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Personality traits, self -efficacy of job performance, and susceptibility to stress as predictors of academic performance of nurse education programs

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ABSTRACT

Personality Traits, Self-Efficacy of Job Performance, and Susceptibility to Stress as Predictors of Academic Performance in Nurse Education Programs

by

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M.S., Long Island University, 1989
B.S., Cameron University, 1986
A.D.N., Cameron University, 1984

Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
Psychology

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ABSTRACT

The United States is experiencing a shortage of registered nurses, and institutions of higher education are unable to graduate enough prepared nurses to reduce this employment shortage. A significant relationship between personality traits and academic performance has been found; however, how personality traits combine with students' self-efficacy of job performance and stress susceptibility to impact nursing students' academic performance has yet to be demonstrated. This study, grounded in the five-factor model (FFM) of personality traits, self-efficacy, and stress theories, sought to determine whether self-assessments of the NEO-Five Factor Inventory, the Nursing Practice Self-Efficacy survey, and the Susceptibility Under Stress Survey would predict academic performance, as measured by grade point average (GPA). The sample consisted of 197 nursing students attending 2-year nurse education programs at 3 community colleges in the northeastern United States. This correlational, quantitative study examined the relationship among the personality traits of the FFM, self-efficacy of job performance, stress susceptibility, and the GPAs of nursing students. Multiple regression analysis was used to examine the strength of the relationship among the variables. Self-efficacy and conscientiousness were significant predictors of GPA. Given that nurse education programs are a rigorous field of study with high attrition rates, the implications for social change include the addition of specific types of support for nursing students to facilitate their progress and success in a competitive degree program that will benefit them and address the nursing shortage, which ultimately benefits hospitals and patients.

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DEDICATION

This dissertation is dedicated to my husband, Mark Soga, for his unconditional support throughout this long journey. I could not have accomplished this project without your love and understanding. The dissertation also is dedicated to our daughters, Brianne and Lauren. You both cheered me on, even when frustrations surmounted. It will be my pleasure to now cheer for you at all of your figure skating and soccer events. During this process, you have grown from small toddlers to beautiful young girls whom I am so proud of. I love you all.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

Currently, the United States is experiencing a shortage of registered nurses. By 2020, there will be at least 400,000 fewer nurses available to provide care (American Association of College of Nursing [AACN], 2006). As the baby boom generation of 7 million is aging, a strain is placed on hospitals, long-term care facilities, and home-care agencies (AACN). An alarming concern is that 126,000 registered nursing (RN) positions are currently unfilled in the United States, with a projected increased shortage of an additional 50% because the average age of the working RN will be 50 by 2010 (Joint Commission on Accreditation of Healthcare Organizations [JCAHO], 2006). The growing number of nurses entering retirement will place an additional strain on the health-care delivery system.

Institutions of higher education are unable to graduate enough prepared RNs to reduce this employment shortage. One reason for this shortage is related to the high attrition rates of students in nurse education programs (AACN, 2006). Thirty percent of entry students enrolled in associate degree programs in nursing education drop out prior to completion (National League for Nursing Accrediting Commission, 2006). Policymakers are urging accreditation agencies to implement strategies to increase the number of people entering the nursing profession to lessen the nursing shortage crisis. One possible solution to diminishing the nursing shortage is to implement strategies at colleges and universities to retain students in nurse education programs. This study

examined a number of variables related to academic success in nursing students, with the goal of providing research to facilitate nursing student retention.

Theoretical Framework

Trait theory, the theoretical model that guided this research, directs researchers in assessing general styles of thinking, acting, and feeling. Trait theory follows a set of adjectives or adjective dimensions to describe individuals, taking into account their motivation and abilities. The five-factor model (FFM) of personality is trait based and includes conscientiousness, openness, extroversion, agreeableness, and neuroticism. Although trait approaches to understanding personality have prevailed among industrial and organizational psychologists (Barrick, Mount, & Judge, 2001), there has been an upsurge in interest in applying the model to the educational sector (De Raad & Schouwenburg, 1996). Personality traits are highly relevant in multiple sectors of psychology because they portray emotional, interpersonal, experiential, attitudinal, and motivational styles (McCrae & Costa, 2003).

Two additional theoretical frameworks employed in this study were self-efficacy and stress. Specifically, this study examined the relationship among self-efficacy to perform as an RN, stress susceptibility, and the FFM of personality traits. The relationship of these variables was examined relative to the effect on nursing students' academic performance as measured by their GPAs. Although these theories have been studied independently in student populations, an integrated model examining personality traits, self-efficacy, and susceptibility to stress can aid in predicting academic

performance, which ultimately affects retention rates among 2-year nurse education programs.

Background of the Study

Research has indicated a significant correlation between personality traits and academic performance. Students high in conscientiousness and extroversion experience greater academic success, which is evidenced by their grade point averages (GPAs; Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002; Rau & Durand, 2000; Ridgell & Lounsbury, 2004). Although personality does predict academic performance, there has been a scarcity of research exploring specific personality domains and traits relative to the performance of nursing students.

Aside from personality traits correlating to academic performance, self-efficacy, that is, the belief in one's ability to perform (Bandura, 1997), can affect a student's motivation to succeed and attain goals. These variables also are related to attrition rates (Higgins, 2005). Higher self-efficacy beliefs can lead to better academic performance (Audia, Locke, & Smith, 2000). Stress among nursing students is another factor influencing student performance and attrition rates (Tully, 2004). These variables also are related to each other. For example, in general, neuroticism is related to greater job-related stress and lower job satisfaction (Judge, Hiller, & Mount, 2002).

Statement of the Problem

Personality traits following the FFM are related to academic performance in college students (Costa & McCrae, 1997). Medical students' self-efficacy regarding their ability to perform as RNs is related to retention in academic programs (Ofori & Charlton,

2002). Student stressors are linked to high attrition rates among nursing students (Tully, 2004). Thus, although research has found personality, self-efficacy, and susceptibility to stress related to academic success and retention among college students, these factors have been studied independently, and no research has examined these variables in relation to each other for a population of nursing students.

Purpose of the Study

Attrition is a serious problem among nurse education programs, so determining effective means of reducing attrition is paramount to the well-being of the nursing profession and overall health care community. Because a positive link has been established between the FFM of personality traits and academic performance, a natural extension was to study the relationship between nursing students' academic successes, measured by GPAs, and personality traits that correlate to their success while also evaluating the relationship among personality traits, self-efficacy, and stress susceptibility. The relationship between these variables will be of importance to nurse educators. In addition, the relationship will be important for future health care administrators because students who are able to remain in rigorous, stressful educational programs will be more likely to seek employment in the area of their degree studies. The purpose of this quantitative, correlational study was to evaluate the relationship among FFM personality traits, nursing students' self-efficacy, stress susceptibility, and GPAs of students in 2-year nurse education programs.

Research Questions and Hypotheses

The following research questions guided this study:

1. What is the relationship between the five personality variables, as measured by the NEO-FFI, and academic performance, as measured by GPA?

H_{01a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1a}. Conscientiousness, as measured by the NEO-FFI, will be positively and significantly related to academic performance, as measured by GPA.

H_{01b}. Openness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1b}. Openness, measured by the NEO-FFI, will be positively and significantly related to academic performance, as measured by GPA.

H_{01c}. Extroversion, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1c}. Extroversion, as measured by the NEO-FFI, will be significantly related to academic performance, as measured by GPA.

H_{01d}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1d}. Agreeableness, as measured by the NEO-FFI, will be significantly related to academic performance, as measured by GPA.

H_{01e}. Neuroticism, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1e}. Neuroticism, measured by the NEO-FFI, will be negatively and significantly related to academic performance, as measured by GPA.

2. What is the relationship between the five personality traits, as measured by the NEO-FFI, and nursing practice self-efficacy, as measured by the Nurse Practice Self-Efficacy (NPSE) survey for nursing students?

H_{02a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2a}. Conscientiousness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02b}. Openness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2b}. Openness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02c}. Extroversion, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2c}. Extroversion, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02d}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2d}. Agreeableness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02e}. Neuroticism, as measured by the NEO-FFI will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2e}. Neuroticism, as measured by the NEO-FFI, will be negatively and significantly related to nursing practice self-efficacy, as measured by the NPSE.

3. What is the relationship between the five personality traits, as measured by the NEO-FFI, and stress, as measured by the Susceptibility Under Stress (SUS) Survey for nursing students?

H_{03a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3a}. Conscientiousness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03b}. Openness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3b}. Openness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03c}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3c}. Agreeableness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03d}. Extroversion, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3d}. Extroversion, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

$H_{03}e$. Neuroticism, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3e}. Neuroticism, as measured by the NEO-FFI, will be positively and significantly related to stress, as measured by the SUS.

4. What is the relationship among the FFM personality traits, nursing self-efficacy, stress susceptibility, and GPA?

H_{04}. The personality traits of conscientiousness, openness, extroversion, agreeableness, and neuroticism, as measured by the NEO-FFI; student self-efficacy, as measured by patient scale of the NPSE; and stress susceptibility, as measured by the SUS, will not significantly predict academic performance, as measured by GPA.

H_4. The personality traits of conscientiousness, openness, extroversion, agreeableness, and neuroticism as measured by the NEO-FFI; student self-efficacy, as measured by the NPSE; and stress susceptibility, as measured by the SUS, will significantly predict academic performance, as measured by GPA.

Definitions of Terms

Five-factor model: The FFM includes personality traits that are consistent over time to aid in explanation of behavior. Eysenck (1983) defined neuroticism and extraversion, and Costa and McCrae (1976) added a third dimension referred to as

openness to experiences. These three domains were the original domains of the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985). Following the Baltimore Longitudinal Study of Aging (Terracciano, McCrae, Brant, & Costa, 2005), Costa and McCrae added two additional domains to measure agreeableness and conscientiousness. Since 1985, research using the NEO-PI and later the NEO-PI-R (Costa & McCrae, 1992) has demonstrated that the same five factors of neuroticism, extraversion, openness, agreeableness, and conscientiousness account for a comprehensive model summarizing an individual's emotions, interpersonal, experiential, attitudinal and motivational styles (Chamorro-Premuzic & Furnham, 2003; Costa & McCrae, 1992; Lievens et al., 2002). McCrae and Costa (2003) identified five domains of this model:

1. Neuroticism represents proneness to experience unpleasant, disturbing emotions and exhibiting corresponding disturbance in thought and action. Six facet scales comprise neuroticism.
2. Extraversion represents proneness to prefer excitement and stimulation, assertion, activity, and comfortableness of large groups.
3. Openness represents one's level of curiosity about the inner and outer worlds. This equates with preferring experientially richer lives. Openness is related to aspects of intelligence, such as divergent thinking contributing toward creativity.
4. Agreeableness is a dimension of interpersonal traits where altruism is valued. This domain is psychologically healthier because agreeable people are more popular than antagonistic individuals.

5. Conscientiousness is an aspect referred to as character, that is, how one reacts morally when aspiring to attain goals.

Grade point average (GPA): The GPA is the cumulative numerical value on a 4-point scale of an individual's academic performance in higher education.

Nursing student: This is a matriculated student attending a 2-year nurse education program at a community college leading to licensure as an RN.

Self-efficacy: This is defined as one's belief regarding the ability to perform an action and avoid an undesired event (Bandura, 1997). Nursing practice self-efficacy is the belief of nursing students regarding their ability to perform as professional RNs relative to the anticipated entry level of practice.

Susceptibility to stress: This occurs when individuals are exposed to various factors influencing their life, mental tension, or potential for tension (DeGucht, Fisher, & Heiser, 2003). Learning environments, particularly nursing programs and their clinical components, are stressful.

Traits: These are consistent patterns within an individual's thoughts, feelings, and actions. The greater the tendency toward a trait, the more likely it is that the individual will reveal behavior associated with the trait (McCrae & Costa, 2003). Traits reflect high retest reliability when fused with habits, which are specific learned behaviors. The traits examined in this study were conscientiousness, openness, extroversion, agreeableness, and neuroticism.

Research Methods

This correlational, quantitative study utilized surveys to obtain the data needed to examine the hypotheses. Regression analysis was used to determine the strength of the relationship among NEO-FFI domain scores, self-efficacy, susceptibility to stress, and nursing students' GPAs while controlling for relevant confounding variables. The target population was based on a convenient sample of 197 male and female nursing students age 18 and older attending nurse education programs at three community colleges in the northeastern United States. In order to qualify for the study, nursing students who were enrolled in the clinical coursework component of their degree programs were invited as participants. This researcher gained access to the target population by means of the consent of the director of nursing, or a designated representative, from each college. Voluntary consent to participate in the study was obtained from each student. A sample of 197 participants was used in this study.

The surveys that were administered included a demographic survey, the NEO-FFI, the NPSE and, the SUS surveys to assess personality traits, self-efficacy, and susceptibility to stress, respectively. Administration of these surveys took place in a group setting. Further details regarding the research method is discussed in chapter 3.

Significance of the Study

There is a gap in the literature examining the FFM of personality traits, nursing self-efficacy, susceptibility to stress, and academic performance among nursing students. A study of the assessment of personality traits and the impact of these traits on students' grade performance, self-efficacy beliefs, and the potential for stress is valuable to students and nursing educators in higher education. This study sought to identify the

personality traits that are related to success in nurse education programs. Implications for positive social change, resulting from this study, include expanding the current knowledge base of known factors that may aid in the retention of nursing students in higher education. This study's results also may be valuable for admission and academic counselors assisting students in career and coursework selection. Relating personality to success, as measured by GPA, can assist students in understanding the challenges they face in a nursing occupation. Interventions such as stress management programs and tutorial assistance can be implemented in nurse education programs so that certain personality types can remain in nurse education programs rather than drop out of school or change their major field of study.

