produce a great deal of stress and anxiety for students, potentially compromising their academic success.

Thirty percent of nursing students experienced the detrimental effects of test anxiety, including anxiety related to academic performance (Shapiro, 2014). Increased cognitive test anxiety along with more emotionally focused coping strategies were important predictors of overall academic outcomes, including a lower four-year grade point average (Thomas et al., 2017). Cognitive test anxiety was negatively associated with both indicators of performance and was positively associated with maladaptive perfectionism and avoidance goal orientations. Nearly 50% of the variance in cognitive test anxiety was related to gender, perfectionism, and goal orientations. Further, the results of the study suggest that students who are highly test anxious are more likely to have avoidance goal orientations, be women, and be maladaptively perfectionistic (Eum & Rice, 2011). Significant correlations were also found between test anxiety and academic procrastination, with higher grade point averages found in nursing students who exhibited less academic procrastination (Custer, 2018).

Moreover, a negative relationship was found between test anxiety and grade point average. When compared to male undergraduate and graduate students, higher levels of test anxiety and higher grade point averages were found among female undergraduate and graduate students (Chapell et al., 2005). In addition, statistically significant lower examination grades were observed with student experiencing high levels of test anxiety when compared to students with low levels of cognitive test anxiety (Duty et al., 2016). This suggests a relationship between
high levels of cognitive test anxiety and a reduction in academic performance. In addition, a positive relationship was found between age and academic performance in that older student outperformed their younger counterparts and reported less perceived stress (Goff, 2011). However, intrinsic motivation may moderate the negative effects of test taking anxiety on academic achievement (Khalaila, 2015).

Lastly, ethnic/racial differences were explored between African American and Europeans Americans. Within the overall group, there was a negative association found between test anxiety and global cognition in that higher levels of test anxiety were associated with lower cognitive performance. However, there were no significant gender differences between ethnic/racial groups. A major source of cognitive anxiety included concerns about test preparation. This variable was negatively associated with memory and learning performance, whereas higher scores for concern regarding test preparation were associated with poorer performance on tasks, especially those involving learning and memory. In contrast, anxiety regarding future security was positively associated with performance related to the speed of processing of information (Thames et al., 2015).

Despite these commonalities, differences were found between African Americans and Europeans Americans regarding sources of anxiety (Thames et al., 2015). African Americans reported more concern over negative performance evaluations regarding how others may view their negative performance and concerns about self-image. Whereas, African Americans and European Americans demonstrated similar levels of test anxiety, the levels were unrelated to poor performance evaluations. Further, there was no significant correlation between overall scores on test anxiety in European Americans (Thames et al., 2015).
These findings underscore the prevalence and significance of test anxiety in addition to its potential to impact cognition and performance. Additionally, these findings identify how one’s ethnicity can further impact the experience of test anxiety. While this study did not specifically address baccalaureate nursing students, the findings may further inform understanding of test anxiety in this population of students.

Resiliency in Baccalaureate Nursing Students

Increasingly, scholars are interested in understanding nursing students’ resiliency, as it relates to academic success. Resilience is understood to be a multi-dimensional attribute involving both environmental and intrapersonal components (Beddoe et al., 2013; McDermid et al., 2016). The environmental factors involve peer and social support as well as one’s sense of belonging. The intrapersonal characteristics involve altruism, a disposition of control, self-confidence, responsiveness, and positivity (McAllister & McKinnon, 2009; Tusaie & Dyer, 2004). Within the literature, resilience and resiliency are often used interchangeably; therefore, for this review, both resilience and resiliency will refer to the presence of positive coping skills during adverse situations, and one’s ability to self-regulate and move in a positive direction following difficult situations (Beddoe et al., 2013; Jackson et al., 2007). Closely associated with resilience and the psychological attribute of resiliency in one’s ability to cope with adversity is that of academic resilience.

Resilience for student nurses provides valuable benefits for handling adversity and may be an important quality for their ultimate success and retention in the workforce. Cleary et al. (2018) found a positive relationship between resilience and performance in undergraduate students, including those in professional placements. Resilience consistently revealed a positive
influence on nursing students, including clinical communication (Kong et al., 2016), reduced fear of death (Edo-Gual et al., 2015), improved wellbeing (Zhao et al., 2016), and greater student retention (Slatyer et al., 2016). This resilience was demonstrated through perseverance, despite challenges, and was a contributing factor in their academic success and degree completion (Carroll, 2011; Crombie et al., 2013; Williamson et al., 2013). Nursing students described resilience as possessing the determination to succeed instead of retreating in the face of challenges (Carroll, 2011). Students reported that resilience allowed them to persist despite faculty bullying (Mott, 2013). Furthermore, students reported that resilience played a major role in their assertiveness in handling the aggressive behaviors of clinical staff in their placements (Jackson et al., 2011). School staff members attributed students’ resilience to their ability to remain in the nursing program (Williamson, et al., 2013).

Several factors were identified that contribute to resilience including support, time, and empowerment (Thomas & Revell, 2016). Major sources of support included family, friends, and faculty (Crombie et al., 2013). Older students scored higher on resilience tools than did their younger counterparts, suggesting that individuals become more resilient as they age (Pitt et al., 2014). In addition, men and African American students demonstrated greater levels of resourcefulness than did women and Caucasian students (Goff, 2011). While personal resilience may prove beneficial in meeting the challenges of nursing school, many students may lack this quality. When considering personal stressors experienced in the past year, Lekan et al. (2018) found only 33.3% of students surveyed to be resilient. These finding underscore the importance of helping students grow and develop resilience to aid them not only in their academic success but in transitioning into practice following graduation.
Theoretical Framework

This study was grounded in resilience theory, which served as the lens through which the survey questions were developed and interpreted. Resilience was conceptualized in the literature as either a trait or a process. In several studies, resilience was presented as a personal trait or an innate characteristic of an individual (Beauvais et al., 2014; Crombie et al., 2013; Pitt et al., 2014; Stephens, 2013; Taylor & Reyes, 2012; Williamson et al., 2013). Still other studies suggested resilience was a process. This process was described as “struggling through” bullying behaviors (Mott, 2013, p. 115) or “making it through” (Carroll, 2011, p. 66). Further, Stephens (2013) described resilience as being a process that involves growth and development and can be learned and taught. In learning to be resilient, one uses personal protective mechanisms to cope with adversities. These mechanisms can be internal – such as hope, optimism, and self-efficacy – or external, such as supportive relationships (Stephens, 2013).

Resilience is considered a psychological construct that can be found in certain individuals and explains their ability to achieve success despite personal adversity (Cassidy, 2016). Varied approaches to studying resilience have resulted in shifts in how resilience is understood. Early research viewed resilience as a stable personality trait that was either present or absent; however, the contemporary perspective suggests that resilience is a dynamic process that can be taught, developed, enhanced, and modified; it can also be an outcome (Reyes et al., 2015a; Sanderson & Brewer, 2017).

Internationally, research on resilience has considerably expanded in the past 20 years to better understand how people bounce back and cope with the various challenges they experience throughout their lifespan (Windle, 2011). Academic resilience refers to the increased probability
of success despite environmental challenges (Wang et al., 1994). The four characteristics identified as resilient that are central in young adults include using an active approach to problem solving, tending to identify experiences in a positive light despite the level of suffering, being able to win the positive attention of others, and having a strong reliance on faith to maintain an optimistic view on life (Werner & Smith, 2001). In addition, resilient students are those who display high motivational achievement and performance despite conditions that place them at risk for poor performance (Alva, 1991).

Waxman et al. (2003) asserted that by studying resilience in students, valuable insight may be gained regarding students at risk for academic failure. Further, by understanding factors that place students at risk for academic failure, needed support may be put in place to aid in student success. McLafferty et al. (2012) found that resilience effectively predicted coping at the university level, with resiliency noted as the only significant predictor of coping subscales for attendance, studying, and grades. These findings suggest a strong correlation between academic resilience and students’ success, secondary to class attendance, studying and grades. Abiola and Udofia (2011) found that medical students with low resilience reported higher levels of perceived stress and anxiety, after completing a major professional examination. These findings further support a possible relationship among stress, anxiety, and resiliency.

The discipline of nursing refers to resiliency as one’s ability to regenerate strength to effectively respond to the internal and external environment to survive, grow, and enhance one’s development (Jones, 1991). For nursing students, the journey through a nursing program is accompanied by both classroom and clinical challenges. Current opinion suggests that resilience is a necessary attribute for surviving and thriving in stressful situations and is essential for the 21st century (McAllister & Lowe, 2011; Sanderson & Brewer, 2017). An increasing body of
knowledge identified the value of resilience in nursing education and supports the premise that resilience will better prepare nursing students for academic success (Chamberlain et al., 2016). Resilience will help them face challenges and help them bounce back when faced with setbacks and other challenges (Reyes et al., 2015a). Students who develop resilience will make a smoother transition to practice following graduation, which is essential in an increasingly complex and chaotic healthcare environment (Reyes et al., 2015a; Stephens, 2013).

A limited number of studies have explored resiliency among baccalaureate nursing students or methods by which nursing students can enhance their resiliency. Further, no studies were found that examined the relationship between resilience and successful course and program completion in baccalaureate nursing students. However, several studies have used resiliency theory as a theoretical framework. Resiliency theory was applied to a school-based sexual abuse program and was found to provide a long-term view of one’s ability to cope (Barron et al., 2015). In addition, a risk-protective model of resilience was used to study the link between helplessness and mental health. The findings suggest that a sense of control may help protect individuals from the negative consequences associated with feelings of helplessness (Zimmerman et al., 1999). In addition, these studies suggest that both intrinsic and extrinsic variables may be involved in ultimately determining whether a nursing student is successful. Additionally, the findings suggest that resiliency may serve to minimize the effects of the stress and anxiety experienced by baccalaureate nursing students, allowing them to successfully complete coursework and persist to graduation.

Given the complex nature of resiliency and its direct application to stress and coping and academic success, resiliency theory provided a meaningful theoretical framework for the current study. Resiliency theory has the potential to explain how baccalaureate nursing students can
overcome the life-stress and the state anxiety they experience while in school and ultimately persist to graduation. Therefore, resiliency theory informed the study and served as the central theoretical framework, allowing the researcher to thoughtfully address the variables of life stress, state anxiety and academic resilience in baccalaureate nursing students as they relate to program completion.

Research Design

This study utilized a non-experimental, longitudinal, survey design to explore the relationship among life stress, state anxiety, and academic resilience in baccalaureate nursing students and how these variables relate to program completion. The study involved pre-existing survey data collected from one cohort of nursing students admitted on a full-time basis in the fall of 2019. The final phase of data collection occurred in Spring 2021 when the participants were expected to graduate. This phase of data collection involved a review of student records to determine program completion outcomes for the cohort of students under study. The two categories for student outcome data included students who graduated on target (two years from admission) and students who did not graduate on target.

The first phase of data collection took place in Fall 2019 after IRB approval for the study was granted through the University of Illinois College of Medicine in Peoria, Illinois (Appendix A). In Summer 2020, approval to continue the study was granted by the University of Illinois College of Medicine (Appendix B). Further approval was granted by Northern Illinois University to have the University of Illinois College of Medicine be the IRB of record for this study (Appendix C).
This study was framed by a post-positivism worldview. Creswell and Creswell (2018) explained various characteristics of the postpositivist worldview, including using observation and careful measurement to study objective reality. A postpositivist worldview is commonly used with quantitative research in which the researcher uses numerical measurements for observing and studying human behavior. Ultimately, the postpositivist worldview employs a reductionistic intent in which ideas are reduced to variables to test a hypothesis or research question (Creswell & Creswell, 2018). To that end, this study used a survey instrument to quantify life stress, state anxiety, and academic resilience in baccalaureate nursing students.

Methodological Approach

Using a longitudinal, survey design approach, this study did not seek to determine causal or comparative relationships among the variables under study but rather to determine whether correlational relationships exist among life stress, state anxiety, and academic resilience and successful program completion in baccalaureate nursing students.

Correlational research, according to Lodico et al., (2006), involves using a quantitative design and statistical analysis to explore relationships among two or more unmanipulated variables within one or more groups of individuals. The main goal of this type of research is to determine whether there is a relationship between the variables under study and, if found, to identify the direction and magnitude of the relationship. While one may make predictions based on the relationship between variables, simple correlational research does not seek to determine causality.
In conducting this study, a quantitative methodology was used, as this methodology was thought to most easily answer the research questions. Further, using a quantitative methodology is consistent with a postpositivist worldview. Quantitative methods include experimental designs, nonexperimental designs such as surveys, and longitudinal designs (Creswell & Creswell, 2018). Several studies have been conducted on baccalaureate nursing students that have used both qualitative and quantitative designs. However, no previous study was identified that explored life stress, state anxiety, and academic resilience and their relationship to successful program completion using a longitudinal survey study design. The major strength of this methodology and design is that multiple variables can be examined in one study over the course of two years.

**Data Collection**

This study incorporated a multi-phase, longitudinal, survey study design conducted over the course of two years. The study involved one cohort of 46 nursing students from the beginning of their junior year through graduation. Participants were surveyed early in their junior year (beginning-program) using a survey instrument to address life stress, state anxiety, and academic resiliency. This survey was administered in a paper and pencil format in the fall of 2019. Demographic and personal data were also collected at that time. In addition, data were collected in the spring of 2021, capturing whether the participants did or did not complete the nursing program on target.