If it can be illustrated that personality assessment based on the FFM of personality traits, nursing self-efficacy, and students' susceptibility to stress can predict academic success among nursing students in a 2-year nurse education program, this knowledge could be used to advise students who want to major in nurse education programs or who wish to explore other career options. Such information can also translate into interventions aimed at decreasing attrition in nursing programs. Nursing students' belief in their ability to perform as professional RNs will be of importance to nurse educators and future health care administrators. Students who are able to remain in rigorous, stressful educational programs will be more likely to seek employment in the area of their studies.

Assumptions

The NEO-FFI, the NPSE, and the SUS are psychometrically sound assessment tools for identifying personality traits, nursing student self-efficacy and student stress level, respectively. Psychometric properties of validity and reliability are vital to ensure that the findings are based on instruments empirically found to measure constructs, yielding consistent results over time.

The nursing students who participated in this study were adult learners capable of completing the NEO-FFI, the NPSE, and the SUS. Therefore, the researcher assumed that the participants were able to understand and complete the survey instruments. In addition, college admission counselors use career-counseling interventions based on empirical studies. Therefore, the researcher also assumed that the information gathered in this study will provide new insight to assist these counselors in providing effective career and academic counseling intervention with students seeking to progress through a rigorous nurse education program.

Limitations

Although this study has the potential to uncover valuable information about predicting the performance of students in rigorous nurse education programs, there are potential obstacles to using such findings to create social change. One obstacle may be the inclusion of participants currently enrolled in their clinical component of the nursing program because some may have likely dropped out. Another limitation may be the nature of self-reports and the social desirability outcome. By having to respond to personality assessments and self-efficacy instruments as self-reports, the participants may have attempted to place themselves in a good light, with the ultimate goal of being

perceived as respected, professional students in nursing education. An additional limitation was that the participants self-selected to be in the study, which could have led to limitations in terms of generalizability.

This study was intended to ascertain traits noted among nursing students nearing the completion of their degree requirements. Future research will be needed to track students who have completed a personality assessment at the start of their college studies and to determine the retention of these students as they progress in their clinical coursework of nurse education programs.

Summary

This chapter examined the relationship between FFM personality traits, self-efficacy, susceptibility to stress and GPA performance to determine which of the independent variables best predicted better GPAs among nursing students attending a 2-year nurse education program. Chapter 2 describes the theoretical emphasis encompassing the FFM of personality, which has strong empirical support in the literature regarding academic performance among college or university students, with the specific application in this study limited solely to nursing students. Chapter 3 outlines the research method that was utilized in this quantitative correlational design. Chapter 4 includes the data analysis, which investigated the four hypotheses. Chapter 5 explains why this study was done and includes an interpretation of the findings related to the theoretical framework that guided this study. A discussion of the implications for social change, along with recommendations for action and further research, also is included.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter examines the scientific literature of the FFM of personality relative to how these personality traits have been studied in educational and occupational areas. Personality theory in educational research has examined various influences, including self-efficacy and self-regulation, toward academic success among medical and nursing students. Academic performance and retention aspects have been explored not only in regards to students' GPAs but also as stress indicators, which affect students' longevity in nurse education programs. A computerized search of the scientific literature was conducted in the PsycArticles, PsycInfo, CINAHL, and ProQuest databases. Boolean terms of FFM, nursing students, self-efficacy, stress susceptibility, and academic performance in various combinations were utilized. These terms yielded more than 1,200 articles in the general higher education population but only 486 articles for nursing students. None of the articles encompassed the integrated variables used in this study.

Enrollment in Nurse Education Programs

Enrollment in nurse education programs reached a peak in 1993. This peak was followed by a steady decline until the resurgence began in 2002 and 2003 (Jacobson & Kaufman, 2004). Although educators have viewed the recent enrollment upswing as promising, admissions figures have revealed only part of the picture. Graduations from nursing programs have declined drastically since the mid-1990s. Thus, although there has been an increase in nurse education program admissions, the increase has not offset the previous decline from 1994 to 2002 (Jacobson & Kaufman). Baccalaureate programs

have experienced the smallest increase in graduation rates since 2002 (2.2%), followed by associate degree programs (7%). Although diploma programs have reported a sizable gain (11.5%), the number of diploma programs has steadily decreased. Most new RNs emerge from associate degree programs. Currently, only 32% of U.S. nurses have baccalaureate degrees or higher, although the National Advisory Council on Nurse Education and Practice advocates that at least two thirds of RNs should have bachelor of science in nursing (BSN) degrees or higher by 2010 (as cited in Potolsky, Cohen, & Saylor, 2003).

State boards of nursing are encouraging legislators to recognize graduates of BSN programs as entry-level RN professionals (AACN, 2006). However, board member S. Edge, RN, MS (personal communication, February 15, 2007) of the National League for Nurse Accreditation of Colleges acknowledged that numerous students graduate from 2-year nurse education programs that offer an associate degree in nursing or an associate degree in applied science in nursing. These 2-year programs offer students a more affordable option in which to gain entry into the nursing profession. Factors that would contribute to preferential hiring of BSN-degreed individuals are that as students, their education has contributed to their being better critical thinkers and has allowed them to demonstrate more effective leadership abilities (Dorsman, 2002).

Across institutions, the 1st year of college typically is regarded as the pivotal point in academic success and persistence (McKenzie, Gow, & Schweitzer, 2004). Investigating attrition in a BSN program, Ehrenfeld and Tabak (2000) reported that the overwhelming majority of students who dropped out (82.3%) did so within the 1st year

(Potolsky et al., 2003). First-year attrition over 6 years averaged roughly 30% (Ehrenfeld & Tabak). The problem of early attrition is compounded by the number of students who graduate from nursing programs but fail the licensure examination (Sayles, Shelton, & Powell, 2003; Schwarz, 2005; Stuenkel, 2006). Stuenkel explicitly stated, "In light of the nursing shortage, schools of nursing need to prepare new graduates as efficiently and expediently as possible—without lowering standards" (p. 207).

At all levels of nurse education, previous academic performance in the form of GPA has been identified as a key predictor of future achievement (Potolsky et al., 2003; Sayles et al., 2003; Schwarz, 2005; Speziale, 2002; Stuenkel, 2006). This finding has been consistent with the general college and university population (Gifford, Briceno-Perriott, & Mianzo, 2006; Kern, Fagley, & Miller, 1998; McKenzie et al., 2004). At the same time, there has been compelling evidence that academic indicators alone are insufficient to predict college success (McKenzie et al.; Ofori & Charlton, 2002; Phillips, Abraham, & Bond, 2003). Ehrenfeld and Tabak (2000) reported that academic problems account for only one third of nursing student attrition And that most attrition is due to personal reasons, change of career plans, incompatibility, or improper behavior. Stress is endemic in the health professions, and it is a documented contributor to nursing student attrition (Deary, Watson, & Hogston, 2003; Murff, 2005). Personality factors play a role in how individuals cope with stress (Deary et al.; Vollrath, 2001; Watson & Hubbard, 1996).

Ehrenfeld and Tabak (2000) found that although admission interviews could aid in enhancing the retention of nursing students, these interviews are only partially

effective in screening candidates. When surveyed as to how the interviews could be improved, candidates and faculty in their study recommended devising personality tests tailored to the requirements of the nursing profession. Adult students tend to perform well in nursing programs irrespective of their formal entry qualifications (Houltram, 1996; Kevern, Ricketts, & Webb, 1999). George and Owen (1983) noted that the personality profiles of RNs pursuing baccalaureate degrees are different in several respects from those of the general college population. One difference was on the measures related to effort, responsibility, and dedication.

Reviewing the literature on graduate education, Kyllonen, Walters, and Kaufman (2005) concluded that it is advantageous to consider noncognitive factors in the admissions process. Qualities that they deemed important include interests, motivation, ability to work with others, and willingness to apply effort and work hard. In particular, they recommended noncognitive assessments in disciplines where personality may be especially important, such as nursing, clinical psychology, and social work.

A number of factors have been found to predict success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN). Academic factors include high school GPA, SAT verbal score, grades in related science courses, and grades attained during nursing school (Schwarz, 2005). In addition, students who are less susceptible to emotional stress, anxiety, guilt, and loneliness are more likely to pass. Both sets of factors have appeared prominently in the literature on college retention (Deary et al., 2003; Murff, 2005; Potolsky et al., 2003).

Ofori and Charlton (2002) contended that although nurse education research has discerned a variety of cognitive and noncognitive factors predicting academic success, they generally have been examined independently, which limits the understanding of how they interact. This study investigated how the noncognitive influences of self-efficacy, susceptibility to stress, and GPA are measured against the FFM personality traits to aid in predicting academic success for the retention of students in 2-year nurse education programs. The following section addresses the theoretical background for this study, namely, the FFM of personality.

FFM of Personality

Digman (1990) credited McDougall with inspiring a systematic exploration of the lexicon of personality. In 1932, McDougall wrote, "Personality may…be broadly analyzed into five distinguishable but separate factors, namely, intellect, character, temperament, disposition, and temper" (as cited in Digman, p. 418). Although Digman interpreted McDougall's use of the term *factor* more as *topic* than in the current sense of the word, Digman contended that McDougall displayed "an uncanny anticipation of the results of half a century of work to organize the language of personality into a coherent structure" (p. 418).

In the mid-20th century, Cattell pioneered a system of personality classification based on a series of factor analytic studies conducted on children and adults (as cited in Digman, 1989). From an initial list of 171 personality traits that Cattell thought reflected the spectrum of human personality, he simplified the list to 35 trait variables. Subsequent attempts to replicate Cattell's studies were unsuccessful (as cited in Digman).

Nevertheless, the complex model yielded enduring evidence of formal personality structures. Factors later called will to achieve (conscientiousness) and friendly compliance (agreeableness) were clearly defined at the onset, with extraversion, intellect, and neuroticism emerging in five smaller factors.

Since Cattell's ambitious research (as cited in Digman, 1989), trait approaches to understanding personality have gone in and out of favor (McCrae & Costa, 2003). There has been a recent upsurge in interest, particularly in organizational and industrial psychology, where the FFM, or Big Five, taxonomy predominates as the most widely used measure of personality organization (Barrick et al., 2001). A review of the literature yielded several meta-analyses relating the FFM to job performance (Barrick et al.; Barrick, Mount, & Gupta, 2003; Mount, Barrick, & Stewart, 1998; Tett, Jackson, Rothstein, & Reddon, 1999). Although the emphasis on academic qualifications has prevailed in educational research, two research reviews have applied the model to education and learning (De Raad & Schouwenburg, 1996; Kyllonen et al., 2005). Personality traits are highly relevant in each area because they portray emotional, interpersonal, experiential, attitudinal, and motivational styles (McCrae & Costa). Kyllonen et al. emphasized precisely this point.

McCrae and Costa (2003) defined traits broadly as "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions" (p. 25). Individuals possess all traits in various degrees. The greater the tendencies toward the trait, the more likely it is that the individuals will manifest behaviors associated with the trait. McCrae and Costa emphasized that the term *tendencies* denotes that traits are

simply dispositions rather than absolute determinants of behavior. Numerous contextual influences govern behavior, and despite the overall stability of personality traits, they are subject to external influences. For example, in a longitudinal study of stress and burnout in nursing students, Deary et al. (2003) observed small but significant increases in neuroticism, which they attributed to the impact of cumulative stress. Noting a similar increase in extraversion, they surmised that the students might have felt daunted or inhibited at the onset of the program but became more confident over time.

NEO-FFI

Much of the research reviewed for this project employed the NEO Five-Factor Inventory (NEO-FFI), the most widely used instrument for assessing the FFM of personality (De Raad, 2000). Designed as a shortened format of the NEO-PI-R, the NEO-FFI operationalizes the FFM, which has five domain scales that conceptualize personality at a broad level (Costa & McCrae, 1992). The five super ordinate scales are neuroticism, extraversion, openness, agreeableness, and conscientiousness.

Costa and McCrae (1992) described neuroticism as the "most pervasive domain of personality," contrasting "adjustment or emotional stability with maladjustment or neuroticism" (p. 14). Individuals high in neuroticism are vulnerable to psychological distress; the central tendency of neuroticism is proneness to negative emotional states such as fear, sadness, embarrassment, guilt, anger, and disgust.

Extraversion is typically interpreted as "sociability," although Costa and McCrae (1992) emphasized that sociability is only one aspect of the personality dimension of extraversion. Extraverts enjoy being with people and tend to be assertive, active, and

talkative. In contrast, introverts tend to prefer solitude and are independent, reserved, and less excitable than extraverts.

Less popularized than extraversion or neuroticism, openness to experience encompasses such features as active imagination, aesthetic sensitivity, introspection, fondness for variety, intellectual curiosity, and independent thinking. Costa and McCrae (1992) noted that alternative conceptions of the FFM often refer to openness as intellect. In fact, scores on openness to experience have been linked with education and intelligence scores (Barrick et al., 2003). Openness is not equivalent to intelligence and is the most relevant for understanding success in artistic and creative pursuits (Barrick et al.; De Fruyt & Mervielde, 1999). Individuals who score low on openness can be quite intelligent, but they tend to be conventional and conservative, preferring familiarity to novelty (Costa & McCrae).

Openness to experience is the most ambiguous and least predictive of the five personality traits. In a study illustrating how different facets of this broad trait influence behavior, Griffin and Hesketh (2004) undertook a detailed analysis of the subdimensions of openness to experience. The study involved three distinct samples consisting of medical interns, information technology employees, and early entry financial officers in a public service organization. The underlying rationale, based on an exploratory factor analysis, was that facets of openness to experience comprise two separate factors: Fantasy, feelings, and aesthetics relate to openness to internal experience, whereas actions, ideas, and values relate to openness to external experience.