The goal was to determine whether there was a relationship among life stress, state anxiety, and academic resiliency and program completion. The five-page survey included three separate tools that addressed life-stress (Holmes-Rahe Life Stress Inventory), state anxiety (STAI- state anxiety only), and academic resilience (ARS-30) in respondents. Demographic,
academic, and social determinant data were also collected at that time and included each student’s name, age, gender, ethnicity, admission grade point average (GPA), whether they were an English second language learner, whether they were a first-generation college student, the number of hours they plan to work while in nursing school, and the highest number of college credits they had previously taken in one semester. For details related to all study variables, please see Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Code</th>
<th>Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Name</td>
<td>Student Number</td>
<td>Student#</td>
</tr>
<tr>
<td>Age</td>
<td>Continuous</td>
<td>age</td>
</tr>
<tr>
<td>Gender</td>
<td>0 = Male; 1 = Female</td>
<td>gender</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>1 = White; 2 = African American/Black; 3 = Hispanic/Latino/Latina; 4 = Other</td>
<td>ethnicity</td>
</tr>
<tr>
<td>English Second Language Learner</td>
<td>0 = No; 1 = Yes</td>
<td>esl</td>
</tr>
<tr>
<td>First Generation College Student</td>
<td>0 = No; 1 = Yes</td>
<td>fgcs</td>
</tr>
<tr>
<td>Admission GPA</td>
<td>Continuous</td>
<td>admgpa</td>
</tr>
<tr>
<td>How many hours do you plan to work outside school?</td>
<td>Continuous</td>
<td>hoursworking</td>
</tr>
<tr>
<td>Highest number of college credits taken in one semester</td>
<td>Continuous</td>
<td>highestcollegecredits</td>
</tr>
<tr>
<td>Life Stress (Holmes-Rahe Life Stress Inventory)</td>
<td>1 = Low amount of life change (150 pts or less); 2 = Moderate amount of life change (150-300 pts); 3 = High amount of life change (300 pts or more)</td>
<td>ls</td>
</tr>
<tr>
<td>State Anxiety (State Trait Anxiety Inventory)</td>
<td>1 = No or low anxiety (20-37 pts); 2 = Moderate anxiety (38-44 pts); 3 = High anxiety (45-80 pts)</td>
<td>sanx</td>
</tr>
<tr>
<td>Academic Resiliency (Academic Resiliency Scale-30)</td>
<td>Continuous -Total score 30-150 (higher scores reflect greater academic resiliency) - Factor scores (higher scores reflect more adaptive responses for each factor)</td>
<td>ars-total; ars-factor1; ars-factor2; ars-factor3</td>
</tr>
<tr>
<td>Student Graduated on Target (May, 2021)</td>
<td>0 = No; 1 = Yes</td>
<td>studentoutcome</td>
</tr>
</tbody>
</table>
The significance of these personal characteristics in baccalaureate students and how these factors may influence program completion were supported in the literature. Pre-nursing academic performance, such as grade point average, was found to be a significant predictor of student success in a baccalaureate nursing program, especially related to graduation (Srickland & Cheshire, 2017; Tartavoulle et al., 2018) and graduating on target (Herrera, 2013). In addition, gender and age-based differences were found among baccalaureate nursing students, whereas students were more likely to complete their program of study if they were older (mean age: 26.8 vs 20.1 years, \( P < 0.001 \)) and employed in nursing-related work (35% vs 2%, \( P < 0.001 \)). In addition, male students and those who worked more than 16 hours per week during semester were less likely to complete than their counterparts (Salamonson et al., 2014). An overall negative relationship was found between time spent per week in paid work and academic performance in baccalaureate nursing students (Salamonson et al., 2020).

Barbe et al., (2018) identified the strongest factors related to student attrition from a baccalaureate nursing program as having one or more parents born outside of the United States. This factor was followed closely by being an English second language learner and being racially diverse. Wagner et al. (2020) found that almost 30% of applicants to a college pre-licensure master’s entry and graduate nursing program identified as first-generation to college (First-gen). First-gen applicants were significantly more likely to be older, a student of color, a veteran, an immigrant, or an international student.

Finally, students were asked the highest number of credits they had previously taken in one semester. This question was important, as many students in the cohort under study attended a local community college for pre-nursing coursework. In this setting, 12 credit hours is considered full-time. Students may have further reduced their course load when taking more
rigorous science courses, as both cumulative and science GPAs are considered with admission. For full-time nursing students within this cohort to graduate on target, they must take between 15-17 credit hours per semester during their junior and senior years. This concern with students successfully matriculating from a community college setting to a baccalaureate program, taking at least 15 credits per semester, was addressed by Klempin (2014). While it may be difficult to isolate a single variable as the best predictor of student success, a combination of variables may serve as an effective model in determining which students are most likely to be successful and graduate on target.

In the fall of 2019, during a scheduled college hour, all full time Junior 1 students were invited to participate in the study by a graduate faculty member. The purpose of the study was explained, and potential participants were told their participation would be completely voluntary. Potential participants were assured that no negative consequence would result from their decision not to participate in the study, that no incentives would be provided to participants, and that no follow-up would occur with them. Students who agreed to participate in the study provided written consent (Appendix D) and the survey tool (Appendix E) was then administered. Questions 1-43 represent the Holmes-Rahe Life Stress Inventory. Questions 44-63 represent the STAI (state anxiety only), and questions 64-93 represent the ARS-30. Designated scoring tools were used to operationalize and measure life stress, state anxiety, and academic resilience, and were developed by authors of the instruments. Except for the Holmes-Rahe Stress Inventory (Exhibit F), the scoring tools are prohibited from being published.
Validity and Reliability of Survey Instrument

According to Creswell and Plano-Clark (2018), validity, in the context of quantitative research, refers to the degree by which the scores obtained from a given instrument are meaningful indicators of the construct they are measuring. In contrast, reliability, according to Creswell and Creswell (2018), refers to the degree by which the findings of a given instrument are consistent and repeatable. Creswell and Creswell contend that the most significant form of reliability, when using multi-item instruments, is the tool’s internal consistency. Internal consistency refers to the level by which sets of items in each instrument respond the same way. These pairs of items should have appropriate intercorrelations. This is critical, as the scale items of your instrument should be assessing the same construct (Creswell & Creswell, 2018).

The research instrument for the study involved a survey (Appendix E) incorporating three separate pre-established tools, including the Holmes-Rahe Stress Life Stress Inventory, the State-Trait Anxiety Inventory-State only, and the Academic Resilience Scale (ARS-30), all in their original forms. However, only the 20 questions addressing state anxiety were included in the survey due to the length of the three-tool survey and the priority of gathering data directly related to the participants’ experiences as nursing students. Each tool was presented on a separate page of the survey with accompanying directions. All tools have established reliability and validity.

Holmes-Rahe Life Stress Inventory

The Holmes-Rahe Life Stress Inventory, also referred to as the Social Readjustment Rating Scale (SRRS), was developed in 1967 by psychiatrists Thomas Holmes and Richard Rahe. This tool was developed to determine whether stressful life events might cause illnesses. A
positive correlation of +/- 0.118 was found between life events and illnesses of medical patients, when 43 possible life events were addressed, with each event given a relative score (Holmes & Rahe, 1967). Rahe validated the scale in 1970 as a predictor of illness with 2,500 United States sailors who rated life events over the past six months (Rahe et al., 1970). The scale was also assessed with varying populations within the United States, including African, Mexican, and White American groups (Komaroff et al., 1968). In addition, the scale was assessed cross-culturally, comparing Japanese and American populations (Masuda & Holmes, 1967) and Malaysian with American populations. Malaysians were found to have different attitudes, suggesting different stress levels with the same score (Woon et al., 1971). In 1978, Gerst et al. tested the tool’s reliability and found that the rank order of all items remained quite consistent for both healthy adults (r = 0.96 - 0.89) and patients (r = 0.91 - 0.70).

The Holmes-Rahe Life Stress Inventory has been used extensively since it was first developed in 1967. Despite some criticism, this tool continues to be used by researchers and practitioners with various applications, in part due to its ease of administration and scoring by practitioners. Thirty years after the tool’s inception, Scully et al. (2000) examined the major criticisms of the instrument. The criticisms that were addressed included the weight of the various items and whether undesirable events contained in the tool accounted for greater variance in predicting symptom scores. The results were found to be equivocal and thus support the continued use of the tool to predict stress related outcomes (Scully et al., 2000). While this tool may be effective in identifying the overall stress load one carries, the specific effect of a particular stressor may vary among individuals.

This instrument was chosen because many baccalaureate nursing students experience various personal life stressors while in school. While the original intent of this tool was to
determine how life stress impacts one’s health, in this study, the instrument was used to determine the relationship between life stress and program completion and persistence. The tool was selected due to the many life stressors nursing students experience that threaten their ability to be successful by compounding the stress already associated with being a nursing student. While this tool was not found to have been used to identify the life-stress experienced by a population of nursing students, it was believed the instrument would provide needed insight into the overall stress experienced by nursing students.

**State Trait Anxiety Inventory**

The State-Trait Anxiety Inventory (STAI) was developed by Speilberger (1979) and is a 40 item self-report instrument that measures both state and trait anxiety using a four-point Likert scale. State anxiety refers to a temporary condition of anxiety, while trait anxiety is an extended anxiety trait. Reliability has been established at 0.92 for state anxiety and at 0.90 for trait anxiety (Speilberger et al., 1983). Evidence of construct, concurrent, convergent, and divergent validity of the scale have been established in a wide variety of populations, including college students, and Cronbach’s alpha coefficients of 0.92, 0.94, and 0.89 have been documented (Speilberger et al., 1983). Several studies have been conducted with nursing students, using the STAI (Gore et al., 2011; Kurebayashi et al., 2012; Kutlu et al., 2008; Misra & McKean, 2000; Patterson, 2016; Wedgeworth, 2016;). In addition, several studies have used only Speilberger’s (1979) State-Anxiety Scale when conducting research on nursing students (Cook, 2005; Stevens et al., 2019; Suliman & Halabi, 2007), perhaps due to the transitory nature of state anxiety.

This well-established instrument was chosen for the study due to its ability to effectively identify anxiety among respondents, as demonstrated by its continued validity and reliability.
Further, this tool was chosen because it has been extensively used with college students, including undergraduate nursing students. For the purposes of this study, only state anxiety was addressed using the associated 20 questions in the survey. This decision was made due to the nature of the study and research questions and the potential for survey fatigue that might have occurred with the additional trait anxiety questions.

**Academic Resilience Scale**

The psychological construct of resilience observed in some individuals may account for success in the face of adversity. Personal resilience refers to one’s ability to bounce back to overcome difficulty and achieve success and is considered a valuable human attribute (Cassidy, 2016; Windle, 2011). The resilience construct can be contextualized through academic resilience, which suggest the likelihood of academic success despite the presence of adversity. The Academic Resilience Scale (ARS-30) is a 30-item tool that explores process rather than outcome components of resilience. In doing so, this instrument provides a measure of one’s academic resilience specifically related to a student’s unique adaptive cognitive-affective and behavioral reactions to academic adversity (Cassidy, 2016).

The ARS-30 involves a short vignette that portrays an instance of academic adversity representing significant challenge and struggle. Students are then asked to consider themselves in the portrayed situation and asked how they think they would respond. The vignette is then followed by 30 possible responses gauged on a 5-point Likert scale, from likely to unlikely, related to how the individual believes they would respond in the same situation.

When studying undergraduate students, Cassidy (2016) conducted an item-scale analysis for the ARS-30, which resulted in a Cronbach’s Alfa of 0.90, suggesting high internal
consistency reliability with the summation of all 30 items (global scale). Higher global academic resilience scores were associated with increased age \((r = 0.20, N = 317, p < 0.01)\) and increased academic self-efficacy \((r = 0.49, N = 319, p < 0.01)\). Since a separate and independent analysis of the components of the scale did not result in higher correlations with self-efficacy than the global score did, one may consider the best use of the ARS-30 is as a unidimensional measure rather than focusing on the scale’s multidimensional qualities, unless there is a clear focus on the components in a specific application of the tool (Sanchez-Lopez & Dresch, 2008). In addition, strong correlations among the factors were found, which suggests the existence of a shared psychological variable common across factors. In those cases, factors may be combined to result in a global academic resilience score (Furr, 2011).

Although this tool is relatively new and has not been used extensively or specifically with undergraduate nursing students, it has been used with undergraduate students and shown established validity and reliability. Further, this tool directly addresses academic resilience, which is one of the key variables in the current study. To that end, the ARS-30 was instrumental in determining how a nursing student’s resilience is related to the life-stress and the state anxiety they experience while in school and in determining how these variables relate to their success in course and program completion.

Sampling

A total of 50 Junior-1 students who met inclusion criteria were invited to participate in the study. Ultimately, 46 students agreed to participate. They read and signed the informed consent and completed the initial survey, yielding a 92% response rate. Every member of this cohort of 46 students was enrolled full-time, was 18 years or older, and was admitted to a
baccalaureate nursing program in northern Illinois in the fall of 2019. A non-probabilistic sampling method was used, employing convenience sampling. This method involved sampling individuals who are available and able to be studied. While the ability to generalize findings may be limited when using a convenience sample, a sample size of 30 was thought to be adequate for conducting a correlational analysis (Creswell & Plano-Clark, 2018).

The group was a cohort of Junior-1 nursing students, who were followed from the beginning of their program through graduation. This sample size was not specifically selected based on statistical power consideration or sampling error, but rather it was related to the nature of the study and the need to follow this group of students from admission through graduation. The findings from this study may be generalized to students attending the same nursing program or students enrolled in similar nursing programs.

Recruitment

The sample was obtained by inviting students to participate in the study during a scheduled college hour. A graduate faculty member and co-investigator explained the purpose of the study to the identified cohort of students, reinforcing that their participation would be completely voluntary and that no negative consequences would result from refusing to participate in the study. In addition, it was explained that no incentives would be provided for participation in the study and that no follow-up would occur with the participants.

Data Analysis

Data analysis used SPSS #27 to conduct a correlational statistical analysis. Correlational research is a quantitative research method used to identify relationships between two or more
variables. The goal of this type of research is to examine variables to determine if they are statistically related to one another and, if so, to what degree the variables are related (Lodico et al., 2006). The six critical steps in data analysis presented by Creswell and Plano-Clark (2018) were used in this study. The first step was to prepare the data for analysis, during which time each survey response in the database was assigned a numeric number and entered into SPSS. For this study, a variable table was developed (Appendix G). The data was then cleaned by looking for errors and correcting them and determining what would be done with incomplete surveys. Next, the items were recoded, and new variables were computed. A codebook was developed by providing a name and description for each variable.

The next step involved visually inspecting the data for trends and determining whether the data had a normal distribution. The next step involved using the Statistical Program for Social Sciences (SPSS) version #27. Descriptive statistics were conducted on the demographic data and personal characteristics of the participants. Following this analysis, a Pearson correlation and Chi-square were performed to measure the relationships among life stress and program completion, state anxiety and program completion, and academic resilience and program completion. Next, a binary logistic regression analysis was performed to determine the significance of individual variables in predicting program outcomes and the ability of the overall model to predict program outcomes. In addition, a point by serial correlation was conducted to determine the strength of the correlation of the variables on student outcomes. Following data analysis, a representation of the data analysis was made to provide a summary of the statistical results to be represented in the text, tables, and figures.

Next, an interpretation of the results was made, at which time all major quantitative data results were summarized and interpreted based on the research questions. The results were then
examined with respect to previous predictions found in the literature. Limitations of the data, along with implications for future research are also presented. Finally, the data and results were validated, which involved having co-investigators validate findings.

Through careful planning and the application of sound research principles, valuable information can be gained. The findings from a well-designed study have the potential of making significant contributions to the existing body of knowledge on a given topic. To that end, this current study was thoughtfully designed with the hope of gaining valuable information about how life stress, state anxiety, and academic resilience relate to the academic success of baccalaureate nursing students, specifically successful program completion.

Positionality of Researcher

It has been a distinct pleasure to serve as a nurse educator for the past 23 years in a baccalaureate nursing program. During this time, I have worked with countless students in classroom, lab, and clinical settings. These experiences, along with the personal experiences I have had while working in clinical practice and as a student nurse have shaped my identity as an educator and my research focus, allowing me to understand the many factors that can impact success for baccalaureate nursing students. My goal has always been, and continues to be, facilitating my students’ academic success and mentoring the next generation of nurses to deliver high quality and compassionate nursing care in a highly professional manner. I have great respect for my students, as diverse individuals with unique life stories and gifts of their own. Indeed, each student brings with them their own lived experiences, making them who they are and coloring their perspectives. Therefore, it is important that all students, with their varying perspectives, be valued.
In my role as a nurse educator, I am aware of the many and varied life-stressors and heightened anxiety students often experience while in nursing school. Many are single parents with small children; have work responsibilities, ill parents, and/or personal health concerns; speak English as their second language; and/or have financial strain, among so many others. Students also experienced a great deal of anxiety due to frequent testing and the unfamiliar clinical environment.

Despite these challenges, many of the students demonstrated resiliency and were ultimately successful in completing all program requirements and in passing the NCLEX-RN exam. A smaller portion of admitted students, however, were unsuccessful and either withdrew or were dismissed from the nursing program. When students were dismissed or withdrew from the nursing program, there were negative financial implications as well as a potential sense of failure. My concern for the welfare of all admitted students and my desire to facilitate their success was the driving force for the development of this study. Specifically, I wanted to understand how life-stress, anxiety and personal resiliency affected students’ ability to be successful academically.

A belief I hold is that all students who have been admitted to the nursing program can be successful and graduate. While this is in keeping with my highly optimistic disposition, there may be students who are unable to be successful despite the proper instruction, encouragement, and support provided to them. Additional assumptions I hold are that students experience a great deal of stress related to their experiences in baccalaureate nursing programs. This stress, I believe, is further compounded by other life stressors indirectly or directly related to their student status. I also believe that nursing students experience anxiety related to the rigors of program requirements, frequent and high-stakes testing, and dealing with difficult and unfamiliar clinical
patient/family situations. Further, I contend that as students proceed through the program, they become better students and have grown tremendously from the time they first start the program to graduation. I also believe that coping with stress and anxiety in nursing school may be mediated by personal resiliency, ultimately allowing students to achieve academic success. I believe that faculty, staff, and administration can be instrumental in facilitating student success and have the responsibility to do so by exploring and understanding the needs of students, and, when possible, providing resources to support their success. In my opinion, students experience success through ongoing hard work and focus, support from peers, faculty, and family, and through having and/or developing resiliency. Therefore, by gaining an understanding of how they experience life stress, anxiety, and resiliency, we can better understand their needs and develop and implement resources to aid in their success.

The experiences I have had as a student, a nurse and as a seasoned nurse educator place me at a distinct advantage by providing me with extensive insight into the experiences of baccalaureate nursing students. I believe that having had such experiences aided me in conducting research with this population of students. I also believe that students would be willing to engage in research that has as its goal student success.

Although I may be considered an insider when researching students at my own institution, I may also be considered an outsider in that I am also a faculty member who will have the potential participants as students in the program. This factor could serve as a disadvantage/disincentive for students agreeing to participate in the study. However, this factor was remedied by having a graduate faculty member introduce the study to students, invite them to participate, and distribute and collect consent forms and completed surveys. Survey results were then sealed and locked in a file cabinet of the locked office of the primary investigator.
Survey data were not opened until after the student participants graduated and at which time students were de-identified before the survey data were entered into SPSS #27 for analysis. Still other factors that could have served as disadvantages include generational differences and power disparities between me and the potential participants as well as the vulnerability associated with being students. Although these factors could not be remedied, concerted efforts were made to ensure that students were freely participating in the study and that results of the study are kept confidential.

I teach one of the health assessment labs (a Junior I course), and the theory and clinical portions of the maternal-newborn nursing course (a Junior II course). I also chaired the Undergraduate Admission and Progression Committee when the cohort under study was admitted to the nursing program. However, I do not recall and have not maintained any information related to the students’ admission decision.

Limitations

The limitations include the study being conducted at a single site using a relatively small sample, limiting generalizability of findings. Further, students could choose not to participate in the study or not finish the surveys, limiting data collection. In addition, students from the cohort under study could choose to reduce their course load to a part-time status or fail courses and need to repeat them, delaying finishing the program with their original cohort. The final limitation identified was that there was not a qualitative strand in this study, limiting the depth and breadth of the findings and failing to provide understanding of how life-stress, anxiety, and resilience are connected to each other or to successful program completion.
Issues related to the site and size of the sample were not remedied, as this is a site where access to student data can be obtained. Having a multi-site study, while optimal, was not feasible given the current circumstances. The sample size was also not altered, as the sample represented the size of the cohort under study. Conducting a longitudinal study using multiple tools over the course the students’ program provided meaningful data.

Significance of Study

This study adds to the literature on life stress, state anxiety and academic resilience in baccalaureate nursing students and their relationship to program completion. While these variables have been studied individually in various contexts, there was no evidence of them being studied together. Therefore, this study provides a wider lens through which to view students’ experiences. In addition, this research has the potential to identify students who are likely to experience academic difficulty based on life stress, state anxiety and a lack of academic resilience, compromising their ability to persist to graduation.

Further, this study has the potential to inform other nursing programs regarding students’ life stress, state anxiety, and academic resilience and their relationship to program completion. This information could prove valuable in curriculum planning, student support, and retention. Finally, this study has the potential to inform other facets of higher education as it relates to retention and program completion. By identifying at-risk students early in their program of study, additional resources may be developed and provided to aid in student success.


Ascend Learning, LLC. (2012). Student attrition: Consequences, contributing factors, and remedies [Research report:]. ATI Nursing Education.


CHAPTER 2
LIFE STRESS, STATE ANXIETY, ACADEMIC RESILIENCE, AND PROGRAM COMPLETION FOR BACCALAUREATE NURSING STUDENTS

Abstract

Background: Nursing schools across the country are struggling to respond to the rising demand for registered nurses. Factors that impact baccalaureate nursing student attrition must be addressed to increase the number of well-educated and skilled nurses.

Method: Utilizing a non-experimental, longitudinal, survey design, the relationships among life stress, state anxiety, academic resilience and targeted program completion were explored with one cohort of baccalaureate nursing students (n=46).

Results: No statistical association was found between life stress levels or scores and graduating on target or between academic resiliency scores and graduating on target. However, there was an association between level of state anxiety and graduating on target (p =.009). Having a moderate level of state anxiety predicted whether students graduated on target (p = .044), in that students with moderate levels of state anxiety were 4.7 times more likely to graduate on target then their counterparts who reported high levels of state anxiety. Further, state anxiety admission scores predicted whether students graduated on target (p = .002). Being an English Second Language (ESL) student was associated with graduating on target (p = .004) and being an English second language learner was associated with state anxiety (p = .031).

Conclusion: These findings are valuable in identify students who may have difficulty graduating on target and need additional support in persisting to graduation. Further research is needed to determine how state anxiety impacts nursing students’ ability to complete their program on target, especially English second language students. Additional research is also needed to identify what resources can best support students and reduce attrition.

Keywords: baccalaureate nursing students, life stress, state anxiety, academic resilience, targeted program completion.
The United States is anticipating an extensive shortage of registered nurses, which is expected to intensify with the aging of baby boomers and the expansion of universal healthcare needs. This shortage is further complicated by nursing schools across the country struggling to increase capacity to respond to the rising demand for care and the move toward healthcare reform. The expected shortage in the United States is expected to continue until at least 2030 (Jurascheck et al., 2012). The Bureau of Labor Statistics projects the need for an additional 203,700 registered nurses to fill positions to replace retiring nurses each year until 2026 (Jurascheck et al., 2012). Thus, efforts to increase the number of skilled nurses is imperative.

An increasing body of knowledge has linked nurses’ educational level with patient outcomes. For example, the increased number of baccalaureate-prepared nurses caring for hospitalized patients has been associated with decreased morbidity and mortality and failure-to-rescue rates (Blegen et al., 2013; Kutney et al., 2013). Considering these findings, many employers prefer to hire baccalaureate- prepared nurses. According to American Association of Colleges of Nursing [AACN], 2018, 88% of employers strongly prefer to hire baccalaureate-prepared graduates, and 46% require new nurses to have a baccalaureate degree.

The landmark report, *The Future of Nursing*, outlined a goal having 80% of nurses by 2020 be baccalaureate-prepared (Institute of Medicine, 2011). Currently, the nursing workforce falls far short of these targets, with only 42% of registered nurses having earned a baccalaureate degree (Smiley et al., 2018). Considering these findings, efforts should be made to not only address the nursing shortage but to do so with a greater focus on preparing nurses at the baccalaureate level, to help ensure access to high quality and safe patient care. While research supports increasing baccalaureate-prepared nurses at the bedside, several challenges exist in meeting this goal.
Two major issues include a decreasing applicant pool for baccalaureate nursing programs and attrition from baccalaureate programs. Obtaining a four-year degree can be both arduous and intimidating for potential students. As a result, students may instead choose to pursue an associate degree in nursing. A decrease in baccalaureate enrollment may also be related to the smaller number of baccalaureate programs. According to the National League for Nursing (NLN), of the 1,869 nursing programs in the United States, 710 are baccalaureate, 1,092 are associate, and 67 are diploma programs (NLN, 2015b). While increasing the number of baccalaureate nursing programs is a worthwhile goal, so too is addressing student retention and completion of such programs, and identifying the factors that may impact student success.

Baccalaureate nursing programs experience significant attrition due to the unique stressors encountered in nursing education, such as competing personal responsibilities (Ascend Learning, 2012). While admission requirements for various baccalaureate nursing programs may be similar across institutions, personal factors and academic outcomes for individual students often vary.

The purpose of this quantitative study was to explore the associations among life-stress, state anxiety, academic resilience, and targeted program completion for baccalaureate nursing students. Life-stress was defined and measured using the Holmes-Rahe Stress Inventory, state anxiety was defined and measured using the State Trait Anxiety Inventory (STAI), and academic resilience was defined and measured using the Academic Resilience Scale (ASR-30). The research questions for the study were

1. How do nursing students rate their life-stress, state anxiety, and academic resilience at the beginning of the nursing program?
2. Is there an association between levels of life-stress or state anxiety in nursing students and targeted program completion after controlling for sociodemographic and academic variables?

3. Is there an association between sociodemographic and academic variables and students graduating on target?

4. Do life stress, state anxiety, or academic resilience scores predict whether students graduate on target?

5. Do academic resilience scores predict whether nursing students will graduate on target?

6. Do sociodemographic and academic variables predict whether students will graduate on target?

7. Does the level of state anxiety predict whether students will graduate on target?

Findings from this study will help to identify factors that may place baccalaureate nursing students at risk for not graduating on target. While some nursing students may eventually complete their program of study, after repeating coursework, others may either withdraw or be dismissed. In identifying at-risk students, resources can be provided to support student success and reduce attrition.