The results showed a significant correlation between openness to external experience and adaptability, which can then reduce job tension. Conversely, Griffith and Hesketh (2004) found that openness to internal experience is related to neuroticism and higher job tension. Although acknowledging that their findings were tentative, the researchers proposed that a person attuned to external experience proactively scans the environment and responds to what is taking place but a person preoccupied with self-reflection may be slow to respond to external events and less engaged with tasks.

Along with extraversion, agreeableness is mainly related to interpersonal tendencies (Costa & McCrae, 1992). Qualities associated with agreeableness include altruism, sympathy, and cooperation, whereas disagreeableness is linked with egocentricity, competition, and skepticism. Agreeableness is primarily relevant in interpersonal situations. In the context of nursing, agreeableness is associated with superior performance in jobs involving interpersonal interactions (Mount et al., 1998). Both agreeableness and extraversion are associated with an interpersonal achievement orientation (Ross, Rausch, & Canada, 2003). Although extremes in either direction can be unhealthy, neither agreeableness nor antagonism is objectively advantageous or disadvantageous (Costa & McCrae; De Raad, 2000).

Conscientiousness almost invariably has emerged as the foremost personality factor in educational and occupational research (Barrick et al., 2001; Chamorro-Premuzic & Furnham, 2003; De Raad, 2000; De Raad & Schouwenburg, 1996; Furgeson, Sanders, O'Hehir, & James, 2000; McKenzie et al., 2004; Mount et al., 1998; Phillips et al., 2003; Salgado, 2002). Barrick et al described conscientiousness as the trait-oriented motivation

variable that industrial-organizational psychologists have long searched for. They asserted that conscientiousness should occupy a central role in theories seeking to explain job performance. The claim can be equally valid for educational research. Two studies reviewed for this study failed to confirm a connection between conscientiousness and academic achievement (Diseth, 2003; Ridgell & Lounsbury, 2004). In both cases, the investigators were surprised with this finding.

Broadly, conscientiousness relates to self-control, namely, the ability to resist impulses (Costa & McCrae, 1992). However, it has features that are much more proactive than this definition implies. Conscientiousness governs the ability to plan, organize, and execute tasks. Conscientious individuals are goal focused, strong willed, and determined. There is a strong link between conscientiousness and time efficiency (Kelly & Johnson, 2005). Conscientiousness is associated with perfectionism, although it tends to be linked with self-oriented or adaptive aspects of perfectionism (Hill, McIntire, & Bacharach, 1997). Costa and McCrae asserted that high conscientiousness can result in excessive fastidiousness or workaholic behavior.

Because of the overwhelmingly positive findings for conscientiousness in workplace behavior, some organizational theorists have proposed a theory with conscientiousness at the center. As cited in Salgado (2002), Ones and Viswesvaran suggested that highly conscientious individuals are more productive because they devote more time to tasks, acquire knowledge that is more relevant, set autonomous goals and persevere in attaining them, go beyond role requirements, and avoid counterproductive behaviors. Although he acknowledged that this theory has strong empirical support,

Salgado also cautioned against overreliance on conscientiousness as an explanation for all aspects of productivity and performance.

In a review of meta-analyses, Barrick et al. (2001) noted that with the exception of conscientiousness, which predicted superior performance across occupations, findings for the other four personality traits were much more variable. Intuitively, it seems probable that resilience to stress and anxiety would translate into better job performance. However, the predictive value of emotional stability was much lower than for conscientiousness. Barrick et al. suggested that it might have to do with the way neuroticism is operationalized. At the same time, it is likely that emotional stability would play a role in predicting resilience in a stressful environment. Stress and burnout contribute to attrition in nursing programs (Deary et al., 2003; Murff, 2005). Neuroticism intensifies the appraisals of threat, whereas conscientiousness, agreeableness, and extraversion make one less susceptible to daily hassles (Vollrath, 2001).

Personality and Occupational Choice

Based on existing research, Barrick et al. (2001) maintained that the influence of extraversion, agreeableness, and openness to experience are essentially contextual. Even though each of these factors is associated with some elements of performance in certain occupations, none is consistent. Recognition of this phenomenon has led some researchers to delve into the issue by investigating personality attributes in different careers and occupational settings.

Both Barrick et al. (2003) and De Fruyt and Mervielde (1999) used Holland's (1985) career typology as the theoretical framework for research on personality and job

performance. Holland constructed a model based on the assumption that career interests are important dimensions of personality. Holland created a hexagram in which people are classified into six categories: realistic, investigative, artistic, social, enterprising, or conventional (RIASEC). Each personality type has a parallel work environment. Although the focus was on the dominant personality type, Holland recognized that each person has characteristics of more than one type to various degrees.

As outlined by the RIASEC typology, realistic types prefer using mechanical and technical skills (Holland, 1985). Investigative types tend to be analytical, curious, and meticulous. Artistic types prefer endeavors involving imagination, creativity, and introspection. Social types enjoy working with and helping others, which makes the social personality type especially relevant to nursing. Enterprising types like to display leadership and initiative. Finally, conventional types are concerned with efficiency, the organization of data, and protocols.

Holland (1985) introduced the concept of congruence, which refers to the extent of concordance between the person's dominant personality type and the features of the work (or educational) environment. According to the RIASEC theory, people seek out environments that match their skills, interests, and talents; express personal attitudes and values; and take on tasks and roles that are suited to their particular preferences. Higher congruence between personality and environment should promote the achievement of career goals and enhance job satisfaction.

De Fruyt and Mervielde (1999) used the NEO-PI-R and the RIASEC typology to investigate employment status as well as type of employment in a sample of 934

graduating college students drawn from a range of academic disciplines. Conscientiousness and extraversion proved to be the only valid predictors of employment status. The unemployed respondents tended to be higher in neuroticism and in the fantasy facet of openness to experience (suggesting a lack of practicality), although neither trait independently predicted employment. De Fruyt and Mervielde evoked the conscientiousness theory of Ones and Viswesvaran (as cited in Salgado, 2002) to explain why conscientiousness plays such a powerful role in employment.

Relating the RIASEC to the FFM, De Fruyt and Mervielde (1999) found that among the participants in their study, extraversion linked with jobs in social and enterprising careers. Openness showed a partial relationship to jobs with social and enterprising characteristics. Not unexpectedly, openness was inversely related to the selection of realistic career environments, although ironically, it did not predict employment in artistic fields. Another seemingly paradoxical finding was that agreeableness was not related to social employment. Conscientiousness was related to employment in realistic fields. Neuroticism showed no relationship to career paths, and neither personality traits nor RIASEC profiles effectively predicted conventional jobs. De Fruyt and Mervielde concluded that the RAISEC is more useful for the career candidate or counselor, whereas the FFM is more valuable from the standpoint of the employer, which by extension, could also refer to a college admissions officer.

Barrick et al. (2003) undertook a meta-analysis of research relating the FFM to Holland's (1985) typology. The final sample encompassed all five personality traits represented in various numbers. In general, the relationship between personality traits and

RIASEC types was moderate. The strongest overlap between personality and career preferences emerged for artistic and enterprising types, and the weakest degree of overlap was found for realistic careers.

Building on Holland's (1985) concept of congruence, Barrick et al. (2003) reported that the correlations between the RIASEC and the FFM were more robust when there was greater congruence between personality and interests. The meta-analysis confirmed the association between extraversion and social and enterprising career choices observed by De Fruyt and Mervielde (1999). The meta-analysis also disclosed interrelationships that did not appear in the single-sample study (Barrick et al.). In particular, the analysis confirmed the intuitive assumption that agreeableness would be related to social careers and that openness would be related to artistic careers. Conscientiousness was associated with a preference for careers in conventional fields.

An interesting although not surprising finding was that the association between occupational preferences and personality was somewhat stronger for samples involving employed adults than students contemplating careers (Barrick et al., 2003). This was especially true for enterprising types as well as for openness to experience and RIASEC types. Barrick et al. noted that although the effect is small, it warrants attention because college serves as a medium for exposing individuals to a wider range of potential careers. In addition, they emphasized that each RIASEC type includes a complex array of careers.

In an innovative study involving three large cohorts of medical-school applicants and graduating students, Petrides and McManus (2004) developed a RIASEC structure of medical specialties. Breaking down medical specialties into six prototypes, they

conceptualized surgery as a realistic career, internal medicine as investigative, psychiatry as artistic, public health as social, administrative medicine as enterprising, and laboratory medicine as conventional. Although the model is tentative, it was designed to capture the broad elements of each specialty. In conjunction with the FFM, an adaptation might be applicable for nursing students contemplating careers in different nursing specialties.

Mount et al. (1998) focused on the influence of personality in performing jobs involving interpersonal interactions. Their meta-analysis encompassed 11 studies with a total of 1,586 participants. The researchers prefaced the study by distinguishing between interactions in service settings and team settings. The major distinction is that in service settings, employees mainly interact in one-on-one relationships with clients or customers, whereas in team settings, most interactions take place among groups of coworkers. However, within a workplace or an educational environment, the two types of interactions are not mutually exclusive. In clinical settings, RNs and nursing students work directly with patients and are often members of health care teams.

As in other studies, conscientiousness was a strong predictor of job performance, thereby demonstrating the importance of conscientiousness across occupational contexts (Mount et al., 1998). In addition, emotional stability and agreeableness surfaced as significant predictors of job performance in interpersonal job situations. However, the influence of extraversion and openness to experience was relatively small. The limited influence of extraversion was unexpected, which was surprising in view of the connection between extraversion and social and enterprising careers (Barrick et al., 2001; De Fruyt & Mervielde, 1999).

Although emotional stability and agreeableness were compelling predictors of performance in all fields included in the study, the impact was stronger in jobs involving teamwork than one-on-one interactions (Mount et al., 1998). To explain the absence of a significant connection between agreeableness and social careers, De Fruyt and Mervielde (1999) proposed that social careers often entail the ability to persuade others, which demands assertion rather than compliance or cooperation. Mount et al. noted that successful teamwork entails cooperation, describing agreeable team members as helpful, trusting, and friendly, all of which are essential qualities for efficient teamwork. In their related study, Mount et al. found that the cumulative scores of team members on agreeableness and emotional stability were a key predictor of team performance. Mount et al. contended that their findings have important implications for selecting candidates for settings involving interpersonal interactions.

Personality and Learning Styles

According to De Raad and Schouwenburg (1996), there is no clear distinction between traits and styles. A possible pathway derived from Scheck stated, "Personality traits are expressed in learning styles, that learning styles are reflected in learning strategies, and that learning strategies are manifest in learning tactics, which in turn produce a likely outcome" (as cited in De Raad & Schouwenburg, p. 327). Although conceding that this may be somewhat simplistic, De Raad and Schouwenburg noted that learning styles are related to qualities of self-efficacy, self-control, and self-confidence, which are reflected in facets of the five broad personality domains.

Virtually all of the major personality inventories have been related to the NEO-PI-R (McCrae & Costa, 2003), but its potential relationship to learning style inventories has been largely ignored. As part of a series of studies examining the concurrent and discriminant validity of the NEO-PI, Furnham (1996) cited the FIRO-B of Schutz and the Learning Style Questionnaire. Although all three instruments are designed to assess stable dispositions toward social behavior, Furnham acknowledged that the Learning Style Questionnaire is different from the other two measures in that it is not a personality assessment per se, but a measure of cognitive style, namely, personal preferences for learning new knowledge and skills. Relating personality to learning preferences has been proposed as a strategy to promote the academic success of nursing students (George & Owen, 1983) as well as expanding the perspective of learning research (De Raad & Schouwenburg, 1996).

Three significant trends that have emerged are positive correlations between neuroticism and the surface approach, openness and the deep approach, and conscientiousness and the strategic approach (Diseth, 2003). At the same time, personality has accounted for only a small amount of the variance in approaches to learning, which is roughly consistent with the limited association between personality and learning styles (Furnham, 1996). Diseth discerned that each approach to learning was predicted by a combination of personality traits. Some differences in deep and surface approaches probably were due to the conditions imposed on the students, reflecting the observation of McKenzie et al. (2004) that a synthesis of intrinsic and extrinsic motivation drives college students seeking good grades on examinations. However,

Diseth noted that the overall results showed a positive relationship between the deep approach and academic achievement, suggesting that intrinsic motivation is ultimately advantageous. This was especially true for the philosophy students in a discipline that demands a profound understanding of the course materials.

Diseth's (2003) findings for learning approaches were similar to those reported in a study of Thai nursing students (Pimparyon, Roff, McAleer, Poonchai, & Pemba, 2000). Overall, the students were more predisposed toward reproducing (surface) orientation than meaning (deep) orientation. Pimparyon et al. attributed this to the pressure of coping with course requirements and to an emphasis on rote learning in the science stream from which most of the students were recruited. Despite the apparent use of the surface approach to succeed academically, a notable finding was that the students who scored higher on the meaning orientation had higher GPAs than those who preferred the reproducing orientation. The students with lower grades also showed lower self-perceptions and were less attuned to their environment.

Pimparyon et al. (2000) concluded, "Students' approaches to learning are influenced by the learning environment created by characteristics of the teaching and learning, teachers, atmosphere, academic self-perception, and social self-perception" (p. 364). The researchers emphasized that the same learning environment can inspire and motivate some students while lowering the engagement of others. This observation was consistent with Diseth's (2003) theory and supported the utility of applying personality theory to academic performance. The most striking finding reported by Diseth was that conscientiousness was not related to achievement, a finding in sharp contrast to the vast

body of educational and occupational research (Barrick et al., 2001; Chamorro-Premuzic & Furnham, 2003; De Raad, 2000; De Raad & Schouwenburg, 1996; Furgeson et al., 2000; McKenzie et al., 2004; Mount et al., 1998; Phillips et al., 2003; Salgado, 2002).