Sources of Stress

Stress in nursing education is founded in the experience itself and is influenced by personal attributes. The major sources of stress included academics, clinical experiences, and year in the program. Academic stressors included heavy coursework with a large volume of material to be learned in a short period of time, frequent writing assignments, group assignments,
and examinations (Gibbons et al., 2011; Hegge & Larson, 2008; Labrague, 2013; Labrague et al., 2017; LeDuc, 2010; Liu et al., 2015; Weitzel & McCahon, 2008). Clinical stressors included fear of making a mistake, fear of clinical failure, clinical incompetence or freezing up, dealing with uncomfortable patient/family situations, incivility by healthcare staff and instructors, inconsistencies, and time constraints (Cowen et al., 2016; Le Duc, 2010; Liu et al., 2015; Reeve et al., 2013; Wallace et al., 2015; Wolf et al., 2015). And finally, there were different stressors at each level in a nursing program. First semester students often struggled with time management and procrastination and were overwhelmed by the amount of coursework (Liu et al., 2015). Second year students report the lowest level of stress compared to peers in the other three class groups (Liu et al., 2015). Senior nursing students continued to struggle with time management (Critz & Feagai, 2014; Wolf et al., 2015), overwhelming workloads, family obligations, financial concerns, unclear/unrealistic expectations from faculty, poor communication between professors, and work responsibilities (Critz & Feagai, 2014). Senior nursing students also experienced fear of failure, clinical incompetence, and problematic relationships with faculty and fellow students (Wolf et al., 2015).

Personal attributes of nursing students may contribute to their experience of stress; however, the attributes have not been well studied. A history of depression, year in program, emotional support, and self-esteem were significantly related to stress in senior nursing students (Wolf et al., 2015). For example, Wolf et al. (2015) found that a history of depression and the year in program had a positive relationship to stress, with fourth year students having a higher level of stress than their third-year counterparts. Further, students with higher self-esteem reported lower levels of stress than their peers with lower self-esteem did. Finally, students who had emotional support from friends and family reported less stress than students who had limited
support (Wolf et al., 2015). However, at the end of the first semester, self-efficacy increased, suggesting that self-efficacy may increase at the end of the first semester of the junior year as students learn to overcome difficult circumstances (Taylor & Reyes, 2012). In addition, nursing students who engaged in more self-care behavior reported less stress as they progressed through their program of study (Hensel & Laux, 2014).

The impact of gender and race has not been well studied, although they may be influential in a student’s perceived level of stress. Murdock and Perlow (2010) reported that female nursing students reported higher stress levels of stress than male students; however, Jones et al. (2018) found no difference in stress levels based on gender. Minority students faced additional barriers, such as discrimination from faculty, peers, nursing staff, and patients (Graham, 2016), and bias in faculty grading practices and isolation (Amaro et al., 2006; Graham et al., 2016). Female African American students experienced significant academic, environmental, financial, interpersonal, and personal challenges (Kirkland, 1998).

State and Trait Anxiety

State and trait anxiety influence a student’s level of stress. State anxiety is a temporary emotional state resulting from “exposure to a specific situation or stimulus” (Fernandez-Castillo & Caurcel, 2014, p. 265). A baccalaureate degree is typically completed in four years, and thus, the associated stress occurs within a confined timeframe in response to the education experience. Trait anxiety refers to differences in anxiety-proneness in relatively stable individuals. Specifically, trait anxiety addresses differences between people in the tendency to perceive stressful situations as dangerous or threatening and to respond to such situations with elevations in the intensity of their state anxiety (Mascarenhas & Smith, 2011). Excessive anxiety can result
in altered physical health, impaired cognitive function, reduced attention span, and compromised ability to effectively care for patients (Cheung & Au, 2011; Fernandez-Castillo & Caurel, 2014; Melincavage, 2011). This is of concern because high levels of anxiety have been associated with a decrease in attention, concentration, and cognitive performance (Alvarez et al., 2012; Gass & Curiel, 2011). Student nurses experienced state and trait anxiety at very high levels when compared to college students overall, with nursing students experiencing the highest levels in the beginning clinical courses (Stevens et al., 2019; Wedgeworth, 2016).

While various forms of anxiety exist, most studies focused specifically on test anxiety. Two major stressors affecting undergraduate nursing students included the vast amount of information that must be learned in a relatively short period of time and the frequency of tests (LeDuc, 2010). Frequent testing of nursing students is important to not only ensure safe practice but to verify attainment of appropriate knowledge and skill acquisition. Further, frequent testing serves as a valuable tool for preparing students for success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN), an examination all students must pass following graduation to practice as a registered nurse.

Academic Resiliency

Academic resilience refers to the increased probability of success despite environmental challenges (Wang et al., 1994). The four characteristics identified as resilient central to young adults include using an active approach in problem solving, tendency to identify experiences in a positive light despite the level of suffering, ability to win the positive attention of others, and having a strong reliance on faith to maintain an optimistic view on life (Werner & Smith, 2001).
In addition, resilient students are those who display high motivational achievement and performance despite conditions that place them at risk for poor performance (Alva, 1991). Increasingly, scholars are interested in understanding nursing students’ resiliency as it relates to academic success. Resiliency is understood to be a multi-dimensional attribute involving both environmental and intrapersonal components (Beddoe et al., 2013; McDermid et al., 2016). The environmental factors involve peer and social support as well as one’s sense of belonging. The intrapersonal characteristics involve altruism, a disposition of control, self-confidence, responsiveness, and positivity (McAllister & McKinnon, 2009; Tusaie & Dyer, 2004).

For nursing students, the journey through a nursing program is accompanied by both classroom and clinical challenges. Current opinion suggests that resilience is a necessary attribute for surviving and thriving in stressful situations and is essential for the 21st century (McAllister & Lowe, 2011; Sanderson & Brewer, 2017). An increasing body of knowledge identified the value of resilience in nursing education and supports the premise that resilience will better prepare nursing students for academic success (Chamberlain et al., 2016). Resilience will help them face challenges and help them bounce back when faced with setbacks and other challenges (Reyes et al., 2015a). Students who develop resilience will make a smoother transition to practice following graduation, which is essential in an increasingly complicated and chaotic healthcare environment (Reyes et al., 2015a; Stephens, 2013).

Cleary et al. (2018) found a positive relationship between resilience and performance in undergraduate students, including those in professional placements. Resilience consistently revealed a positive influence on nursing students, including clinical communication (Kong et al., 2016), reduced fear of death (Edo-Gual et al., 2015), improved wellbeing (Zhao et al., 2016), and greater student retention (Slatyer et al., 2016). This resilience was demonstrated through
perseverance despite challenges and was a contributing factor in their academic success and degree completion (Carroll, 2011; Crombie et al., 2013; Williamson et al., 2013). Nursing students described resilience as possessing the determination to succeed instead of retreating in the face of challenges (Carroll, 2011). Students also reported that resilience allowed them to persist despite faculty bullying (Mott, 2013). Furthermore, students reported that resilience played a major role in their assertiveness in handling the aggressive behaviors of clinical staff in their placements (Jackson et al., 2011). School staff members attributed students’ resilience to their ability to remain in the nursing program (Williamson, et al., 2013).

Several factors that contribute to resilience include support, time, and empowerment (Thomas & Revell, 2016). Major sources of support included family, friends, and faculty (Crombie et al., 2013). Older students scored higher on resilience tools than did their younger counterparts, suggesting that individuals become more resilient as they age (Pitt et al., 2014). In addition, men and African American students demonstrated greater levels of resourcefulness than did women and Caucasian students (Goff, 2011). While personal resilience may prove beneficial in meeting the challenges of nursing school, many students may lack this quality. When considering personal stressors experienced in the past year, Lekan et al. (2018) found only 33.3% of surveyed students reported being resilient. These finding underscore the importance of helping students grow and develop resilience to aid them not only in their academic success but in transitioning into practice following graduation.

Methods

This study was conducted at a small private college of nursing in the Midwest that enrolled 221 undergraduate nursing students. This college admits junior students who have
successfully completed 64 credit hours of prerequisite coursework at another college or university. They then complete an additional 64 credit hours in the nursing program to earn their Bachelor of Science in Nursing (BSN). Utilizing a non-experimental, longitudinal, survey design, the relationship between life stress, state anxiety, and academic resilience was explored as well as how these variables related to targeted program completion. The study involved one cohort of nursing students as they proceeded through their program of study, from the beginning of their junior year through graduation. Participants were surveyed early in their junior year (beginning program) using a survey to address life stress, state anxiety, and academic resilience as well as sociodemographic and academic characteristics.

Sample

A total of 50 junior-1 students who met inclusion criteria, of being at least 18 years of age and enrolled as a full-time nursing student in the fall of 2019, were invited to participate in the study. Ultimately, 46 students agreed to participate in the study, yielding a 92% response rate. A non-probabilistic method of convenience sampling was used for this study. While the ability to generalize findings is limited when using this sampling method, a sample size of 30 is thought to be adequate to conduct a correlational analysis (Creswell & Plano-Clark, 2018).

Instrument and Administration

The five-page survey included three separate tools that addressed life-stress (Holmes-Rahe Life Stress Inventory), state anxiety (STAI- state anxiety only), and academic resiliency (ARS-30). Sociodemographic and academic data were also collected from respondents, including student’s name, age, biological sex, ethnicity, admission grade point average (GPA), whether
they were an English second language learner, whether they were a first-generation college student, the number of hours they planned to work while in nursing school, and the highest number of college credits they had previously taken in one semester. The survey was administered in a paper and pencil format in the fall of 2019.

The survey instrument incorporated three separate pre-established tools, including the Holmes-Rahe Stress Life Stress Inventory, the State-Trait Anxiety Inventory (State only), and the Academic Resilience Scale (ARS-30). In addition, sociodemographic and academic data were collected from each participant. Each tool was presented on a separate page, including questions related to sociodemographic and academic characteristics of respondents. Each section of the survey had accompanying directions.

Holmes-Rahe Life Stress Inventory

The Holmes-Rahe Life Stress Inventory, also referred to as the Social Readjustment Rating Scale (SRRS), was developed to determine whether stressful life events might cause illnesses. A positive correlation of +/- 0.118 was found between life events and illnesses of medical patients, when 43 possible life events were addressed, with each event given a relative score (Holmes & Rahe, 1967). Rahe validated the scale in 1970 as a predictor of illness with 2,500 United States sailors who rated life events over the past six months (Rahe et al., 1970). In 1978, Gerst et al. tested the tool’s reliability and found that the rank order of all items remained quite consistent for both healthy adults (r = 0.96 - 0.89) and patients (r = 0.91- 0.70). While the original intent of this tool was to determine how life stress impacts one’s health, in the current study, the instrument was used to determine the relationship between life stress and targeted program completion.
State Trait Anxiety Inventory

The State-Trait Anxiety Inventory (STAI) is a 40 item self-report instrument that measures both state and trait anxiety using a four-point Likert scale. Reliability has been established at 0.92 for state anxiety and at 0.90 for trait anxiety (Speilberger et al., 1983). Evidence of the construct, concurrent, convergent, and divergent validity of the scale has been established in a wide variety of populations, including college students, and Cronbach’s alpha coefficients of 0.92, 0.94, and 0.89 have been documented (Speilberger et al., 1983). Several studies using the STAI have been conducted with nursing students (Gore et al., 2011; Kurebayashi et al., 2012; Kutlu et al., 2008; Misra & McKean, 2000; Patterson, 2016; Wedgeworth, 2016;). In addition, several studies have used only Speilberger’s (1979) State-Anxiety Scale when conducting research on nursing students (Cook, 2005; Stevens et al., 2019; Suliman & Halabi, 2007), perhaps due to the transitory nature of state anxiety. For this study, only state anxiety was explored.

Academic Resilience Scale

The Academic Resilience Scale (ARS-30) is a 30-item tool that explores process rather than outcome components of resilience. In doing so, this instrument provides a measure of one’s academic resilience specifically related to the student’s unique adaptive cognitive- affective and behavioral reactions to academic adversity (Cassidy, 2016). The ARS-30 involves a short vignette that portrays an instance of academic adversity representing significant challenge and struggle. Students are then asked to consider themselves in the portrayed situation and asked how they think they would respond. The vignette is then followed by 30 possible responses gauged on
a 5-point Likert scale, from likely to unlikely, related to how the individual believes they would respond in the same situation. Factor-1 scores represent perseverance, Factor-2 represents reflecting and adaptive help-seeking, and Factor-3 represents negative affect and emotional response (Cassidy, 2016). When studying undergraduate students, Cassidy (2016) conducted an item-scale analysis for the ARS-30 that resulted in a Cronbach’s alpha of 0.90, suggesting high internal consistency reliability with the summation of all 30 items (global scale). Although this tool is relatively new and has not been used extensively or specifically with undergraduate nursing students, it has been used with undergraduate students with established validity and reliability.

**Personal Characteristics of Participants**

Data related to the sociodemographic and academic characteristics of the participants were collected. These data included the student’s name, age, biological sex, ethnicity, admission grade point average (GPA), whether they were an English second language learner, whether they were a first-generation college student, the number of hours they planned to work while in nursing school, and the highest number of credits they had previously taken in one semester. The significance of these personal characteristics in baccalaureate students and how these factors may influence program completion were supported in the literature. Pre-nursing academic performance, such as grade point average, was found to be a significant predictor of student success in a baccalaureate nursing program, especially related to graduation (Srickland & Cheshire, 2017; Tartavoulle et al., 2018) and graduating on target (Herrera, 2013). In addition, biological sex and age-based differences were found among baccalaureate nursing students, whereas students were more likely to complete their program of study if they were older (mean
age: 26.8 vs 20.1 years, $P < 0.001$) and employed in nursing-related work (35% vs 2%, $P < 0.001$). In addition, male students and those who worked more than 16 hours per week during the semester were less likely to complete than their counterparts (Salamonson et al., 2014). An overall negative relationship was found between time spent per week in paid work and academic performance in baccalaureate nursing students (Salamonson et al., 2020). Barbe et al., (2018) identified the strongest factors related to student attrition from a baccalaureate nursing program as having one or more parents born outside of the United States. This factor was followed closely by speaking English as a second language and being racially diverse. Wagner et al., (2020) found that almost 30% of applicants to a college pre-licensure master’s entry and graduate nursing program identified as first-generation to college. First-generation applicants were significantly more likely to be older, a student of color, a veteran, an immigrant, or an international student.

Finally, students were asked the highest number of credits they had previously taken in one semester. This question was important, as many students in the cohort under study attended a local community college for pre-nursing coursework. In many settings, 12 credit hours is considered full-time. Students may have further reduced their course load when taking more rigorous science courses, as both cumulative and science GPAs are considered for admission. For full-time nursing students within this cohort to graduate on target, they must take between 15-17 credit hours per semester during their junior and senior years. This concern with students successfully matriculating from a community college setting to a baccalaureate program, while taking at least 15 credits per semester, was addressed by Klempin (2014). While it may be difficult to isolate a single variable as the best predictor of student success, a combination of
variables may serve as an effective model in determining which students are most likely to be successful and graduate on target.

Variables

The three independent variables for this study were life stress, state anxiety, and academic resilience as measured by the standardized tools previously discussed. The dependent variable was whether the student graduated on target from the baccalaureate degree program within two years, in the spring of 2021. All variables, including sociodemographic and academic variables, are noted in Table 2.

Table 2
Variable/Code Table

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Code</th>
</tr>
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<tbody>
<tr>
<td>Student Graduated on Target</td>
<td>0=No; 1=Yes</td>
</tr>
<tr>
<td>(Baccalaureate Degree Attainment within two years of admission)</td>
<td></td>
</tr>
<tr>
<td>Life Stress (Holmes-Rahe Life Stress Inventory)</td>
<td>Continuous- Total Score 0-1,466</td>
</tr>
<tr>
<td></td>
<td>1 = Low amount of life change (150 pts or less); 2 = Moderate amount of life change (150-300 pts); 3 = High amount of life change (300 pts or more)</td>
</tr>
<tr>
<td>State Anxiety (State Trait Anxiety Inventory)</td>
<td>Continuous- Total Score 20-80</td>
</tr>
<tr>
<td></td>
<td>1 = No or low anxiety (20-37 pts); 2 = Moderate anxiety (38-44 pts); 3 = High anxiety (45-80 pts)</td>
</tr>
<tr>
<td>Academic Resilience (Academic Resilience Scale-30)</td>
<td>Continuous- Global Score 30-150</td>
</tr>
<tr>
<td></td>
<td>Factor -1 scores = perseverance; Factor-2 scores = reflecting and adaptive help-seeking response; Factor-3 scores = negative affective and emotional response</td>
</tr>
<tr>
<td>Student Name</td>
<td>Student Number</td>
</tr>
<tr>
<td>Age</td>
<td>Continuous</td>
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<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>Biological Sex</td>
<td>0 = Male; 1 = Female</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>1 = White; 2 = Black; 3 = Hispanic; 4 = multi-racial</td>
</tr>
<tr>
<td>English Second Language Learner</td>
<td>0 = No; 1 = Yes</td>
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<tr>
<td>First Generation College Student</td>
<td>0 = No; 1 = Yes</td>
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<tr>
<td>Admission GPA</td>
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<tr>
<td>Number of hours plan to work per week while in school</td>
<td>Continuous</td>
</tr>
<tr>
<td>Highest number of college credits taken in one semester</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

Analytic Strategy

Statistical Program for Social Sciences (SPSS) Statistics 27 was used to conduct a correlational statistical analysis based on the six critical steps in data analysis presented by Creswell and Plano-Clark (2018). First, data were prepared for analysis, in that each survey response was assigned a number and entered into SPSS Statistics 27. The data were then cleaned by looking for and correcting errors and determining what would be done with incomplete surveys. Four respondents left one blank answer for the ARS-30 instrument, and the most common response for the rest of the respondents was entered. One respondent recorded two answers for one of the ARS-30 tool items, so the average of those two responses was recorded. Next, the items were recoded, and new variables were computed. For this study, a variable table was developed (Table 2).

The data were then inspected for trends and to determine whether there was a normal distribution. The next step involved using the SPSS version 27. Descriptive statistics were conducted on the demographic data: personal characteristics of the participants, including data related to life stress, state anxiety, and academic resilience. Following this analysis, a Pearson
correlation and Chi-square test of independence were performed to measure the relationships of life stress level and program completion and of state anxiety level and program completion. In addition, a point by serial correlation was conducted to determine the strength of the correlation of the variables on student outcomes. A binary logistic regression was then performed on all life stress scores, state anxiety scores, and academic resiliency scores and targeted program completion to determine whether these scores could predict targeted program completion when controlling for students’ sociodemographic and academic characteristics.

Limitations

The limitations of this study include conducting the study at a single site and having a small sample, which limits the generalizability of the findings. Another limitation was students self-reporting the survey data. While a significant correlation was found between state anxiety and targeted program completion, caution should be used when considering this result due to the limited sample size and inadequate cell counts for the Chi square test of independence.

It is reasonable to assume that the Covid-19 pandemic may have further complicated this study as well as the participants’ ability to graduate on target. Students were initially surveyed in the fall of 2019 prior to the pandemic. The last phase of data collection occurred in the spring of 2021, when students were to have graduated. The ongoing pandemic may have contributed to the ability of some students to graduate on target, as many were navigating an in-seat nursing program moving online in conjunction with family and work responsibilities and associated stressors.
Results

Sociodemographic Characteristics and Student Outcomes

Most of the students were female (91.3%), White (60.9%), spoke English as their primary language (84.8%), and were not first-generation college students (54.3%). Of the 46 students under study, 29 students (63%) graduated on target and 17 students (37%) did not. These students either graduated one semester behind their original cohort, were still enrolled in the program, or were lost to attrition. The sociodemographic characteristics and student outcomes are presented in Table 3.

Table 3
Sociodemographic Characteristics and Student Outcomes

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>42</td>
<td>91.3</td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>28</td>
<td>60.9</td>
</tr>
<tr>
<td>Black</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>13.0</td>
</tr>
<tr>
<td>English Second Language Learner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>84.8</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>First Generation College Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>54.3</td>
</tr>
<tr>
<td>Yes</td>
<td>21</td>
<td>45.7</td>
</tr>
<tr>
<td>Graduated on Target</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>37.0</td>
</tr>
<tr>
<td>Yes</td>
<td>29</td>
<td>63.0</td>
</tr>
</tbody>
</table>
As shown in Table 4, the average age of the students was 23.8 (SD 5.695) years, with ages ranging from 18 to 45 years old. The average admission GPA was 3.25 (SD 0.37863) and ranged from 2.53 to 4.0. The highest number of college credits taken in one semester averaged at 16.17 (SD 2.711) and ranged from 8 to 22 credits. The highest number of hours students planned to work per week while in school averaged 8.95 (SD 7.57571) and ranged from 0 to 30 hours.

Table 4

Sociodemographic and Academic Characteristics of Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent’s age</td>
<td>46</td>
<td>23.80</td>
<td>5.695</td>
</tr>
<tr>
<td>Admission GPA</td>
<td>46</td>
<td>3.2454</td>
<td>.37863</td>
</tr>
<tr>
<td>Highest number of college credits taken in one semester</td>
<td>46</td>
<td>16.17</td>
<td>2.711</td>
</tr>
<tr>
<td>Number of hours planning to work per week while in school</td>
<td>46</td>
<td>8.9457</td>
<td>7.57571</td>
</tr>
</tbody>
</table>

Descriptive Analysis of Life-Stress, State Anxiety, and Academic Resiliency

A descriptive statistical analysis was conducted to determine the life stress and state anxiety baseline levels of the participants. As shown in Table 5, life stress baseline levels ranged from low to high, with 47.8% of students reporting a low amount of life stress/life change, 43.5% reporting a moderate amount of life change/life stress, and 8.7% reporting a high amount of life change/life stress. State anxiety baseline levels also ranged from no/low anxiety to high anxiety, with 15.2% of students reporting no/low anxiety, 30.4% reporting moderate anxiety, and 54.3% reporting high anxiety. At the beginning of the nursing program, the overall majority (91.3%) of nursing students rated the level of their life-stress as either low or moderate, while the majority (84.7%) rated their state anxiety as either moderate or high.
A descriptive statistical analysis was conducted to determine the overall scores of life stress and state anxiety as well as the overall and factor scores for academic resiliency. As shown in Table 6, Life stress scores averaged 181.2 (SD 77.9) and ranged from 50 to 369. State anxiety scores averaged 45.7(SD 8.7) and ranged from 26 to 60.

Table 5

Life Stress and State Anxiety Baseline Levels of Respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stress Baseline Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>22</td>
<td>47.8</td>
</tr>
<tr>
<td>Moderate</td>
<td>20</td>
<td>43.5</td>
</tr>
<tr>
<td>High</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>State Anxiety Baseline Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No/Low</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>Moderate</td>
<td>14</td>
<td>30.4</td>
</tr>
<tr>
<td>High</td>
<td>25</td>
<td>54.3</td>
</tr>
</tbody>
</table>

Table 6

Life Stress, State Anxiety, and Academic Resilience Scores of Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stress Score</td>
<td>46</td>
<td>181.2</td>
<td>77.9</td>
</tr>
<tr>
<td>State Anxiety Score</td>
<td>46</td>
<td>45.7</td>
<td>8.7</td>
</tr>
<tr>
<td>Academic Resilience Total Score</td>
<td>46</td>
<td>120.9</td>
<td>14.2</td>
</tr>
<tr>
<td>Academic Resilience Factor-1 Score</td>
<td>46</td>
<td>61.3</td>
<td>5.4</td>
</tr>
<tr>
<td>Academic Resilience Factor-2 Score</td>
<td>46</td>
<td>38.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Academic Resilience Factor-3 Score</td>
<td>46</td>
<td>21.7</td>
<td>5.7</td>
</tr>
</tbody>
</table>
Academic resilience average global score was 120.9 (SD 14.2), out of a total possible score of 150 points. This average score reflects a high level of self-reported academic resilience in nursing students at the beginning of the program. The average Factor-1 score (perseverance) was 61.3 (SD 5.4) out of a possible total of 70 points, reflecting a high average score for perseverance related to academic resilience. The average Factor-2 score (reflecting and adaptive help-seeking behavior) was 38 (5.3) out of a possible total of 45 points, reflecting a high average score for reflecting and adaptive help-seeking behavior related to academic resilience. The average Factor-3 score (negative affective and emotional response) was 21.7 (SD 5.7) out of a possible 35 points, reflecting a low average score for negative affective and emotional responses related to academic resilience.

The high average global, Factor-1, and Factor-2 scores suggest that students felt a very high level of academic resilience overall. Specifically, the findings suggest that at the beginning of the nursing program, students felt confident in their ability to persevere through academic adversity, and engage in personal reflection and adaptive help-seeking behavior. The low average Factor-3 score suggests that students believed that they would refrain from negative affective or emotional responses to academic adversity, further supporting their high sense of academic resilience.

Table 7 provides data related to life stress and state anxiety levels as well as data related to gender, ethnicity, English second language learners, first generation college students, and student outcomes. The sample of students was highly homogenous, with the majority being female, White, and speaking English as their primary language. However, the sample was almost evenly divided between those who were a first-generation college student and those who were not. Female students more frequently reported more moderate-high levels of life stress (55%)
than did their male counterparts (25%). While eighty-three percent of female students reported moderate-high levels of state anxiety, 100% of male students reported moderate-high levels of state anxiety. All male students graduated on target, however, of all female students only 60% graduated on target.

The highest levels of life stress were reported by multi-racial students. Eighty-three percent of multi-racial students reported moderate-high levels of life stress, while 50% of Hispanic students and 50% of White students reported moderate-high levels of life stress. However, only 25% of Black students reported moderate life stress, with no Black students reporting high levels of life stress. Hispanic students reported the highest levels of state anxiety, with 100% reporting moderate-high levels. Eighty-two percent of White students and 83% of multi-racial students reported moderate to high levels of state anxiety, while 75% of Black students reported moderate-high levels of state anxiety. Regarding student outcomes, 75% of Black students graduated on target, 71% of White students graduated on target, 67% of multi-racial students graduated on target, but only 25% of Hispanic students graduated on target.