Personality Theory in Educational Research

Path Models of Academic Success

Researchers in the area of college-persistence generally have agreed that "the first year at a university is arguably the most crucial year affecting the academic achievement of students, as it is during the first year their attitudes toward the course, approaches to learning, and self-perceptions are developed" (McKenzie et al., 2004, p. 95). Analogous to Ofori and Charlton (2002), McKenzie et al. recognized that success in postsecondary education is contingent on a synthesis of cognitive and noncognitive factors. As a result, they developed a multidimensional model consisting of four constructs: prior academic performance, achievement motivation, self-regulatory learning strategies, and personality traits.

McKenzie et al. (2004) observed that self-regulation theory has recently come under criticism for failing to consider more stable attributes of the individual such as personality. In social-cognitive theory, self-regulation and motivation are interrelated (Bandura, 1997). Alternately, motivational beliefs are thought to emanate from more enduring personality traits (McKenzie et al.). Drawing on Demetriou's work on self-regulation, McKenzie et al. built part of their framework on Demetriou's conception of the interaction among personality, motivation, and behaviors. According to the three-tiered model, "Personality is viewed as a high level concept influencing the intermediate

level of motivation, which in turn influences the lower behavioral/action model" (McKenzie et al., p. 97).

At the same time, McKenzie et al. (2004) identified a notable relationship between academic achievement and the use of effective learning strategies. They attributed this to the behaviors involved: time management, self-monitoring, connecting course reading materials and lectures, and organizing course materials. From the standpoint of the Big Five, these behaviors inevitably invoke conscientiousness, which proved the main predictor of effective learning strategy utilization. Students in McKenzie et al.'s study who scored high on conscientiousness were more predisposed to use self-regulatory learning strategies. Next to conscientiousness, valuing the task emerged as the second major predictor of learning strategy use, implying that students who viewed the learning task as useful or beneficial took steps to see that they understood the material. The models developed by McKenzie et al. and Ofori and Charlton (2002) recognized that a narrow focus on academic grades is insufficient for predicting achievement in higher education. Although personality theory does not occupy the prominent position in educational research as it does in organizational and industrial literature, it is making inroads in this direction.

Self-Efficacy and Personality Traits

Nursing practice self-efficacy refers to the belief of nursing students regarding their ability to perform as RNs in relation to their anticipated entry-level position (Pakieser-Reed, 2006). Academic indicators of GPA alone are not sufficient to predict college success (McKenzie et al., 2004); self-efficacy does support a direct effect to

student retention (Ofori & Charlton, 2002). Ofori and Charlton devised a path model specifically to explore the factors influencing the academic performance of nursing students. As in the model of McKenzie et al., Ofori and Charlton included locus of control and self-efficacy, along with two additional cognitive factors, academic worries, and expectations. They also added one demographic factor: age. Researchers in the United Kingdom have consistently found that adult nursing students tend to perform well, even apart from their entry qualifications, and that younger students, even with good academic qualifications, tend to perform less well and have higher attrition rates (Houltram, 1996; Kevern et al., 1999).

The underlying rationale for the path model is that age and entry qualifications influence academic self-efficacy, locus of control, worries, and outcome expectancy, which either directly or indirectly impact students' support-seeking behaviors and thus influence academic performance (Ofori & Charlton, 2002). As conceptualized by Ofori and Charlton, academic support-seeking behaviors fall under the heading of self-regulation strategies. The theoretical model was tested on 315 students drawn from two cohorts of students enrolled in a module on psychological perspectives on nursing (Ofori & Charlton). Seeking academic support surfaced as the most powerful predictor of academic performance, which was consistent with McKenzie et al.'s (20040 finding on the positive impact of using effective learning strategies. Ofori and Charlton surmised that the older students might have had greater commitment or higher social self-confidence. Extraverts typically seek out social support as a strategy for coping with stress (Vollrath, 2001). The older students in Ofori and Charlton's study also displayed

stronger internal locus of control orientation, although it had only a marginal role in the model.

The mature students had lower academic self-efficacy than their younger counterparts. Ofori and Charlton (2002) speculated that the adult students might simply have had more realistic appraisal of their abilities. Paradoxically, this might have worked in their favor. Bandura (1997) observed that novices tend to overestimate their abilities, especially in an area where they believe they will perform well. In the nursing students, higher self-efficacy perceptions were associated with higher academic expectations and lower reliance on support seeking. Bandura asserted that self-efficacy can affect goal choice and task persistence, and higher self-efficacy can leave individuals feeling overconfident and sufficiently prepared for a challenge. Thus, they may be less motivated to seek assistance. Ofori and Charlton noted that other researchers have found that students who perceive tasks to be easy and have high expectations for grades tend to make less use of self-regulation strategies. However, the effect for self-efficacy is minimal, as it was in the study of McKenzie et al. (2004). In contrast, Audia et al. (2000) found that higher self-efficacy beliefs can lead to better performance and increased motivation.

Following their study of the self-regulation theory and the role of self-efficacy in attaining goals leads toward better performance, Vancouver and Kendall (2006) examined the effect of self-efficacy on the performance of 296 college students enrolled in psychology courses. They found that among the students who manifested higher self-efficacy, they may have allocated less time studying than when self-efficacy was

relatively low. Self-efficacy and planned study time were significantly and negatively correlated. Self-efficacy and performance in class was positively correlated to goal level.

Phillips et al. (2003) used structural equations modeling to investigate the relationship of personality, motivation, and goal orientation to the final exam scores of 125 university students. Theorizing that personality traits influence beliefs and cognitions, the researchers used Ajzen's (2002) theory of planned behavior, which focuses on intention, to assess goal-specific cognitions. According to the theory, intention has three cognitive antecedents. Perceived behavioral control is related to self-efficacy, which influences goal orientation through confidence, motivation, and persistence (Bandura, 1997). The other two cognitive antecedents are the person's attitude toward the goal and the pertinent subjective norm, which respectively reflect the individual's appraisal of the goal and beliefs of how significant others perceive the goal (Phillips et al.). Motivation was assessed through self-determination theory, which describes the type of motivation driving the goal. Intrinsic motivation is associated with stronger course grades and higher self-efficacy among nursing students (Lynch, 2006), with self-efficacy being a powerful contributor to students' ability to perform a task and the degree of confidence that they project in carrying out a task.

Applied Personality Theory

Chamorro-Premuzic and Furnham (2003) focused on the relationship between personality and examination performance in a sample of 247 British university students. For detailed analysis, they assessed the effects of superordinate and primary traits. As anticipated, conscientiousness exerted a strong impact on exam performance. However,

under the classification of conscientiousness, dutifulness and achievement striving were the most strongly related to examination scores. Although still significant, the impact was less pronounced for self-discipline, also a primary trait of conscientiousness.

The effects were less consistent for the primary traits of neuroticism and even less so for extraversion (Chamorro-Premuzic & Furnham, 2003). With respect to neuroticism, impulsiveness and anxiety had significant inverse correlations with examination performance. Although the conceptual models have suggested that a degree of anxiety may be useful in some academic situations (McKenzie et al., 2004; Ofori & Charlton, 2002), Chamorro-Premuzic and Furnham noted that other researchers have found the reverse to be true. Impulsive behaviors could easily work to undermine self-discipline; however, the influence of impulsiveness in their study was minimal compared to the positive impact of the conscientiousness traits of dutifulness and reflection. In the context of extraversion, only activity and gregariousness were significantly, and negatively, linked with academic performance. This finding was consistent with the positive impact of introversion reported by McKenzie et al.

Neither agreeableness nor openness to experience was linked with examination scores either at the superordinate or primary level (Chamorro-Premuzic & Furnham, 2003). In fact, the influence of openness to experience was negligible at any level. Chamorro-Premuzic and Furnham proposed that openness to experience may be useful only in creative, artistic endeavors rather than in situations demanding organized, methodical, diligent performance. However, the approach used by Griffin and Hesketh (2004) suggested that it is more useful to examine the two facets of openness to internal

experience and openness to external experience. By breaking down openness in this way, the researchers demonstrated its applicability to more structured environments.

According to Little, Lecci, and Watkinson (1992), personal action construct (PAC) units constitute a viable alternative to trait analysis in applied personality research. PAC units represent a middle level construct between superordinate concepts such as overarching values or lifestyles and primary constructs such as behavioral actions. PAC units emphasize the assessment of intentional action in context and include such factors as current concerns, personal projects, and personal motivations (Little et al.).

Little et al. (1992) also focused on personal projects, which are extended sets of personally relevant action. In the academic setting, the approach is similar to the model of academic achievement presented by Phillips et al. (2003). For their analysis, Little et al. surveyed 147 university students from a longitudinal study of adaptation to university life. The central issue was whether the NEO-PI could effectively account for variance in the students' assessments of their daily personal projects. The results demonstrated a coherent pattern between the two approaches to capturing dimensions of personality. Reflecting the overall trend in NEO-PI research, neuroticism and conscientiousness emerged as the key predictors of negative and positive project system appraisals, respectively. In addition, the investigators observed patterns connecting the other three personality factors and appraisals of personal projects.

Neuroticism displayed the strongest connection to emotional dimensions, such as stress and limited enjoyment, in the context of academic and interpersonal projects (Little et al., 1992). As in other studies, the findings for extraversion were not necessarily what

the researchers had anticipated. Little et al. expected extraversion to be associated with positive emotions, an assumption only partially supported. Extraversion was more closely related to efficacy than enjoyment. However, consistent with the tenets of extraversion, the relationship was the strongest in the interpersonal domain. Little et al. interpreted these findings to mean that extraverts find greater fulfillment in social rather than academic activities, which was consistent with the findings of McKenzie et al. (2004). Agreeableness also was positively linked with personal projects, although in a less instrumental way than extraversion. Contrasting the two dimensions, Little et al. characterized agreeableness as laid back and extraversion as assertively buoyant.

Nursing and Medical Students

The model of Ofori and Charlton (2002) may be especially useful in view of the substantial proportion of adult learners among U.S. nursing students (George & Owen, 1983). Unlike McKenzie et al. (2004), Ofori and Charlton did not include personality in their theoretical model. During the 1980s, a growing number of diploma and associate degree nurses enrolled in 4-year BSN programs. This trend led George and Owen to explore the potential differences in personality between adult learners and more traditional college students. The participants were 40 female RNs pursuing baccalaureate degrees at a large university. All were juniors and seniors ranging in age from 21 to 52. The results were compared to a sample of traditional female college students.

The instrument used to assess personality was Jackson's Personality Research Form-E (PREF-E), which has been related to the scales of the NEO-PI (Digman, 1990). George and Owen (1983) selected the PREF-E on the theory that the seven superordinate

scales assess attributes essential to the RN role: impulsive expression and control, orientation toward work and play, orientation toward direction from others, intellectual and aesthetic orientation, degree of ascendancy, degree and quality of interpersonal orientation, and test-taking attitude and validity.

The nurses were significantly different from the traditional-college students in several respects (George & Owen, 1983). Notably, the nurses were significantly more cautious, apprehensive, vigilant, and risk aversive. While perceiving these qualities as requisite for safe clinical practice, George and Owen acknowledged that this profile could inhibit nurses in such roles as client advocate and change agent. They noted that individuals tend to become more harm avoidant as they mature, which could account for some of the difference between the two groups. The nurses also were significantly more achievement oriented, which George and Owen viewed as congruent with the nursing tradition of dedication and responsibility. In addition, they recognized that adult learners typically have to juggle competing demands, which heightens time efficiency, and are usually highly motivated. The nurses also scored lower in impulsivity, suggesting a preference for concrete learning experiences. Overall, the profiles of the nursing students reflected qualities associated with academic achievement (Chamorro-Premuzic & Furnham, 2003).

Other defining characteristics of the nurses were their nurturing attitudes and the desire for social recognition (George & Owen, 1983). These qualities reflected Holland's (1985) classification of nursing as a social occupation. Indeed, the profiles of the nurses portrayed them as highly social, with high scores on affiliation and exhibition, implying

that they enjoy people, are able to develop and maintain interpersonal relationships, and command the attention of others (George & Owen). The connection with extraversion was obvious. Not surprisingly, extraversion is associated with success in social careers (Barrick et al., 2003; De Fruyt & Mervielde, 1999). Two attributes on which the nurses and traditional college students were not different were autonomy and interest in intellectual endeavors (George & Owen). These are broadly related to openness to experience, which has historically shown the weakest association with work performance of the Big Five personality traits (Griffin & Hesketh, 2004).

George and Owen (1983) recommended personality assessment of nursing students not for entry criteria, but rather for structuring the learning environment to facilitate their success. They advised nursing faculty to interpret test results with the goal of working with students to devise strategies to build on or modify personality traits as the student desires, as well as on strategies to promote students' growth and development and enable them to cope with stressors endemic to clinical settings. In fact, nurse education programs designed with these features can be very successful in promoting high rates of retention (Valencia-Go, 2005).

Lievens et al.'s (2002) study had a twofold purpose, which was to assess the personality characteristics of students pursuing medical studies and to discern the relationship of personality traits to academic success in preclinical education. The medical sample was comprised of students enrolled in medical and dental studies at five Belgian universities. The students in the comparison sample were drawn from a variety of academic majors.

Compared to students from other academic disciplines, the medical students scored high on extraversion and agreeableness, which Lievens et al. (2002) found especially useful for professionals involved in interpersonal interactions and teamwork. At the same time, there were considerable differences within the sample of medical students. In particular, the students high in conscientiousness experienced greater academic success, a ubiquitous research finding consistent with the conceptual models (McKenzie et al., 2004; Phillips et al., 2003). As in the study of Phillips et al., more proactive aspects of conscientiousness such as self-discipline and achievement striving more strongly predicted academic success than more inhibitory and regulatory aspects such as order, deliberation, and dutifulness (Lievens et al.,).