Forty-three percent of English second language learning students reported moderate-high levels of life stress, while 54% of their English-speaking counterparts reported moderate-high levels of life stress. One hundred percent of English second language learning students reported high levels of state anxiety, while 82% of their English-speaking counterparts reported moderate-high levels of state anxiety. Ultimately, 72% of students speaking English as their primary language graduated on target, while only 14% of English second language students graduated on target.
### Table 7

Gender, Ethnicity, English Second Language Learners, First Generation College Students, Life Stress Levels, State Anxiety, and Student Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Graduated on Target</th>
<th>Life Stress Level</th>
<th>State Anxiety Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female 42</td>
<td>25 (60%)</td>
<td>19 (45%) Low</td>
<td>7 (17%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19 (45%) Mod</td>
<td>13 (31%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 (10%) High</td>
<td>22 (52%) High</td>
</tr>
<tr>
<td>Male 4</td>
<td>4 (100%)</td>
<td>3 (75%) Low</td>
<td>1 (25%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 (25%) Mod</td>
<td>3 (75%) High</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White 28</td>
<td>20 (71%)</td>
<td>14 (50%) Low</td>
<td>5 (18%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 (50%) Mod</td>
<td>10 (36%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13 (46%) High</td>
</tr>
<tr>
<td>Black 4</td>
<td>3 (75%)</td>
<td>3 (75%) Low</td>
<td>1 (25%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 (25%) Mod</td>
<td>1 (25%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 (50%) High</td>
</tr>
<tr>
<td>Hispanic 8</td>
<td>2 (25%)</td>
<td>4 (50%) Low</td>
<td>2 (25%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 (25%) Mod</td>
<td>6 (75%) High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 (25%) High</td>
<td></td>
</tr>
<tr>
<td>Other (Multi-Racial) 6</td>
<td>4 (67%)</td>
<td>1 (17%) Low</td>
<td>1 (17%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (50%) Mod</td>
<td>1 (17%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 (33%) High</td>
<td>4 (67%) High</td>
</tr>
<tr>
<td><strong>English Second Language Learner</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No 39</td>
<td>28 (72%)</td>
<td>18 (46%) Low</td>
<td>7 (18%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18 (46%) Mod</td>
<td>14 (36%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (8%) High</td>
<td>18 (46%) High</td>
</tr>
<tr>
<td>Yes 7</td>
<td>1 (14%)</td>
<td>4 (57%) Low</td>
<td>7 (100%) High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 (29%) Mod</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 (14%) High</td>
<td></td>
</tr>
<tr>
<td><strong>First Generation College Students</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No 25</td>
<td>16 (64%)</td>
<td>11 (44%) Low</td>
<td>3 (12%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 (44%) Mod</td>
<td>8 (32%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (12%) High</td>
<td>14 (56%) High</td>
</tr>
<tr>
<td>Yes 21</td>
<td>13 (62%)</td>
<td>11 (52%) Low</td>
<td>4 (19%) Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 (43%) Mod</td>
<td>6 (29%) Mod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 (5%) High</td>
<td>11 (52%) High</td>
</tr>
</tbody>
</table>
Forty-eight of first-generation college students reported moderate-high levels of life stress compared to 56% of those who reported moderate-high levels of life stress and were not first-generation college students. Eighty-one percent of first-generation college students reported moderate-high levels of state anxiety compared to 88% of students who reported moderate-high levels of state anxiety and were not first-generation college students. Of the first-generation college students, 62% graduated on target, while 64% of students who were not first-generation students graduated on target.

**Association Among Biological Sex, Ethnicity, ESL Status, First Generation Status, and Student Outcomes**

To determine whether there was an association among biological sex, ethnicity, English second language status, first generation college student status, and graduating on target, four Chi Square tests of independence were conducted. The only variable associated with targeted program completion was being an English second language learner ($p = .004$). The Chi-square value for this association was 8.425 and the $p$ value was significant at the .05 level. These findings indicate an association between being an English second language learner and students graduating on target.

To determine whether being an English second language learner was associated with state anxiety level, a Chi Square test of independence was conducted. A statistically significant association was found between being an English second language learner and level of state anxiety ($p = .031$) at the .05 level, with a Chi Square value of 6.935 and two degrees of freedom.
Association between Life Stress Baseline Level and Student Outcomes

To determine whether there was an association between level of reported life stress and graduating on target, a Chi square test of independence was conducted. Of the students who reported a low amount of life stress/life change, 55.2% graduated on target. Of the students who reported a moderate amount of life change/life stress, 41.4% graduated on target. However, of the students who reported a high amount of life change/life stress, only 3.4% graduated on target. The Chi square value was 3.402, with two degrees of freedom and a .183 p value, indicating no statistical association between students’ life stress and on-target graduation status. These findings indicate there is not an association between levels of life-stress and targeted program completion, after controlling for sociodemographic and academic variables.

Association between State Anxiety Baseline Level and Student Outcomes

To determine whether there was an association between level of reported state anxiety and graduating on target, another Chi square test of independence was conducted. Of the students who reported having no or low anxiety, 24.1% graduated on target. For both students who reported having moderate or high levels of state anxiety, 37.9% graduated on target. The Chi Square value was 9.444 with two degrees of freedom and a p value of .009, which was significant at the .05 level. These findings suggest a significant association between levels of state anxiety in nursing students and targeted program completion, after controlling for sociodemographic and academic variables.
To determine whether there was an association between being an English second language learner, and state anxiety baseline level, a Chi Square test of Independence was conducted. A statistically significant association was found between being an English second language learner and level of state anxiety \((p = .031)\). The Chi Square value was 6.935 with two degrees of freedom.

To determine whether age, admission GPA, highest number of college credits previously taken in one semester or number of hours the student planned to work per week could predict whether students graduated on target, a binary logistic regression was performed. However, none of these sociodemographic or academic variables predicted whether students graduated on target. Results for this analysis are presented in Table 8.

### Table 8

Binary Logistic Regression- Age, Admission GPA, Highest Number of College Credits Taken in One Semester, Number of Hours Planning to Work per Week, and Student Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>SE</th>
<th>95% CI for EXP(B)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp(B)</td>
<td></td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>Age</td>
<td>.996</td>
<td>.057</td>
<td>.892</td>
<td>1.113</td>
</tr>
<tr>
<td>GPA</td>
<td>.454</td>
<td>.881</td>
<td>.081</td>
<td>2.553</td>
</tr>
<tr>
<td>Highest Number of College Credits Taken/Semester</td>
<td>1.065</td>
<td>.120</td>
<td>.842</td>
<td>1.347</td>
</tr>
<tr>
<td>Number of Hours Planning to Work/Week</td>
<td>.988</td>
<td>.043</td>
<td>.908</td>
<td>1.075</td>
</tr>
</tbody>
</table>
Association between all Sociodemographic Variables and Student Outcomes

To determine whether any of the sociodemographic or academic variables could predict whether students graduated on target, a binary logistic regression was performed, the results of which are presented in Table 9. None of the sociodemographic or academic variables including age, admission GPA, highest number of college credits previously taken in one semester, number of hours the student planned to work per week, biological gender, ethnicity, being an English second language learner, or being a first-generation college student predicted whether students graduated on target.

Association among Life Stress, State Anxiety, Academic Resilience and Student Outcomes

To determine whether any of the total scores for life stress, state anxiety, or academic resilience scores could predicted whether students graduated on target, a binary logistic regression analysis was conducted. While neither life stress nor academic resilience scores predicted whether students graduated on target, state anxiety effectively did so. As shown in Table 10, only state anxiety was statistically significant in predicting whether students graduated on target ($p = .002$) at the .05 level with a 95% CI between .762 - .943. Further, the findings suggest that as a student’s state anxiety score increases, their chance of graduating on target decreases.
### Table 9
Binary Logistic Regression - All Sociodemographic and Academic Variables and Student Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>SE</th>
<th>95% CI for EXP(B)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>Age</td>
<td>1.014</td>
<td>.067</td>
<td>.889</td>
<td>1.157</td>
</tr>
<tr>
<td>Admission GPA</td>
<td>1.982</td>
<td>1.077</td>
<td>.240</td>
<td>16.355</td>
</tr>
<tr>
<td>Highest Number of College Credits Taken/Semester</td>
<td>.908</td>
<td>.152</td>
<td>.674</td>
<td>1.222</td>
</tr>
<tr>
<td>Number of Hours Planning to Work/Week</td>
<td>.965</td>
<td>.059</td>
<td>.861</td>
<td>1.082</td>
</tr>
<tr>
<td>Biological Gender = Male</td>
<td>688327238</td>
<td>19025.767</td>
<td>.000</td>
<td>______</td>
</tr>
<tr>
<td>Ethnicity = White</td>
<td>.605</td>
<td>1.226</td>
<td>.055</td>
<td>6.685</td>
</tr>
<tr>
<td>Ethnicity = Black</td>
<td>2.274</td>
<td>1.969</td>
<td>.048</td>
<td>107.835</td>
</tr>
<tr>
<td>Ethnicity = Hispanic</td>
<td>.370</td>
<td>1.466</td>
<td>.021</td>
<td>6.537</td>
</tr>
<tr>
<td>English Second Language Learner = No</td>
<td>17.123</td>
<td>1.475</td>
<td>.950</td>
<td>308.630</td>
</tr>
<tr>
<td>First Generation College Student = No</td>
<td>.691</td>
<td>.821</td>
<td>.138</td>
<td>3.457</td>
</tr>
</tbody>
</table>
Table 10

Binary Logistic Regression - Life Stress, State Anxiety, Academic Resilience Total Scores and Student Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>SE</th>
<th>95% CI for EXP(B)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stress Total Score</td>
<td>.991</td>
<td>.005</td>
<td>.981 .1001</td>
<td>.094</td>
</tr>
<tr>
<td>State Anxiety Total Score</td>
<td>.848</td>
<td>.055</td>
<td>.762 .943</td>
<td>.002</td>
</tr>
<tr>
<td>Academic Resilience Total Score</td>
<td>.965</td>
<td>.028</td>
<td>.914 1.019</td>
<td>.197</td>
</tr>
</tbody>
</table>

Association between State Anxiety Level and Student Outcomes

To determine whether the level of state anxiety could predict whether students graduated on target, a binary logistic regression analysis was conducted. As shown in Table 11, level of state anxiety predicted whether student graduated on target, in that moderate levels of state anxiety predicted targeted graduation ($p = .044$). Students who reported a moderate level of state anxiety were 4.7 times more likely to graduate on target than their counterparts who reported a high level of state anxiety. These findings indicate that level of state anxiety predicts whether students graduate on target.
Table 11

Binary Logistic Regression - State Anxiety Baseline Levels

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio Exp(B)</th>
<th>SE</th>
<th>95% CI for EXP(B) LL</th>
<th>UL</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Anxiety Baseline-Low</td>
<td>2.056E+9</td>
<td>15191.515</td>
<td>.000</td>
<td></td>
<td>.999</td>
</tr>
<tr>
<td>State Anxiety Baseline-Moderate</td>
<td>4.667</td>
<td>.766</td>
<td>1.040</td>
<td>20.938</td>
<td>.044</td>
</tr>
</tbody>
</table>

Association between Academic Resiliency Factor Scores and Student Outcomes

To determine whether any of the factor scores for academic resilience could effectively predict whether students graduated on target, a binary logistic regression was conducted. As shown in Table 12, none of the factor scores were statistically significant and thus were unable to predict whether students graduated on target. These findings indicate that academic resilience scores do not predict whether nursing students will graduate on target.
Table 12

Binary Logistic Regression-Academic Resilience Factor Scores and Student Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds ratio</th>
<th>SE</th>
<th>95% CI for EXP(B)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp(B)</td>
<td></td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>Academic Resilience Factor-1 Score</td>
<td>.954</td>
<td>.115</td>
<td>.761</td>
<td>.197</td>
</tr>
<tr>
<td>Academic Resilience Factor-2 Score</td>
<td>1.219</td>
<td>.114</td>
<td>.974</td>
<td>1.524</td>
</tr>
<tr>
<td>Academic Resilience Factor-3 Score</td>
<td>.897</td>
<td>.082</td>
<td>.764</td>
<td>1.054</td>
</tr>
</tbody>
</table>

Discussion

The purpose of this study was to explore the associations among students’ life stress, state anxiety, academic resilience, and targeted program completion. Of these three variables, only state anxiety had a statistically significant association with targeted program completion \((p = .009)\) and state anxiety was able to predict whether students graduated on target \((p = .002)\). Further, having a moderate level of state anxiety predicted whether students graduated on target \((p = .044)\), in that students with a moderate level of anxiety were 4.7 times more likely to graduate on target than their counterparts who reported a high level of state anxiety.

Also explored was the relationship between multiple sociodemographic and academic variables and their association with life stress, state anxiety, academic resilience, and targeted program completion. Of the sociodemographic and academic variables explored, only being an
English second language learner had a statistically significant association with targeted program completion ($p = .004$), and being an English second language learner was also associated with state Anxiety ($p = .031$).

The findings from this study support prior research regarding the presence and level of stress experienced by baccalaureate nursing students (Kang et al., 2015; Ali & Ali, 2016; Goff, 2011; Hegge & Larson, 2008; Labrague, 2013; Labrague et al., 2017; Liu et al., 2015). The survey tool used in this study allowed me to quantify life stress, state anxiety, and academic resilience in students. Further, the life stress and state anxiety tools provided overall scores as well as levels for the various score ranges. The academic resilience tool provided global scores as well as three factor scores (Factor 1- perseverance; Factor 2 -Reflecting and adaptive help seeking; Factor 3- negative affective and emotional responses). Overall, students reported more state anxiety than life stress and academic resiliency scores were relatively high for most students. Consistent with Murdock and Perlow (2010), female nursing students reported higher stress levels than did their male counterparts. However, in keeping with findings from Goff (2011), personal life stress was not statistically associated with academic performance, as assessed by targeted program completion.

While no association was found between life stress and targeted program completion or academic resiliency and targeted program completion, a significant association was found between state anxiety and targeted program completion. When considering why life stress was not associated with targeted program completion, I believe the life stress tool used in the survey may not have been appropriate for this cohort of students. The age of the students ranged from 18-45, but the average age was 23.8 years. Many of the life stressors contained in the tool may not have applied to many of the students. This may have resulted in life stress scores being
relatively low and thus not having a significant effect on targeted program completion. Further, older students, male students, and black students may have developed more effective personal coping strategies or may be less inclined to admit struggles, and as a result may have reported lower levels of life stress.

Regarding state anxiety, all male and Hispanic respondents reported moderate-high levels of state anxiety. The findings support prior research on the presence of state anxiety in the academic setting (Alvarez et al., 2012) as well as the negative manifestations of state anxiety, which can be both physical and cognitive (Ongel et al., 2015). High levels of anxiety were found to adversely impact one’s attention (Fernandez-Castillo & Caurcel, 2014) and have been associated with a decrease in attention, concentration, and cognitive performance (Alvarez et al., 2012; Gass & Curiel, 2011). Extremely high levels of anxiety were found in 35% of higher education students during examinations (Alvarez et al., 2012). These findings, while not directly addressing targeted program completion, underscore the presence of and potentially negative effects of state anxiety on academic success.