McKenzie et al. (2004) found that introversion predicted academic achievement in 1st-year college students. Lievens et al. (2002) observed that a negative effect for extraversion diminished after the first year. However, this could be due to the higher rates of dropout among students high in gregariousness and excitement seeking. Lievens et al. conceded that personality traits accounted for only a small proportion of variance over the first 3 academic years and hence provided an insufficient basis for screening students. At the same time, personality traits emphasize the important role conscientiousness plays in academic achievement. Similar to George and Owen (1983), Lievens et al. considered personality assessment potentially useful for guiding and assisting students during their academic career.

Previous academic achievement has been associated with academic performance in medical students, consistent with McKenzie et al.'s (2004) model and with the criteria

typically used to select nursing students (Potolsky et al., 2003; Speziale, 2002; Stuenkel, 2006). The findings for personality were consistent with those reported by other researchers. Specifically, Ferguson et al. (2000) strongly linked conscientiousness, which demonstrated incremental validity above prior academic performance, with success in medical training. Ferguson et al. did not restrict their research to specific examinations; rather, they conceptualized success in medical training as a broad construct encompassing an array of assessments in basic medical sciences and behavioral sciences as well as some clinical skills. Hence, the association with conscientiousness may be of great importance to medicine because it may related to traits that address the variety of skills needed in medicine (Ferguson et al.). The impact of conscientiousness on all facets of medical training was so pronounced that the researchers called for more research into this area. A potentially fruitful direction is applying this line of research to students in all health professions.

Kluger, Watson, Laidlow, and Fletcher (2002) focused on the use of personality traits in the recruitment of registrars and specialists for medical training programs. The researchers surveyed specialist and consultant anesthetists in Scotland and New Zealand to discern their attitudes toward personality testing for medical professionals as well as the characteristics they deemed advantageous in their field. A majority of respondents in both countries considered personality testing valuable in assessing trainees and specialists; in fact, a slightly higher proportion deemed personality traits more important than academic achievement. The question eliciting the highest degree of agreement was

that the presence of a negative personality trait would influence the appointment procedure, a view supported by nearly 80% of the respondents.

There was some contrast in the personality preferences of the anesthetists in the two countries (Kluger et al., 2002). The New Zealand anesthetists favored independence, orderliness, compassion, empathy, reflection, and patience more than the Scottish anesthetists, who gave higher ratings to pragmatism over perfection than their New Zealand counterparts. The consensus was that personality assessment is valuable in the context of several selection criteria.

Academic Performance and Retention

Kern et al. (1998) contended that GPA exerts a direct impact on student attrition. Other variables, specifically American College Testing scores; information-processing techniques; the abstraction of main ideas; test strategies; and the combination of motivation, time management, and concentration indirectly affect attrition through the mechanism of GPA. Information processing, test strategies, and abstraction have been identified as central to learning styles and approaches to learning (Diseth, 2003; Furnham, 1996). Time management also has been significantly linked with conscientiousness (Kelly & Johnson, 2005), and concentration and motivation have been related to facets of conscientiousness (Costa & McCrae, 1992).

Of particular relevance to the present study, Kern et al. (1998) declared, "Although we may think of success in college as staying enrolled and earning a high GPA, GPA and retention need to be considered as distinct outcomes" (p. 31). Previously, academic achievement has been significantly linked with college GPA, a consistent

finding in the research. However, Kern et al. emphasized that the use of cognitive strategies and time management are conducive to intervention. Nurse educators are virtually unanimously in favor of early identification of at-risk students so that the appropriate interventions can be implemented to facilitate their graduation and licensure (Potolsky et al., 2003; Schwarz, 2005; Stuenkel, 2006; Valencia-Go, 2005). Kern et al. targeted motivation as a key point for counseling intervention. They proposed that career direction is an important factor in motivation, which may explain the superior performance of adult nursing students, who tend to be strongly motivated to advance their career goals (George & Owen, 1983; Houltram, 1996; Kevern et al., 1999).

Internal locus of control has been positively related to academic achievement (Ofori & Charlton, 2002; Phillips et al., 2003). Gifford et al. (2006) included locus of control in their study of academic performance and retention in a sample of 3,066 1st-year university students. Like Kern et al. (1998), Gifford et al. included both ACT scores and GPA, with ACT scores as evidence of previous academic performance and cumulative 1st-year GPA as an outcome measure.

Gifford et al. (2006) observed a significant correlation between ACT scores and 1st-year college GPA. Locus of control was also a robust predictor of GPA, which was subsequently related to retention in the sophomore year. Specifically, students who were internally oriented and who earned higher grades were the most likely to persist beyond the first critical year of college.

Stress Indicators in Nurse Education

Nurses' susceptibility to stress can lead to increased physical and mental illnesses, thus influencing their longevity to remain in the nursing profession. Stress among nurses may result in poor professional image, and stress increases the attrition rate of students who fail or quit training because of poor performance outcomes (Tully, 2004). With the impact of stress on the nursing profession, it is imperative to increase the understanding of the experience and attitudes of nursing students. The clinical components of nurse education programs can be the most stressful (Tully). Research supporting sources of stress for these students has included concern for caring for dying patients, interpersonal conflicts, anxieties related to professional competencies, fear of academic failure, and work overload (Nicholl & Timmins, 2005; Pakieser-Reed, 2006; Tully).

Tully (2004) studied 35 nursing students between the ages of 17 and 30 to identify levels of perceived stressors and coping strategies employed by these students to deal with difficulties in nurse education. Sources of stress were measured by the Student Nurse Stress Index (Jones & Johnston, 1997), a 22-item survey divided into the four categories of academic load, clinical sources, interface worries, and personal problems. Sources of stress were greater for 2nd-year students, with females scoring higher for stressors as compared with males. Concerning 1st-year students, the highest ranked items were related to academics, specifically the amount of class work to learn, exam grades, and fear of failing courses. Problem-focused coping was an adaptive means of lowering stress among the students (Tully). Nurse educators must carefully examine the demands of the curriculum, especially in regard to academic overload for students. A limitation of

Tully's study was the small sample size of 35. Thus, even though generalizability was not represented, academic stressors are acknowledged as a natural aspect of a student's life.

FFM Pertaining to Stress

Stress intervention and prevention strategies are imperative, particularly in the early identification of those at risk for developing stress-related illnesses (Costa & McCrae, 1992). Costa and McCrae asserted that the five traits of neuroticism, extraversion, agreeableness, conscientiousness, and openness are enduring traits, that is, all five dimensions have biological-heritable bases. This supports a link to a physiological process underlying stress-related diseases. Feldman, Cohen, Doyle, Skoner, and Gwaltney (1999) found that neuroticism is associated with self-focused attention bias and that people high in conscientiousness use more sensitive criteria for illness detection to guard themselves by seeking early diagnosis and treatment. Openness is associated with heightened sensitivity to sensation in the presence of disease. Neuroticism and stressful life events can generalize to the workplace, with neuroticism predicting higher job related stress and lower job satisfaction (Judge et al., 2002). Neuroticism also has been linked with higher job stress among medical consultants (Deary et al, 1996) and with negative life events during early adulthood.

In a study of 211 managers of Australian retail stores, Grant and Langan-Fox (2007) utilized the NEO-FFI with direct paths from extraversion, neuroticism, and conscientiousness to physical ill health and a mediated path from neuroticism to physical ill health via substance use. They noted a negative path from extraversion and conscientiousness to physical ill health. These findings suggested that individuals who

score high on neuroticism may create more job-related stress because of their own behavior and cognition. Interventions targeted to specific personality types to help those at risk of illness are meant to enhance effective-coping strategies and stress management strategies. Grant and Langan-Fox also found extraversion to be a negative predictor of physical ill health and a positive predictor of job satisfaction; however, they also reported that conscientiousness does not contribute directly to the prediction of physical ill health and job satisfaction.

DeGucht et al. (2003) noted that neuroticism is also the most prevalent trait for developing somatization and that job stress is a trigger for somatization. They examined the extent to which neuroticism and psychological distress, such as anxiety and depression, contribute to somatization. Two-hundred and two nurses completed self-reports inclusive of the NEO-FFI, with psychological distress measured by Anxiety and Depression subscales of the Symptoms Checklist. The results indicated that the participants with a higher degree of neuroticism and an increased level of anxiety were at greater risk of having at least two medically unexplained symptoms during the past month. Neuroticism was identified as a significant predictor of milder (two medically unexplained symptoms) and more severe current somatization (four medically unexplained symptoms), as well as the chronic or recurrent somatization of irritable bowel syndrome. Neuroticism is a trait that predisposes people to experience somatic and psychological distress. DeGucht et al. concluded that job stress and work demands among nurses significantly contribute to the presence of idiopathic chronic fatigue and irritable bowel syndrome.

Self-Efficacy of Job Performance

Several features stood out in the connections between openness to experience and personal project appraisals (Little et al., 1992). First, personal appraisal tended to fall at a lower level of significance than correlations for the other four personality traits. This pattern followed the overall trend in research (Griffin & Hesketh, 2004). At the same time, openness related to features that were not associated with other personality dimensions such as value congruency and initiation, suggesting to Little et al. that openness has the strongest relationship to projects in the initial stages of development. This pattern was consistent with the underlying facets of openness to experience.

Not surprisingly, the results confirmed the assumption that conscientiousness would be the dominant predictor of overall positive evaluations (Little et al., 1992). Conscientiousness alone was related to positive appraisals across project domains. Conscientious students were less likely to initiate a number of projects than those high on openness to experience, who were more likely to carry out projects imposed upon them by others. Theoretically, this should imply that conscientious individuals gain less intrinsic enjoyment from their tasks. However, the pattern that emerged suggested that conscientious individuals possess an "accommodative style" that affords them "both efficacy and enjoyment" (Little et al., p. 521). The power of conscientiousness to transcend a specific context in producing positive outcomes may have to do with the fact that "rather than seeking out enjoyable projects as their open peers do, conscientious individuals have the capacity to render enjoyable the projects that are required of them by others or to transform mundane activities into estimable undertakings" (Little et al.,

p. 521). According to Little et al., conscientious individuals have the power to "spin" projects in a way that enhances motivation, regardless of the nature or goal of the project.

Summary

There has been virtually unanimous agreement among researchers that academic factors alone are inadequate to predict college performance within and outside of the discipline of nursing. Personality theory has not made the inroads in education that it has in organizational and vocational research; however, there has been a definite trend in this area. Of the five personality dimensions, conscientiousness almost invariably has been associated with achievement across a wide range of contexts. Neuroticism has been viewed as undermining academic performance, although the impact has been less pronounced. The traits of neuroticism can lead one toward ill physical health and increased stress. The effects of the other personality traits have been varied across situations and have been more contingent on the characteristics of the job, the environment, and the specific tasks involved. Evidence for the impact of extraversion on academic performance has been mixed. However, extraversion has been positively related to employment in a social career, which should be an advantage to prospective nurses.

Personality directly and indirectly affects academic achievement through such mechanisms as learning strategies, time management, and study techniques. In most studies reviewed for this project, prior GPA had a strong impact on academic performance in college. Nevertheless, GPA and course grades alone do not predict retention. The evaluation of nursing students' beliefs regarding their ability to perform in

their chosen profession has been important from an academic standpoint, but understanding self-efficacy will enable health care administrators to better ascertain the longevity of employment in the nursing profession. The overall consensus is that personality assessments should be part of college admissions criteria. In nurse education, personality assessments might effectively screen unsuitable candidates. In regard to students admitted to nurse education programs, having knowledge of personality factors can be useful in terms of developing learning strategies and providing intervention when needed.

This study quantitatively explored the relationship between personality traits and GPA, as well as nursing students' self-efficacy relative to their abilities to perform as nurses. Student susceptibility to stress was evaluated to determine the relationship between personality traits and stress. Chapter 3 outlines the research method followed for this study.

CHAPTER 3: RESEARCH METHOD

Introduction

This chapter includes a description of the design of the study, sample, instrumentation, data analysis, and ethical considerations. An overview of the chosen design includes a rationale for the selection of this particular research design. A description of the instrumentations and sample characteristics and size is provided. A discussion of the data calculation process and analysis also is included. The purpose of this quantitative, correlational study was to evaluate the relationship among FFM personality traits, nursing student self-efficacy, stress susceptibility, and the GPAs of nursing students attending a 2-year nurse education program.

Methodology

A quantitative, correlational study seeks to understand a cause-and-effect relationship among the variables (Grimm & Yarnold, 1995). This was an appropriate research method for this because the researcher was interested in combining information about nursing students contained in the independent variables in order to predict a dependent variable. This researcher investigated the variables of personality traits using the FFM, self-efficacy, stress susceptibility, and the GPAs of 197 nursing students. The NEO-FFI was used to measure the five domains of personality. The NPSE was used to measure students' confidence in their ability to perform as RNs at the conclusion of their education. The SUS Survey was utilized to measure the students' stress responses. The study utilized multiple regression analysis and the Pearson correlation coefficient to determine the relationship among the FFM personality traits, self-efficacy, stress

susceptibility, and GPAs. Multiple regression analysis typically is used to predict a dependent variable using two or more independent variables (Grimm & Yarnold). This statistical method also allowed for the control of age, gender, and years in school.

Nursing students enrolled in a 2-year nurse education program were the participants in this study. A convenient sample was selected because this study was specifically designed to investigate the independent variables of FFM personality traits, nursing practice self-efficacy, and stress susceptibility on the dependent variable of GPA for nursing students.

Research Design

This study incorporated a quantitative, correlational design. Independent and dependent variables may be quantitative or qualitative in nature. A regression analysis utilizes quantitative information in the variables to predict the relationship between the independent and dependent variables (Winer, Brown, & Michels, 1991).