Despite the students’ relatively high academic resilience scores, neither global nor factor scores predicted whether students would graduate on target. In considering why academic resilience scores were high but not statistically significant, I noted the timing of survey completion. The surveys were administered upon admission to the nursing program, after they had completed at least 64 hours of general education credits and before they had begun the coursework for the nursing program. Therefore, students may have felt quite confident regarding their academic ability, having not yet been challenged by the rigors of nursing education. Further, the academic resilience tool asked questions regarding how they think they would
respond to an academic set back, and therefore does not necessarily reflect how they may respond to the given situation.

All categorical sociodemographic and academic variables were analyzed to determine whether there was an association between any of the variables and targeted program completion. The only association found was between targeted graduation and students speaking English as a second language \((p = .004)\). While this association was identified, being an ESL student did not predict whether students graduated on target \((p = .054)\). While not addressed by a specific research question, an analysis was conducted to explore the association between being an English second language learner and level of state anxiety. An association was identified between these two variables and suggests the need for further study. The findings from this study support prior research on the academic challenges of English second language learners. Barbe et al., (2018) identified the strongest factors related to student attrition from a baccalaureate nursing program as having one or more parents born outside of the United States. This factor was followed closely by being an English second language learner and being racially diverse.

The results of this study identified a statistically significant association between English second language learners and targeted program completion \((p = .004)\), but did not predict whether English second language students graduated on target \((p = .054)\). In addition, an association was found between being an English second language learner and state anxiety \((p = .031)\). While many respondents reported moderate-high levels of state anxiety, all English second language learners reported high levels of state anxiety, of which only 14% graduated on target.

The results from this study provide valuable contributions in that it was conducted in the midst of the Covid-19 pandemic, when students were likely to have been experiencing heightened levels of stress and anxiety. Although the survey data was collected before the start of the pandemic,
soon thereafter students were required to move from an in-seat to an online nursing program. During this time, students were expected to test and complete all work online. Many students were also charged with the responsibility of providing home schooling education to their children during this challenging time. In addition, students were unable to access clinical sites and instead were required to complete lengthy online simulations on virtual patients. Several students faced additional financial strain, being unable to work during the pandemic. Many students verbalized feelings of isolation and being unable to access usual self-care modalities which had normally assisted them in managing their mental health.

As a result of the pandemic, many students experienced additional life stress and anxiety, as well as academic and clinical stress. Despite these challenges, many were able to manage multiple stressors and graduate on target. However, several students who reported high levels of state anxiety, especially Hispanic and English second language learners, did not graduate on target. These findings suggest that English second language and Hispanic nursing students may need additional support and resources, to successfully complete their program of study.

Uniquely, the study followed one cohort of nursing students from admission to graduation and looked at multiple variables and their association with targeted program completion. Specifically, the findings provide a unique glimpse into the association between state anxiety and program completion in baccalaureate nursing students. Further, this study and its findings provide direct applications to research, the practice of education, and specifically to the college of nursing where the study was conducted. However, the findings from this study cannot be generalized to other populations, as it was conducted at a single site with a small sample. Still, it serves as a call for further research on state anxiety and program completion in baccalaureate nursing students, especially English second language learners.
Recommendations

The need to admit students to baccalaureate nursing programs to address national healthcare needs has been well documented. Equally important, however, is the need to support admitted students, limit attrition, and promote targeted program completion. To that end, administration, faculty, and staff need to prioritize and maintain a student-centered and supportive learning environment.

Upon admission, students who may be at risk for academic difficulty should be identified based on their level of state anxiety, as well as sociodemographic and academic factors that may impact targeted program completion. While all students should be well supported, additional support may be needed for male, Hispanic, and English second language students for managing their state anxiety.

Counseling services should be provided to all students, and students should be encouraged to access these services. Since counseling services may be cost prohibitive for many students, this cost should be included in their overall tuition. Additional support and resources should be provided for English second language learners, as these students may need resources to assist them in completing reading assignments and may also need additional time for testing. A student resource center should be developed, where students can access tutoring, test-taking strategies, ESL resources for reading and testing, and peer support.

As students may struggle at different points in the program, in-class seminars should be offered and encouraged, focusing on managing anxiety, study tips, developing and enhancing self-confidence through personal reflection, and time management strategies. Further, a structure
of peer mentorship should be developed and supported to promote perseverance and adaptive and help-seeking behaviors, and clinical internships should be strongly encouraged.

Conclusion

These findings are valuable to nursing administration, faculty, and staff to inform the practice of nursing education and perhaps the greater education community. However, more study is needed with larger populations of students, multi-site settings, and qualitative and mixed-methods study designs. This additional work will allow for generalization of findings and a deeper understanding of the impact of life stress, state anxiety, and academic resilience on students, and how these factors affect targeted program completion. Through additional study, insight may be gained regarding how students can be best supported to optimize successful program completion.
References


Ascend Learning, LLC. (2012). Student attrition: Consequences, contributing factors, and remedies [Research report:]. ATI Nursing Education.


CHAPTER 3

SCHOLARLY REFLECTION

In reflecting on this research project, I considered the study’s development and purpose as well as the research process which I navigated to bring the study to a successful conclusion. In addition, I considered the many challenges I encountered while conducting the study and the personal growth I experienced as a result of seeing this project from inception to completion. Next, I considered how the study and its findings can be applied to future research, practice, and the institution where the study was conducted. Finally, I considered the importance of disseminating the findings to the greater research community and the best method by which to do so.

Development of the Study

I developed and conducted this study in collaboration with Dr. Matthew Dalstrom and Dr. Andrea Doughty, two fellow faculty members. Dr. Dalstrom was also instrumental in helping me navigate the IRB process at our institution. Further, as graduate faculty member who would not have the participants in class, he introduced the study, invited students to participate, and collected all signed consent forms and completed surveys. In addition to assisting in the development of the study, Dr. Doughty provided ongoing statistical support.

The development of the study went smoothly, as our research team met regularly throughout the 2018-2019 academic year, prior to the study’s implementation. These meetings
were used to conduct a literature review, formulate research questions, determine how best to
gather needed data, and review survey tools to determine which ones should be used for the
study. Although I was a novice researcher at best, my 23 years as a nurse educator had prompted
my interest in the topic and my desire for further exploration. So, while I served as primary
investigator for the study, I relied heavily on Dr. Dalstrom’s and Dr. Doughty’s research
experience.

As I continued to move forward academically, I decided to use this study as the focus of
my dissertation. In doing so, I saved a great deal of time, as I was able to use the data already
collected and retain IRB approval for the study. Because of the early initiation of the study, I was
able to use a longitudinal design, encompassing four years, which I believe is unique for a
dissertation. I felt well supported by the faculty at the university through conducting and
compiling an extensive literature review, revising research questions, and moving the study to
the level of a dissertation while still retaining the original purpose of the study. My dissertation
Chair, Dr. Carrie Kortegast was instrumental in my academic progress and success by providing
ongoing guidance and support for this project. I benefited greatly from her knowledge,
experience, and dedication to student success.

Purpose of Study

The aim of this study was to explore the associations among life stress, state anxiety,
academic resilience, and targeted program completion for baccalaureate nursing students. To that
end, a cohort of 46 nursing students were surveyed at the beginning of their nursing program to
determine their life stress, state anxiety, and academic resilience. In addition, sociodemographic
and academic data were gathered from each participant. At the end of their nursing program,
when students were expected to graduate, student outcome data were evaluated to determine which students graduated on target.

Necessary Changes Related to Covid-19

While the overall goal of the study was met, part of the study did not proceed as planned. Originally, the plan was to collect survey data from students at the beginning of their program and then to repeat the survey at mid-program. Although the first survey was administered as scheduled and completed in a paper and pencil format, the mid-program survey could not be administered in this format due to the Covid-19 pandemic. To respond to this situation, I developed a Qualtrics survey of the original survey questions, except the sociodemographic and academic questions, and administered it online using the students’ email. The survey had an accompanying survey prompt, and several reminders were sent encouraging students to respond to the survey. However, only 18 of the original 46 students completed the second survey, and due to the limited response, these data were not analyzed.

Teachable Moments

Although many aspects of this study went well, there were certainly many challenges. Having never done so, I found it challenging to create a Qualtrics survey and place it online for students. Creating this survey without technical support at the height of the Covid-19 pandemic, while learning how to teach online and support struggling students, caused a great deal of stress for me. With the help of my daughter, however, I was able to format the survey and deliver it to students electronically.
Cleaning and tabulating data was very time consuming, but I did not find it to be a difficult process. However, I experienced many challenges using SPSS-27 through NIU. I found that I needed to update my computer before SPSS-27 could be installed. Then, I had to download SPSS-27 onto my computer and found the posted directions confusing, as perhaps they had not been updated since the last version was installed. Fortunately, I was able to resolve these issues and install the program.

Next, I had to review various statistical tests to determine which tests needed to be conducted to analyze my data and answer my research questions. For this, I used textbooks and watched countless YouTube videos on conducting data analysis, understand findings, and reporting results. I was pleasantly surprised by the volume of valuable information available in this format. To further confirm my analyses and findings, I worked with a member of the statistical support team at the university.

Personal Reflections

Throughout my career, I have witnessed countless students successfully navigate the many challenges of nursing school while managing personal stress and anxiety, while others have been unsuccessful in doing so. As such, I found this study to be quite valuable in my quest to understand what variables might be associated with student success. Although most students from this cohort graduated on target in May of 2021, some students were delayed by one semester, were still taking coursework, or were lost to attrition. Perhaps academic resilience allowed many students to graduate on target or persist in the program, despite identified challenges. However, it is likely that the Covid-19 pandemic complicated their ability to complete the nursing program on target. Students had to cope with the usual stress and anxiety
that accompany nursing school, in addition to the stress of moving from an in-seat to an online program, caring for and educating their own children, managing work schedules and other competing responsibilities.

Engaging in this research was a challenging endeavor but also a valuable learning experience. I learned not only how to analyze, interpret, and report data but came to understand the time, energy, focus, and collaboration needed to develop and implement a meaningful study. If I could have done anything differently for this study, it would be to conduct the same study at multiple sites across the United States and include a mid-program survey. I would also add a qualitative strand to gain further understanding about how life stress, state anxiety, and academic resilience impact program completion. In doing so, I could gain a greater depth and breadth of understanding regarding the students’ experience.

Application to Research, Practice, and the Institution

This study and its findings provide direct applications to research, the practice of education, and specifically to the college of nursing where the study was conducted. Uniquely, the study followed one cohort of nursing students from admission to graduation and looked at multiple variables and their association with targeted program completion. While significant correlations were found among the variables in the study, the findings cannot be generalized to students from other institution since the sample size was small and the study was conducted at a single site. However, the findings do provide valuable insight for the administration, staff, and faculty where this study was conducted in that there may be an association between state anxiety and targeted program completion. In addition, the findings underscore the importance of using multiple sociodemographic and academic variables to predict which students are most likely to
graduate on target. More importantly, the findings from this study represent a call for further research on factors that may impact targeted program completion in not only nursing programs but various other areas of higher education.

Dissemination of Findings

Dissemination of the findings is a critical step in the research process. To that end, I reviewed several journals to determine their primary focus, intended audience, standard format, and guidelines for authors. Having reviewed this information, I believe my study would most appropriately fit in a journal focused on nursing education. While all needed sections for the article have been thoroughly developed, additional editing will be needed before final submission. My study was conducted at a single site with a small sample, and as such would be published in the Research Briefs section of a journal, which has a strict page limit for such articles.

In conducting this study, I have learned a great deal about research. I have enhanced my understanding of the time, energy, focus, and collaboration needed to design and implement a quality study. Despite having taken qualitative, quantitative, and mixed methods research courses at the graduate level, I was initially intimidated by the prospect of conducting a quantitative study. However, through my experience with this project, I have gained knowledge, experience, and confidence in the research process that will enhance my ability to conduct additional studies in the future.
APPENDIX A

IRB APPROVAL LETTER- UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE
DATE: September 5, 2019

TO: Mary Jo Frichtl, MS, RN, CNE

FROM: [redacted]

STUDY TITLE: [1484851-1] Identifying At-Risk Baccalaureate Nursing Students through the use of the ARS-#30, the State Trait Anxiety inventory, and the Holmes and Rahe Stress Scale

IRB REFERENCE #: New Project

SUBMISSION TYPE: New Project

ACTION: APPROVED

APPROVAL DATE: September 4, 2019

EXPIRATION DATE: August 13, 2020

REVIEW TYPE: Expedited Review

Approval has been granted for one year pursuant to 45CFR46.110(a)(F)(7) "Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies."

This study is approved for 51 subjects for the life of the project. This approval covers the consent form, the protocol and the student survey.

This research meets the regulatory requirements for approval as specified in 45 CFR 46.111 and 21 CFR 50.111. Specifically, the risks to subjects are minimized and reasonable in relation to anticipated benefits to subjects and the importance of the knowledge that may reasonably be expected to result, and that written informed consent will be sought from each prospective subject.

The informed consent document meets the regulatory requirements as outlined in 45 CFR 46.116 (and 21 CFR 50.25).

PLEASE NOTE: Research must be conducted according to the proposal that was approved by the IRB. Any revisions to the previously approved materials must be approved by this office prior to initiation.

Use the appropriate revision forms for this procedure.

When your study is complete, please submit a Final Report to IRBNet.

Please retain copies of all records pertaining to this study for a minimum of three (3) years from study closure.