Setting and Sample

The convenience sample was comprised of 197 male and female nursing students enrolled in a 2-year nurse education program in the northeastern United States. Permission was received from the director of nursing of each college volunteering for this study. The participants were selected for the following reasons: (a) They were accessible, (b) they were of an average age to provide informed consent, (c) they were presumed to have a variety of positive and negative life experiences, (d) their educational background provided them with the necessary reading comprehension skills to complete the

questionnaires, and (e) the various community colleges admitted a diverse group of students from various age and ethnic backgrounds.

To determine the needed sample size, the researcher used a power of 80 and an alpha of .05 in combination with an estimated medium to large effect. The estimated effect size was derived from previous research on personality traits, self-efficacy, and stress susceptibility among college students (Brown, Boothby, Foy, Nicholas, & Lovestone, 2006; Ofori & Carlton, 2002; Philips et al., 2003). The total correlation for Hypothesis 1 through to Hypothesis 4 required an estimated 196, so a conservative estimate of the required sample size needed to achieve adequate statistical power was 196 participants.

The community colleges' nursing education enrollment in clinical components of coursework varies from 30 to 200 students, depending on the overall size of the institution. With 16 community colleges in the area where the study took place, over 500 students enrolled in nurse education programs were available to participate. This exceeded the estimated required sample size. Three of these 16 community colleges participated in this study.

Procedures

Written information introducing this study as well as informed consent forms were disseminated to the participants within their respective school classrooms. The informed consent form provided brief background information on the study, the procedures for participation, a discussion of confidentiality, the voluntary nature of the study, and ethical concerns.. The researcher provided an e-mail address so that any

additional questions regarding participation could be directed to the researcher. All students enrolled in community college nurse education programs in the area under study have access to e-mail via computers within their classrooms as well as within the library or computer labs. Nursing students who expressed an interest in participating in the study signed an informed consent form and returned it to this researcher prior to the distribution of the surveys. Because of the researcher's need to access confidential student GPAs, a gatekeeper assigned to each school by its director of nursing assisted this researcher in distributing codes to the students. The codes were identifiers to maintain the participants' confidentially. The process was that of matching each student's GPA with a given code. The only individual who had access to the students' codes, their given names, and their GPAs was the assigned gatekeeper of each participating college.

The researcher collected demographic data on all participants (see Appendix A). The researcher designed the demographic questionnaire, consisting of gender, age, ethnicity, class in nursing program, and pending graduation year. This researcher asked the students to respond to the 60 questions on the NEO-FFI and the 43 questions on the NPSE (see Appendix B) as well as 22 questions on the SUS Survey (see Appendix C). This process took approximately 30 minutes. Any participants interested in obtaining the results of this study could contact the researcher via e-mail, and results would be shared with interested parties.

Instrumentation

Demographics

A demographics questionnaire assessed basic information pertaining to the participant's age, gender, education, and ethnicity.

NEO-Five Factor Inventory

The NEO-FFI (Costa & McCrae, 1992) measures the personality traits, specifically the FFM traits of agreeableness, neuroticism, extraversion, openness, and conscientiousness. The NEO-FFI is a 60-item self-report inventory using a Likert-type scale. It includes five 12-item scales measuring each of the five personality domains (Costa & McCrae). The NEO-FFI is a brief, comprehensive measure of the NEO-Personality Inventory, Revised (NEO-PI-R). Although both instruments measure the five domains of personality, the NEO-FFI is more global than the NEO-PI-R.

The reliability and construct validity of the NEO-FFI are well-established (Costa & McCrae, 1992).The original NEO-PI was constructed using comparisons of the available models at that time. Because of these comparisons, Costa and McCrae concluded that there was large agreement of the higher order factors, particularly neuroticism and extraversion. As further research was conducted in the field, subsequent domains of personality, as well as their associated facet scales, became identified. A sample of 983 individuals provided the data set for the item selection process. For each domain, 12 items supporting the highest loading on the corresponding factors were selected as items for the NEO-FFI. When correlated with the NEO-PI to assess construct validity, the NEO-FFI yielded correlations ranging from .75 to .89, with additional

internal consistency correlations ranging from .73 to .86 (Costa & McCrae). The NEO-FFI was hand-scored, ensuring that if 10 or more items were left blank, that participant's packet was considered invalid and would not be formally scored. Domain scores are calculated as instructed in the NEO-PI-R/NEO-FFI professional manual (Costa & McCrae).

Nurse Practice Self-Efficacy

The NPSE was created in 2005 by Pakieser-Reed (2006). This researcher was granted permission by Dr. Pakieser-Reed via e-mail to reproduce the NPSE exactly as it appeared in her study. The NPSE is a 43-item, Likert-type self-report questionnaire designed to assess the belief of a nursing student's view regarding the ability to perform as a professional RN. This instrument has an internal reliability of .887 (Cronbach's alpha). Two factors are measured on the NPSE: Factor 1 is the global factor that reflects the overall, or global, perspective of nursing practice; Factor 2 is the patient factor because the questions reflect nursing practice directly relating to patient care. Factor 2 was utilized in this study because the nursing students' self-efficacy pertaining to patient care was evaluated. The NPSE includes the AACN's (2006) educational standards for professional nursing practice, and as a result, it reflects four subscales: values, competencies, knowledge, and role. A sample of 386 university students enrolled in a baccalaureate nursing program provided the data set for the item selection process.

The NPSE was deemed an appropriate instrument for this study because it explores nursing students' belief regarding their confidence to practice within the scope of nursing. However, the social desirability of self-efficacy can result when the

participants are completing self-reports. This can result in a negatively skewed distribution that can be controlled for by checking normality assumptions.

SUS Survey

The SUS Survey is a 22-question subscale of the Personal Stress Navigator (PSN), a 264-item questionnaire designed to measure susceptibilities, sources, and symptoms of stress. It was designed in 1986 by Dell-Smith and Miller. The 22 Likert-type items contained in the Susceptibility section are lifestyle uses; health behaviors; and the coping resources of social, financial, and spiritual. This subscale has an internal reliability of .89 (Cronbach's alpha) and test-retest reliability at 1 week, 2 weeks, and 6 weeks of .85, .70 and .75, respectively. The PSN was administered to 434 college students with a mean age of 18. Correlations were calculated between PSN scores and GPA, with the most consistent influence on grades being the Susceptibility subscale. The greater the students' susceptibility to stress, the lower were their GPAs. This researcher was granted permission by Dr. Dell-Smith via e-mail to reproduce the SUS exactly as it appeared in the PSN with the addition of Question 22, which was stipulated in her e-mail correspondence.

Data Analysis

Exploratory Data Analysis

Basic descriptive procedures were used to conduct a preliminary analysis for descriptive information regarding the sample, including age, gender, and ethnicity, specifying the student as either a 1st-year or a 2nd-year nursing student. All demographic variables were examined in relation to the main outcome variables to determine potential

confounding variables. SPSS 12 was used to conduct the data analysis. Prior to testing the hypotheses, the researcher performed a pretest data analysis to ensure that statistical threats to validity were properly addressed. These included analyses of the assumptions and analysis of the reliability of the instruments pertaining to this particular population.

Hypotheses Testing 1a-1e

H_{01a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1a}. Conscientiousness, as measured by the NEO-FFI, will be positively and significantly related to academic performance, as measured by GPA.

H_{01b}. Openness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1b}. Openness, measured by the NEO-FFI, will be positively and significantly related to academic performance, as measured by GPA.

H_{01c}. Extroversion, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1c}. Extroversion, as measured by the NEO-FFI, will be significantly related to academic performance, as measured by GPA.

H_{01d}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1d}. Agreeableness, as measured by the NEO-FFI, will be significantly related to academic performance, as measured by GPA.

H_{01e}. Neuroticism, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1e}. Neuroticism, measured by the NEO-FFI, will be negatively and significantly related to academic performance, as measured by GPA.

Hypotheses 1a to 1e were answered with one multiple regression. All traits were entered as predictor variables, with GPA as the outcome variable.

Hypotheses Testing 2a-2e

H_{02a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2a}. Conscientiousness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02b}. Openness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2b}. Openness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02c}. Extroversion, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2c}. Extroversion, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02d}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2d}. Agreeableness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02e}. Neuroticism, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2e}. Neuroticism, as measured by the NEO-FFI, will be negatively and significantly related to nursing practice self-efficacy, as measured by the NPSE.

Hypotheses 2a to 2e were answered with one multiple regression. All traits were entered as predictor variables, with self-efficacy as the outcome variable.

Hypotheses Testing 3a-3e

H_{03a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3a}. Conscientiousness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03b}. Openness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3b}. Openness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03c}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3c}. Agreeableness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03d}. Extroversion, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3d}. Extroversion, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

$H_{03}e$. Neuroticism, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3e}. Neuroticism, as measured by the NEO-FFI, will be positively and significantly related to stress, as measured by the SUS.

Hypotheses 3a to 3e were answered with one multiple regression. All traits were entered as predictor variables, with stress as the outcome variable.

Hypothesis Testing 4

H_{04}. The personality traits of conscientiousness, openness, extroversion, agreeableness, and neuroticism, as measured by the NEO-FFI; student self-efficacy, as measured by patient scale of the NPSE; and stress susceptibility, as measured by the SUS, will not significantly predict academic performance, as measured by GPA.

H_4. The personality traits of conscientiousness, openness, extroversion, agreeableness, and neuroticism as measured by the NEO-FFI; student self-efficacy, as measured by the NPSE; and stress susceptibility, as measured by the SUS, will significantly predict academic performance, as measured by GPA.

Hypothesis 4 was answered with one multiple regression. All traits, self-efficacy, and stress susceptibility were entered as predictor variables, with GPA as the outcome variable.

Ethical Considerations

The ethical standards set in Walden University's Internal Review Board (IRB) application were maintained (IRB approval #02-11-08-0222747). The informed consent form was distributed to all potential participants discussing the procedure for participation in the study. This informed consent outlined the voluntary nature of the study, the risks and benefits of participants in the study, and how the researcher and her advisor could be contacted to answer any questions about the study. As the informed consent indicated, all records in this study will remain confidential, and only the researcher has access to those records. The data will be stored for a period of 7 years (Creswell, 2003) in a locked file cabinet located in this researcher's office. No other person will have access to this storage cabinet. Upon expiration of the 7 years, all data reports will be destroyed by such means as a paper shredder.

The decision to participate or decline to participate in this study did not affect the students' standing in the nurse education program. There were no physical risks or benefits of participating in this study, but there may have been the potential for emotional upset as the participants reflected on such questions as, "Sometimes I feel completely worthless" in the NEO-FFI. The participants were provided with time following the completion of the surveys to discuss concerns they may have experienced regarding completion of the NEO-FFI. A Your NEO Summary sheet was provided as needed to those participants requesting this discussion. No participants required extra time following the completion of these instruments and the Your NEO Summary sheet did not need to be discussed with any of the participants.

Costa and McCrae (1992) found that all of the students requesting feedback enjoyed what they received; none felt that it was disturbing because for most participants, the Your NEO Summary confirmed their self-image. In the current study, if a student had become emotionally distraught, the researcher would have provided a referral to their campus-counseling center or community mental health center. No referrals were necessary.

Informed consent was obtained when the researcher received a signed copy of the consent form signifying that the participant agreed to and understood the conditions of the study. It was necessary for the researcher to code the questionnaire packets for the participants who agreed to participate. Coding was necessary so that the GPA scores could be matched to the participants' codes rather than their names. Only the gatekeeper or research assistant assigned by each college had a list of the participants' given names and code assignments. When the participants return their informed consent; the researcher handed her assistant a coded questionnaire packet; and the assistant for that particular institution tracked on a separate form the given name, code number, and GPA of the participants. This form remained only with the assistant of the participating institution in which the study was conducted. The assistant then placed the GPA on the space provided on the demographics form. The student's assigned code number was also placed on the "name" section of the NEO-FFI. Again, information remained confidential, as outlined in the informed consent procedures, thus protecting the confidentiality of the participants.

Summary

Chapter 3 outlined the research methodology of this quantitative, correlational design. Chapter 4 includes the data analysis that investigated the four key hypotheses in this study.

CHAPTER 4: RESULTS

Introduction

The purpose of this study was to evaluate the relationship among NEO-FFM personality traits, self-efficacy, stress susceptibility, and the GPAs of nursing students enrolled in a 2-year nurse education program. This chapter presents the results of the statistical analyses that were conducted to address the hypotheses. The chapter includes a presentation of descriptive statistics on the demographic variables and research variables. This is followed by a pretest data analysis and the results of hypothesis testing. One hundred and ninety-seven volunteers were recruited from three community college nurse education programs in the northeastern United States. All of the participants completed the surveys. No missing data were noted.

Descriptive Statistics on Demographic and Research Variables

A frequency distribution presented in Table 1 displays the participants' ages. The ages ranged from 19 to 60 ($M = 34.35$, $SD = 9.21$). More than half of the participants (52.8%) were 34 or younger. The 30-to-34 age group had the most participants (36, 18.3%) within the total sample. Only 1 participant was in the 19 or under group, and only 1 participant was in the 60 or older group.

Table 1

Descriptive Statistics for Ages of Participants

Source	Frequency	Percent
	Age	
19 or under	1	.5
20-24	34	17.3
25- 29	33	16.8
30-34	36	18.3
35-39	34	17.3
40-44	29	14.7
45-49	19	9.6
50-54	7	3.6
55-59	3	1.5
60-64	1	.5
Total	197	100.0
	Gender	
Male	23	11.7
Female	174	88.3
Total	197	100.0

Note. $M = 34.35$; $SD = 9.21$

Table 2 shows the participants' ethnicities. Most of the participants were Caucasian (141, 71.6%). Twenty-five (12.7%) participants were African American, 8 (4.1%) participants were Hispanic, 15 (7.6%) were Asian, and 8 (4.1%) were other ethnicities.

Table 2

Frequency Distribution for Ethnicity of Participants

Source	Frequency	Percent
Caucasian	141	71.6
African American	25	12.7
Hispanic	8	4.1
Asian	15	7.6
Other	8	4.1
Total	197	100.0

Pretest Data Analysis

Statistical threats to validity occur when inaccurate inferences are made. These threats can raise potential issues that can affect the variables being measured. Threats may involve using inadequate procedures or characteristics of the participants (Creswell, 2003). The researcher conducted a pretest data analysis of the assumptions to ensure that statistical threats to validity were properly addressed. The assumptions associated with Pearson's product moment correlation test are that the two variables have a linear relationship, the scores are normally distributed, and outliers are nonexistent. The Pearson product-moment correlation is extremely sensitive to a violation of linearity. Violations of this assumption require the use of a nonparametric test, such as Spearman's rho, to evaluate the hypotheses. Spearman's rho is a measure of the linear relationship between two variables. It is different from Pearson's correlation only in that the computations are done after the numbers are converted to ranks.

Linearity

The researcher examined the assumption of linearity by comparing linear and quadratic fit lines on scatter plots. A visual look indicated weak linearity among the pair-wise variables. To verify these findings, subsequent scatter plots were run, using linear and quadratic fit lines to measure the degree of association (R^2). The use of a nonparametric correlation approach, Spearman's rho, would have been more appropriate if the quadratic fit line had produced higher R^2 values than the linear fit line (Grimm & Yarnold, 2003). The review and comparison of scatter plots indicated that the Spearman's Rho correlation method was more appropriate for all evaluations. The quadratic fit lines

for conscientiousness, extraversion, and neuroticism identified higher R^2 values, although very slight evidence indicated the use of a nonparametric technique. The researcher used the nonparametric statistical test, Spearman's rho, to evaluate the hypotheses; however, the other assumptions were assessed. Table 3 depicts the R^2 comparisons for the linear and quadratic regression lines.

Table 3

Linear Versus Quadratic Fit R Comparisons for NEO-FFM Traits and GPA

Variable	Linear fit line	Quadratic fit line
Conscientiousness	.026	.051
Openness	.002	.002
Extraversion	.00	.014
Agreeableness	.00	.002
Neuroticism	.003	.004

Normality

Running the Kolmogorov-Smirnov test of normality assessed normality (see Table 4). A Kolmogorov significance value less than .05 indicates deviation from normality, perhaps due to the negative skew of data. All of the NEO-FFM variables, except conscientiousness, violated the normality assumption. GPA and self-efficacy also violated the normality assumption.

Table 4

NEO-FFM and GPA Kolmogorov-Smirnov Test of Normality

	Statistic	*df*
Conscientiousness	.076	197
Openness	.079**	197
Extraversion	.091**	197
Agreeableness	.074*	197
Neuroticism	.057**	197
GPA	.071*	197
Self-efficacy	.496**	197
Stress and Susceptibility	.060	197

*$p < .05$
**$p < .01$

Outliers

Reviewing box plots of the individual variables assessed the presence of outliers. Extraversion and GPA were identified as having outliers. The outliers for extraversion remained in the data set, which was analyzed; however, the outlier in GPA was a data entry error, so it was changed to reflect the correct GPA number. Figures 1 and 2 are the box plots for extraversion and GPA, respectively.

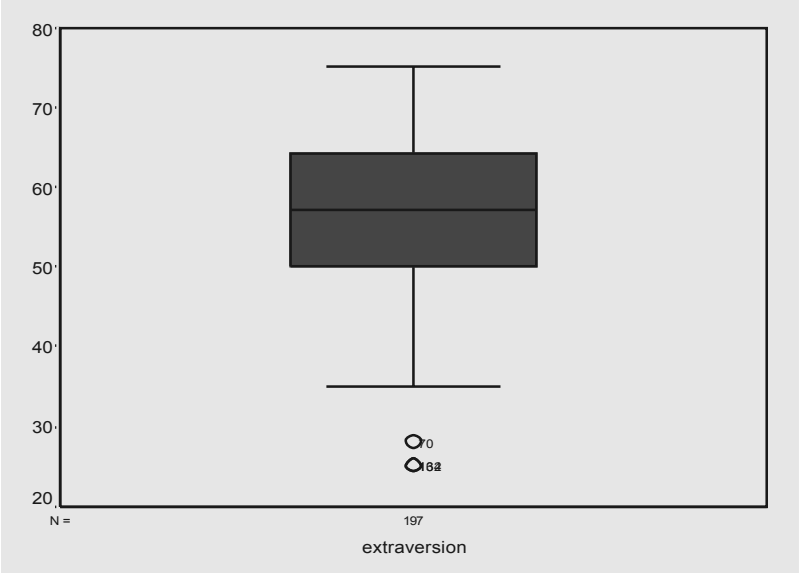

Figure 1. Box plot of NEO-FFI extraversion showing outlier.

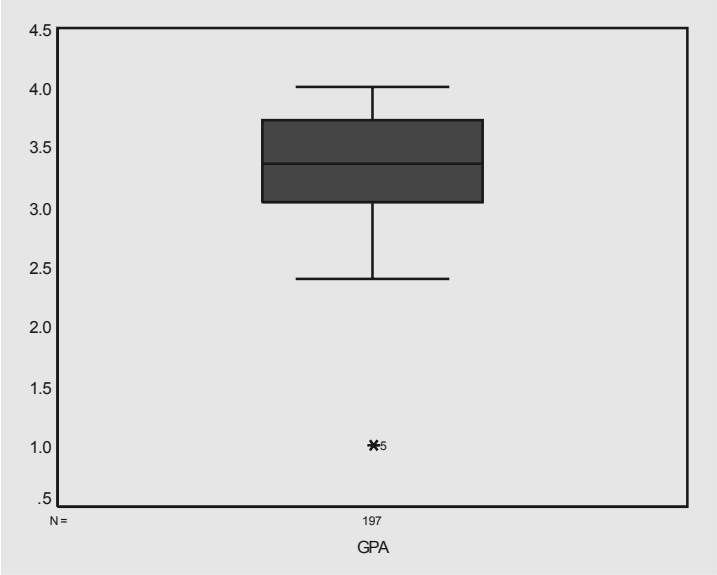

Figure 2. Box plot of GPA showing outlier.

Analysis of the Hypotheses

Research Question 1: What is the relationship between the five personality variables, as measured by the NEO-FFI, and academic performance, as measured by GPA?

H_{01a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1a}. Conscientiousness, as measured by the NEO-FFI, will be positively and significantly related to academic performance, as measured by GPA.

H_{01b}. Openness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1b}. Openness, measured by the NEO-FFI, will be positively and significantly related to academic performance, as measured by GPA.

H_{01c}. Extroversion, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1c}. Extroversion, as measured by the NEO-FFI, will be significantly related to academic performance, as measured by GPA.

H_{01d}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1d}. Agreeableness, as measured by the NEO-FFI, will be significantly related to academic performance, as measured by GPA.

H_{01e}. Neuroticism, as measured by the NEO-FFI, will not be significantly related to academic performance, as measured by GPA.

H_{1e}. Neuroticism, as measured by the NEO-FFI, will be negatively and significantly related to academic performance, as measured by GPA.

Spearman's rho correlations were computed to examine the correlations of the variables. Table 5 shows that only one of the variables, conscientiousness, was significantly correlated with GPA, $r_s(195)=.16$, $p = .05$. The effect size, measured by r^2, was .026. This indicated that approximately 3% of the variance in GPA was accounted for by conscientiousness. Table 5 depicts the correlations, means, and standard deviations.

Table 5

Correlations, Means, and Standard Deviations for NEO-FFI Subscales and GPA

Subscale	GPA	*M*	*SD*
Neuroticism	.05	51.28	10.18
Extraversion	.02	56.53	9.43
Openness	-.04	50.83	9.97
Agreeableness	-.02	52.38	10.42
Conscientiousness	.16*	52.76	9.56

*$p < .05$

Research Question 2: What is the relationship between the five personality traits, as measured by the NEO-FFI, and nursing practice self-efficacy, as measured by the Nurse Practice Self-Efficacy (NPSE) survey for nursing students?

H_{02a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2a}. Conscientiousness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02b}. Openness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2b}. Openness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02c}. Extroversion, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2c}. Extroversion, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02d}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2d}. Agreeableness, as measured by the NEO-FFI, will be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{02e}. Neuroticism, as measured by the NEO-FFI, will not be significantly related to nursing practice self-efficacy, as measured by the NPSE.

H_{2e}. Neuroticism, as measured by the NEO-FFI, will be negatively and significantly related to nursing practice self-efficacy, as measured by the NPSE.

Spearman's rho correlations were completed to examine the correlations of the variables. Table 6 shows that three variables, namely, extraversion, conscientiousness, and agreeableness, were significantly and positively correlated with self-efficacy. For extraversion, $r_s(195) = .28$, $p = .01$. The effect size, measured by r^2, was .08. This indicated that approximately 8% of the variance in self-efficacy was accounted for by extraversion. For conscientiousness, $r_s(195) = .41$, $p = .01$, the effect size was .168, indicating that approximately 17% of the variance in self-efficacy was accounted for by conscientiousness. For agreeableness, $r_s(195) = .25$, $p = .01$, the effect size was .063, indicating that approximately 6% of the variance in self-efficacy was accounted for by agreeableness.

Neuroticism was negatively correlated with self-efficacy, $r_s(195) = -.21$, $p = .01$. The effect size measured by r^2, was .04. This indicated that approximately 4% of the variance in self-efficacy was accounted for by neuroticism. Table 6 provides the correlations, means and standard deviations for NEO-FFI subscales and self-efficacy.

Table 6

Correlations, Means, and Standard Deviations for NEO-FFI Subscales and Self-Efficacy

Subscale	Self-efficacy	*M*	*SD*
Extraversion	.28**	56.63	9.43
Conscientiousness	.41**	52.76	9.96
Agreeableness	.25**	52.38	10.42
Neuroticism	-.21**	51.28	10.18
Openness	.01	50.83	0.07

** $p < .01$

Research Question 3: What is the relationship between the five personality traits, as measured by the NEO-FFI, and stress, as measured by the Susceptibility Under Stress (SUS) Survey for nursing students?

H_{03a}. Conscientiousness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS Survey.

H_{3a}. Conscientiousness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03b}. Openness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3b}. Openness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03c}. Agreeableness, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3c}. Agreeableness, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

H_{03d}. Extroversion, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3d}. Extroversion, as measured by the NEO-FFI, will be significantly related to stress, as measured by the SUS.

$H_{03}e$. Neuroticism, as measured by the NEO-FFI, will not be significantly related to stress, as measured by the SUS.

H_{3e}. Neuroticism, as measured by the NEO-FFI, will be positively and significantly related to stress, as measured by the SUS.

Spearman's rho correlations were computed to examine the correlation of the variables. Table 7 shows that three of the variables, namely, extraversion, agreeableness, and conscientiousness, were significantly and negatively correlated with stress susceptibility. For extraversion $r_s(196) = -.31$, $p = .01$. The effect size, as measured by r^2, was .10. This indicated that approximately 10% of the variance in stress was accounted for by extraversion. For agreeableness, $r_s(196) = -.32$, $p = .01$, the effect size was .10. This indicated that 10% of the variance in stress was accounted for by agreeableness. For conscientiousness, $r_s(196) = -.32$, $p = .01$, the effect size was .10. This indicated that 10% of the variance in stress was accounted for by conscientiousness.

Neuroticism was significantly and positively correlated with stress susceptibility, $r_s(196) = .39$, $p = .01$. The effect size, as measured by r^2, was .15. This indicated that approximately 15% of the variance in stress was accounted for by neuroticism. Table 7 provides the correlations, means, and standard deviations for NEO-FFI subscales and stress.

Table 7

Correlations, Means, and Standard Deviations for NEO-FFI Subscales and Stress

Subscale	Stress	*M*	*SD*
Extraversion	-.31**	56.63	9.43
Conscientiousness	-.31**	52.76	9.96
Agreeableness	-.32**	52.38	10.42
Neuroticism	.39**	51.28	10.18
Openness	-.08	50.83	9.97

** $p < .01$

Research Question 4: What is the relationship among the FFM personality traits, nursing self-efficacy, stress susceptibility, and GPA?

H_{04}. The personality traits of conscientiousness, openness, extroversion, agreeableness, and neuroticism, as measured by the NEO-FFI; student self-efficacy, as measured by patient scale of the NPSE; and stress susceptibility, as measured by the SUS, will not significantly predict academic performance, as measured by GPA.

H_4. The personality traits of conscientiousness, openness, extroversion, agreeableness, and neuroticism as measured by the NEO-FFI; student self-efficacy, as measured by the NPSE; and stress susceptibility, as measured by the SUS, will significantly predict academic performance, as measured by GPA.

A multiple regression analysis was conducted to evaluate how well the relationship among the FFM variables of conscientiousness, neuroticism, openness, agreeableness and extraversion; self-efficacy; and stress susceptibility predicted GPA. Self-efficacy and conscientiousness were significant predictors $F(194) = 5.29$, $p < .01$. The sample multiple correlation coefficient was .052, indicating that approximately 5% of the variance in GPA was accounted for by self-efficacy and conscientiousness. The GPA prediction formula for model two was $GPA_{(pred)} = 3.654 - .176$ (self-efficacy) + .010

(conscientiousness). Table 8 provides the coefficients of the two models evaluated in the analysis.