An Administrative Review will be requested prior to the end of one year of study.
APPENDIX B

IRB STUDY RENEWAL APPROVAL LETTER- UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE
DATE: August 14, 2020

TO: Mary Jo Frichtl, MS, RN, CNE
FROM: [Redacted]

STUDY TITLE: [1484851-3] Identifying At-Risk Baccalaureate Nursing Students through the use of the ARS-#30, the State Trait Anxiety Inventory, and the Holmes and Rahe Stress Scale

IRB REFERENCE #: [Redacted]
SUBMISSION TYPE: Annual Administrative Review

ACTION: APPROVED
APPROVAL DATE: August 13, 2020
EXPIRATION DATE: August 12, 2021
NEXT REPORT DUE: July 29, 2021
REVIEW TYPE: Administrative Review

Thank you for your submission of Annual Administrative Review materials for this research study. University of Illinois College of Medicine Peoria IRB 1 has approved your renewal submission for one year of study. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Administrative Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

PLEASE NOTE: Research must be conducted according to the proposal that was approved by the IRB. Any revisions to the previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

Based on the risks, this project requires Administrative Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.

When your study is complete, please submit a Final Report to IRBNet.

If this study is regulated by the HIPAA Privacy Rule, please retain copies of all records pertaining to this study for a minimum of six (6) years from study closure. Otherwise, please retain research records for a minimum of three (3) years from study closure.
APPENDIX C

INSTITUTIONAL AUTHORIZATION AGREEMENT NOTICE - NORTHERN ILLINOIS UNIVERSITY
27-Aug-2020
Mary Jo Frichtl
Counseling, Adult and Higher Education

RE: Protocol # HS21-0034 “Identifying at-risk baccalaureate nursing students through the use of the ARS-#30, the State Trait Anxiety Inventory, and the Holmes and Rahe Stress Scale”

Dear Mary Jo Frichtl,

The above-mentioned collaborative research project that had been reviewed and approved by the Institutional Review Board at [University] was reviewed on 27-Aug-2020 by the IRB at Northern Illinois University. From the information that was provided, the NIU IRB has determined that the proposed activity would have received the same approval determination at NIU. As such, an agreement has been put in place for NIU to serve as the relying institution and to cede IRB responsibility to [University].

If you have questions or need additional information, please contact the Office of Research Compliance, Integrity, and Safety at 815-753-8588.

Sincerely,

Patty Wallace
Office of Research Compliance, Integrity, and Safety
APPENDIX D

RESEARCH SUBJECT INFORMED CONSENT FORM
Protocol Title: Identifying At-Risk Baccalaureate Nursing Students through the use of the ARS-30, the State Trait Anxiety Inventory, and the Holmes and Rahe Stress Scale

Principle Investigator: Mary Jo Frichtl MS, RN, CNE

Co-Investigators: Matthew Dalstrom PhD, MPH  Andrea Doughty PhD

Focused and Concise Summary
You are being asked to participate in this study because you are baccalaureate student at Saint Anthony college of Nursing. Taking part in this study is completely voluntary. By participating in this study, you will help to identify factors which impact graduation rates and student success. If you choose to participate, you will be asked to complete two surveys in your first year of study. While completing the survey you may experience heightened anxiety and a sense of vulnerability. There will be no direct benefits for participating in the study. However, participants may appreciate having the ability to potentially improve the nursing program for future students, through the identification of students at-risk for academic difficulty and the development of needed resources for student support.

Why is the study being conducted?
The purpose of this study is to implement tools to identify Baccalaureate nursing students at-risk for not persisting to graduation. Resiliency will be explored using the ARS-30, anxiety will be explored using the State Trait Anxiety Inventory, and life stress will be explored using the Holmes and Rahe Stress Inventory.

What is involved in the study?
The survey will take 20-30 minutes to complete, early in the first semester of the nursing program and again at mid-program. Data collection will involve completing paper copies of a student survey exploring resiliency, anxiety, and life stressors. Participants will be presented with 43 potential life stressors experienced by many adults and asked to place a check mark next asked to answer 20 Likert style questions, asking respondents about how they are currently feeling. Finally, participants will be presented with a scenario and asked how they think they would respond in the same situation. This will involve another 30 Likert styled questions. Surveys will be collected by data will be sealed and delivered to the primary investigator. Completed surveys will be securely stored in the locked cabinet of the locked office of the primary investigator. Data will remain sealed until the respondents have graduated from, at which time data will be reviewed, coded, and analyzed.

Data will be reviewed and coded prior to analysis to maintain privacy. Coded data will then be entered into the SPSS system for descriptive and correlational analysis. The original surveys, with identifiable data, will be destroyed once data has been coded for privacy and entered into the SPSS system. At the end of the study, resiliency, anxiety, and life stressor scores will be evaluated, along with demographic data, and correlated with course completion and program completion/graduation data. Then, all data associated with the study will be destroyed.
What are the possible risks/discomforts or benefits for participation?
Minimal risk is anticipated for participants, while some anxiety may be expected in completing the tools for the study. Further, students may experience a heightened level of vulnerability when providing personal information. These issues will be addressed by making participation completely voluntary and by reframing resiliency, anxiety and life stressors as they relate to success in nursing school.

Will your information be kept private?
The participants’ names with completed surveys will remain sealed and securely locked in the file cabinet of the locked office of the Primary Investigator. Following graduation of participants, data will be reviewed, coded for privacy and entered into the SPSS system for data analysis. Only coded scores will be shared with co-investigators and only group scores will be shared with faculty, staff and administration for the purpose of program improvement. At the end of the study, all data associated with the study will be destroyed.

What are the possible risks of taking part in the study?
Minimal risk is anticipated for participants, while some anxiety may be expected in completing the tools for the study. Further, students may experience a heightened level of vulnerability when providing personal information. However, participation in this study is completely voluntary and participants can stop answering questions on the survey at any time. Further, respondents can skip any questions they are uncomfortable answering. Dr. Dalstrom, a co-investigator who does not teach in the undergraduate program, will be responsible for introducing the study, inviting students to participate, and collecting survey data. The Primary Investigator and other co-investigators will not be present while students complete the survey, so that students feel more comfortable either completing the study or with their decision not to do so.

What are your rights as a participant and what will happen if you choose not to participate?
Students who choose not to participate will be assured that they will not be penalized in any way for their decision not to do so.

Whom can I call if I have questions or concerns?
If you have questions regarding your child’s participation in this research study or if you have any questions about your rights as a research subject, talk with Mary Jo Frichtl. You may also contact the Peoria Institutional Review Board by calling 309-680-8630.

Rights of Research Subjects:
I have read (or someone has read to me) the information provided above. I have been given a chance to ask questions. All of my questions have been answered adequately. By signing this form, I am agreeing to take part in this study. My decision not to sign this consent form will not affect my status as a student at [institution], my continued enrollment in the College, or eligibility to benefits to which I am normally entitled.

____________________________________
Printed Name of Research Participant
I have personally explained the research study to the research participants and answered all questions. I believe he/she understands the information presented in this Informed Consent document and freely consents to participate in the study.

______________________________
Printed Name of Person Obtaining Consent

______________________________
Signature of Person Obtaining Consent Date Time

IRB-mar Approved: 9/4/19 Expires: 8/13/20
APPENDIX E

This survey is being conducted in an attempt to understand factors which may place students at risk for academic difficulty. It is our hope that by understanding the stressors, anxiety and resilience of our students, the college can work to address the needs of our students and promote their success.

Directions: Please place a checkmark next to any of the life events you have experienced in the past year.

1. Death of spouse
2. Divorce
3. Marital separation from mate
4. Detention in jail or other institution
5. Death of a close family member
6. Major personal injury or illness
7. Marriage
8. Being fired at work
9. Marital reconciliation with mate
10. Retirement from work
11. Major change in the health or behavior of a family member
12. Pregnancy
13. Sexual difficulties
14. Gaining a new family member (i.e. birth, adoption, older adult moving in, etc.)
15. Major business readjustment
16. Change in financial state (i.e. a lot worse or better off than usual)
17. Death of a close friend
18. Changing to a different line of work
19. Major change in the number of arguments w/spouse (i.e. either a lot more or a lot less than usual regarding child rearing, personal habits, etc.)
20. Taking on a mortgage (for home, business, etc.)
21. Foreclosure on a mortgage or loan
22. Major change in responsibilities at work (i.e. promotion, demotion, etc.)
23. Son or daughter leaving home (marriage, attending college, joined military)
24. In-law troubles
25. Outstanding personal achievement
26. Spouse beginning or ceasing work outside the home
27. Beginning or ceasing formal schooling
28. Major change in living condition (new home, remodeling, deterioration of neighborhood/home, etc.)
29. Revision of personal habits (dress manners, associations, quitting smoking)
30. Troubles with the boss
31. Major changes in working hours or conditions
32. Changes in residence
33. Changing to a new school
34. Major change in usual type and/or amount of recreation
35. Major change in church activity (i.e. a lot more or less than usual)
36. Major change in social activities (clubs, movies, visiting, etc.)
37. Taking on a loan (car, TV, freezer, etc.)
38. Major change in sleeping habits (a lot more or a lot less than usual)
39. Major change in number of family get-togethers
40. Major change in eating habits (a lot more or less food intake, or very different meal hours or surroundings)
41. Vacation
42. Major holidays
43. Minor violations of the law (traffic tickets, jaywalking, disturbing the peace, etc.)

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the number in the blank at the end of the statement that indicates how you feel right now, that is, at this
moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

<table>
<thead>
<tr>
<th></th>
<th>Not At All</th>
<th>Somewhat</th>
<th>Moderately So</th>
<th>Very Much So</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.</td>
<td>I feel calm</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>45.</td>
<td>I feel secure</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>46.</td>
<td>I am tense</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>47.</td>
<td>I feel strained</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>48.</td>
<td>I feel at ease</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>49.</td>
<td>I feel upset</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>50.</td>
<td>I am presently worrying over possible misfortunes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>51.</td>
<td>I feel satisfied</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>52.</td>
<td>I feel frightened</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>53.</td>
<td>I feel comfortable</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>54.</td>
<td>I feel self-confident</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>55.</td>
<td>I feel nervous</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>56.</td>
<td>I am jittery</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>57.</td>
<td>I feel indecisive</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>58.</td>
<td>I am relaxed</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>59.</td>
<td>I feel content</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>60.</td>
<td>I am worried</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>61.</td>
<td>I feel confused</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>62.</td>
<td>I feel steady</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>63.</td>
<td>I feel pleasant</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tbody>
</table>
Please read the paragraph in the box below and do your best to imagine that you are in the situation being described.

You have received your mark for a recent assignment and it is a ‘fail.’ The marks for two other recent assignments were also poorer than you would want as you are aiming to get as good a degree as you can because you have clear career goals in mind and don’t want to disappoint your family. The feedback from the tutor for the assignment is quite critical, including reference to ‘lack of understanding’ and ‘poor writing and expression,’ but it also includes ways that the work could be improved. Similar comments were made by the tutors who marked your other two assignments.

If you were in the situation described above how do you think you would react? Please read each statement and place a check mark in the box that best reflects how much you think each statement describes how you personally would react.

Please make sure that you give a response to ALL the statements and try to be as sincere and precise as possible in your answers.

1-Strongly---------4-Strongly Disagree

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>64. I would not accept the tutor’s feedback.</td>
<td></td>
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<tr>
<td>65. I would use the feedback to improve my work</td>
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<tr>
<td>66. I would just give up</td>
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<tr>
<td>67. I would use the situation to motivate myself</td>
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<td>68. I would change my career plans</td>
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<td>69. I would probably get annoyed</td>
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<tr>
<td>70. I would begin to think my chances of success at university were poor</td>
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<tr>
<td>71. I would see the situation as a challenge</td>
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<tr>
<td>72. I would do my best to stop thinking negative thoughts</td>
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<tr>
<td>73. I would see the situation as temporary</td>
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<tr>
<td>74. I would work harder</td>
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<td>75. I would probably get depressed</td>
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<tr>
<td>76. I would try to think of new solutions</td>
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<tr>
<td>77. I would be very disappointed</td>
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<td>78. I would blame the tutor</td>
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<tr>
<td>79. I would keep trying</td>
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</tbody>
</table>

IRB-mar Approved: 9/4/19
<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>80. I would not change my long-term goals and ambitions</td>
<td>1</td>
</tr>
<tr>
<td>81. I would use my past successes to help motivate myself</td>
<td>2</td>
</tr>
<tr>
<td>82. I would begin to think my chances of getting the job I want were poor</td>
<td>3</td>
</tr>
<tr>
<td>83. I would start to monitor and evaluate my achievements and effort</td>
<td>4</td>
</tr>
<tr>
<td>84. I would seek help from my tutors</td>
<td>5</td>
</tr>
<tr>
<td>85. I would give myself encouragement</td>
<td></td>
</tr>
<tr>
<td>86. I would stop myself from panicking</td>
<td></td>
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<tr>
<td>87. I would try different ways to study</td>
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</tr>
<tr>
<td>88. I would set my own goals for achievement</td>
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</tr>
<tr>
<td>89. I would seek encouragement from my family and friends</td>
<td></td>
</tr>
<tr>
<td>90. I would try to think more about my strengths and weaknesses to help me work better</td>
<td></td>
</tr>
<tr>
<td>91. I would feel like everything was ruined and was going wrong</td>
<td></td>
</tr>
<tr>
<td>92. I would start to self-impose rewards and punishments depending on my performance</td>
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</tr>
<tr>
<td>93. I would look forward to showing that I can improve my grades</td>
<td></td>
</tr>
</tbody>
</table>

IRB-mar Approved: 9/4/19

Name: ____________________________________________

Age: ________

Date of Birth: __________

Gender: Male   Female   Other

Ethnicity: ____________________________________________

English Second Language Learner: Yes   No

First Generation College Student (First to Complete a Baccalaureate Degree): Yes   No

How Many Hours per Week do you Plan to Work While in Nursing School? ________

Highest number of College Credits Previously Taken in one Semester _________