Table 8

Coefficients for Two-Model Evaluation

	B	*SE B*	•
Model 1			
Constant	2.967	.163	0.00
Conscientiousness	.008	.003	.177
Model 2			
Constant	3.654	.372	0.00
Conscientiousness	.010	.003	.236
Self-efficacy	-.176	.086	-.155

Summary

This chapter presents the results of the study. The data were collected from 197 volunteer nursing students attending three community colleges in the northeastern United States. SPSS 12 was used to compute the data. The reported findings on the demographics data revealed a mean age of 34 among the participants. Of the 197 participants, 174 of them were female. Most participants (141) were Caucasian. Pretest data analysis was conducted to ensure that statistical threats to validity were properly addressed, inclusive of analysis of assumptions and reliability. The researcher used Spearman's rho correlations when evaluating the hypotheses.

Analysis of the hypothesis to Research Question 1 pertaining to the relationship between FFM personality traits and academic performance yielded conscientiousness being significantly correlated with GPA. Research Question 2 addressed the relationship between FFM personality traits and nursing practice self-efficacy. The three variables of extraversion, conscientiousness, and agreeableness were significantly and positively

correlated with self-efficacy. Neuroticism was significantly and negatively correlated with self-efficacy.

Research Question 3 assessed the relationship between FFM personality traits and stress susceptibility. Significantly, the three variables of extraversion, agreeableness, and conscientiousness were negatively correlated with stress susceptibility, but neuroticism was positively correlated with stress susceptibility.

Research Question 4 pertained to the predictive relationship among FFM personality traits, nursing practice self-efficacy, stress susceptibility, and GPA. Multiple regression analysis identified self-efficacy and conscientiousness as significant predictors of GPA.

Chapter 4 included data analyses to investigate the four key hypotheses presented in the study. Chapter 5 explains why and how this study was done. An interpretation of the findings is related to the theoretical framework that guided this study. This chapter also includes discussion of the implications for social change. Recommendations for action and further study are offered.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

After a steady decline since peaking in 1993, enrollments in nurse education programs have rebounded in recent years (Jacobson & Kaufman, 2004). Although the trend seems promising, admissions figures reveal only part of the actual picture. Attrition in higher education is a perennial problem. Graduations from nursing programs have dropped dramatically since the mid-1990s, thus intensifying the urgency of taking action to increase the probability that students who enter nursing programs will persist to earn their degrees. The importance of this issue is underscored by evidence that roughly 126,000 RN positions in the United States go unfilled, with projections of a 50% increase in the shortage of RNs by 2010 (JCAHO, 2006).

The majority of aspiring nurses enroll in associate degree programs. These programs enjoyed a 7% increase in graduations in the 2002-2003 school year and continue to be a popular choice in many community colleges (Jacobson & Kaufman, 2004). Consequently, nursing students in a 2-year nurse education program were the focus of this study that examined the relationship among personality traits, self-efficacy, stress susceptibility, and nursing students' GPAs.

At all levels of nurse education, prior academic performance in the form of the GPA has emerged as a key predictor of future academic performance (Potolsky et al., 2003; Sayles et al., 2003; Schwarz, 2005; Speziale, 2002; Stuenkel, 2006). This finding has paralleled the general college and university population (Gifford et al., 2006; Kern et al., 1998). Nevertheless, academic indicators alone have not been predictive of college

success (McKenzie et al., 2004; Ofori & Charlton, 2002; Phillips et al., 2002). There has been a recent upsurge in interest in personality traits, especially in organizational and industrial psychology, where the FFM is used extensively (Barrick et al., 2001). Although the emphasis on academic criteria has predominated in educational research, the FFM has been applied effectively to education and learning (De Raad & Schouwenburg, 1996; Kyllonen et al., 2005). The relevance of personality traits to higher education has been evident in the portrayal of emotional, interpersonal, experiential, attitudinal and motivational styles (Kyllonen et al.; McCrae & Costa, 2003).

Self-efficacy has a powerful impact on motivation to persevere toward a desired goal (Bandura, 1997). High self-efficacy also mitigates stress by enabling individuals to appraise stressful or difficult situations as challenges to overcome. Similarly, personality factors come into play in coping with stress (Deary et al., 2003; Vollrath, 2001; Watson & Hubbard, 1996). Stress is endemic in health professions, and it has been implicated as a contributor to nursing student attrition (Deary et al.; Murff, 2005).

The participants in this study were 197 student nurses recruited from 2-year nurse education programs in the northeastern United States. Demographically, the sample was 71.6% Caucasian, 12.7% African American, 7.6% Asian, 4.1% Hispanic, and 4.1% other ethnicities. Males comprised 11.7% of the sample, which is slightly higher than their overall representation in the practicing RN workforce. The mean age of the participants was 34 years. All participants completed the NEO-FFI to measure the five dimensions of personality, the NPSE to assess confidence in the ability to perform as RNs upon completion of the nurse education program, and the SUS Survey to assess responses to

stress. The study employed a quantitative correlational design, utilizing multiple regression analysis and the Pearson correlation coefficient to determine relationship among FFM traits, self-efficacy, stress susceptibility, and GPAs.

The study was guided by four research questions formulated into hypotheses addressing each of the prospective relationships among the variables. Research Question 1 pertained to the relationship between FFM personality traits and academic performance. In the five personality factors, only conscientiousness was significantly linked with GPA, demonstrating a sound positive correlation.

Research Question 2 examined the relationship between FFM personality traits and nursing practice self-efficacy. Only openness to experience showed no relationship to nursing self-efficacy. This finding was not unexpected, given that openness is primarily relevant for predicting success in artistic and creative endeavors (Barrick et al., 2003; De Fruyt & Mervielde, 1999). On the other hand, extraversion, conscientiousness, and agreeableness were significantly and positively correlated with self-efficacy, whereas neuroticism showed an inverse relationship to self-efficacy.

Research Question 3 focused on the relationship between FFM personality traits and susceptibility to stress. The results for this question inversely paralleled those for self-efficacy: Extraversion, conscientiousness, and agreeableness were significantly and negatively correlated with stress susceptibility, whereas neuroticism was positively linked with susceptibility to stress.

Research Question 4 encompassed the complete constellation of variables, examining the predictive relationship among FFM personality traits, nursing practice

self-efficacy, stress susceptibility, and GPA. Multiple regression analysis revealed that conscientiousness and self-efficacy were significant predictors of GPA.

The patterns of interrelationships that emerged from the analyses were largely consistent with other research findings from occupational and educational psychology (Barrick et al., 2001; Chamorro-Premuzic & Furnham, 2003; Little et al., 1992; McKenzie et al., 2004; Mount et al., 1998; Salgado, 2002; Vollrath, 2001). These relationships are discussed in depth in the following section.

Interpretation of the Findings

Traditionally, GPA used to be regarded as the overriding predictor of performance in higher education. With analyses that are more sophisticated, it has become clear that although GPA does make an important contribution to college success, a single factor in isolation is insufficient to explain college persistence and graduation. Furthermore, a sizable body of organizational and occupational research has shown that certain noncognitive factors influence adaptation to different career environments. Although this channel of research has gained less attention in educational psychology, there is increasing evidence of the impact of personality and other psychosocial influences on persistence in professional education. Nursing and medical education are two related fields that have taken this approach (Ehrenfeld & Tabak, 2000; George & Owen, 1983; Kluger et al., 2002; Lievens et al., 2002).

At the same time, although nurse education research has revealed a number of cognitive and noncognitive predictors of academic success, the predictors usually have been examined independently (Ofori & Charlton, 2002), which has inhibited an

understanding of how they interact. The present study was designed to transcend this limitation by delving into the interrelationships among factors.

In exploring the selection of nursing students, Ehrenfeld and Tabak (2000) reported that academic difficulties accounted for only one third of nursing student attrition. They asserted that even though admissions interviews could assist in increasing retention, they are only partly effective in screening applicants. In response to the question of how the interviews could be improved, nursing students and faculty recommended designing personality tests tailored to the requirements of the nursing profession. One aim of their study was the creation of a multifaceted model for predicting nursing student retention.

Kyllonen et al. (2005) recommended that researchers consider noncognitive factors in admissions for graduate education. The qualities that they considered important include interests, motivation, ability to work with others, and willingness to apply effort and work hard. In particular, they considered noncognitive assessments advantageous in disciplines where personality may be especially important, such as nursing, clinical psychology, and social work. The present study was designed with the philosophy that noncognitive attributes are equally relevant to undergraduate career preparation.

Findings of the Study

In view of the documented impact of GPA on student performance and graduation, the first research question investigated the relationship between personality traits and GPA. Only conscientiousness was significantly linked with GPA, demonstrating a strong positive relationship. This finding was consistent with the overall

body of research in which conscientiousness almost invariably appears as the paramount predictor of performance in educational and occupational research (Barrick et al., 2001; Chamorro-Premuzic & Furnham, 2003; De Raad, 2000; De Raad & Schouwenburg, 1996; Furgeson et al., 2000; McKenzie et al., 2004; Mount et al., 1998; Phillips et al., 2003; Salgado, 2002). The impact is so universal that Barrick et al. characterized conscientiousness as "the trait-oriented motivation variable that industrial-organizational psychologists have long searched for" (p. 220). They stated that the variable "should occupy a central role in theories seeking to explain job performance" (p. 220). The findings of this study supported the contention that this claim is equally valid for educational research. Paradoxically, two studies reviewed by this researcher failed to confirm a connection between conscientiousness and academic achievement (Diseth, 2003; Ridgell & Lounsbury, 2004). In both cases, the researchers were surprised with this finding, which this researcher contradicted by the findings of the present study.

In the broadest sense, conscientiousness is related to self-control (Costa & McCrae, 1992). More specifically, conscientiousness has particular implications for success in a pressured academic environment that demands attention to clinical detail. Conscientiousness governs the ability to plan, organize, and execute tasks, and conscientious individuals are goal focused, strong willed, and determined. These characteristics invoke high self-efficacy (Bandura, 1997).

Kelly and Johnson (2005) suggested that there is a marked association between conscientiousness and time efficiency. Organizational theorists have proposed that very conscientious individuals are more productive because they dedicate more time to

finishing tasks, seek out knowledge that is more relevant, set independent goals and persist in achieving them, extend their efforts beyond role requirements, and avoid counterproductive behaviors (Salgado, 2002). In educational research, McKenzie et al. (2004) observed a pronounced relationship between academic performance and the use of effective learning strategies. They attributed this finding to the behaviors involved, namely, time management, self-monitoring, connection of course reading materials to lectures, and organization of course materials. The students in their study who were the most inclined to use these strategies were those who scored high in conscientiousness.

In addition to conscientiousness, valuing the task surfaced as the second key predictor of reliance on learning strategies, implying that the students who saw the benefit or utility of the learning task endeavored to see that they understood the material (McKenzie et al., 2004). In a professional education program such as nursing, an implication would be that students who are both conscientious and committed to becoming practicing RNs would be diligent in ensuring their academic success. In fact, for prospective RNs, this extends beyond graduation. Compounding the problem of early attrition from nurse education programs is the proportion of students who graduate with a degree, but fail the licensure exam (Sayles et al., 2003; Schwarz, 2006; Stuenkel, 2006). Stuenkel declared, "In light of the nursing shortage, schools of nursing need to prepare new graduates as efficiently and expediently as possible—without lowering standards" (p. 207).

In an early study, George and Owen (1983) found that nursing students surpassed the general college population in terms of effort, responsibility, and dedication. These

qualities are embodied in the definition of conscientiousness. In a review of meta-analyses of research using the FFM, Barrick et al. (2001) observed that although conscientiousness predicted superior performance across occupations, findings for the four other personality traits were much less consistent. They stated that the respective influences of extraversion, agreeableness, and openness to experience are dependent upon the context or setting. Openness is the most ambiguous and least predictive of the five personality traits (Costa & McCrae, 1992).

Extraversion and agreeableness are related to interpersonal tendencies, although the two factors have distinct dimensions. Extraversion often is equated with sociability. However, sociability is only one aspect of extraversion, which encompasses taking pleasure in being with people, along with tendencies toward being assertive, active, and talkative (Costa & McCrae, 1992). Agreeableness is associated with altruism, sympathy, and cooperation. Both extraversion and agreeableness are linked with an interpersonal achievement orientation (Ross et al., 2003).

Intuitively, one would expect that nursing would attract individuals who are high on extraversion and agreeableness. Among practicing RNs, agreeableness is related to superior performance in jobs involving interpersonal interactions (Mount et al., 1998). In the present study, extraversion, agreeableness, and conscientiousness were positively correlated with nursing self-efficacy. Conversely, neuroticism showed a negative correlation to self-efficacy.

The present findings for the interrelationship of the four personality factors to nursing self-efficacy were reflected in a meta-analysis of personality factors in jobs

involving interpersonal dynamics conducted by Mount et al. (1998). Consistent with the bulk of research, conscientiousness had a powerful impact on job performance across occupational settings. Emotional stability and agreeableness also predicted job performance across settings; however, the impact was even more pronounced in jobs requiring teamwork rather than one-on-one interpersonal interactions. Successful teamwork is contingent upon cooperation among members. Mount et al. portrayed agreeable team members as helpful, trusting, and friendly, traits that are requisites for efficient teamwork. Teamwork is an essential part of professional nursing practice. Thus, it is not surprising that nursing students who possess personality traits associated with effective teamwork should feel confident in their ability to work in their chosen profession.

Ironically, Mount et al. (1998) reported that the impact of extraversion to job performance was small, despite the interpersonal focus. This finding contrasted with the present study and other research documenting an association between extraversion and social careers (Barrick et al., 2001; De Fruyt & Mervielde, 1999). By definition, nursing, which entails one-on-one as well as team interactions, classifies as a social career (Holland, 1985). The profiles of nursing students compiled by George and Owen (1983) portrayed nursing students as highly gregarious and with preferences for affiliation and exhibition. The researchers conceptualized that nurses enjoy people, are able to maintain and develop interpersonal relationships, and command the attention of others.

Neuroticism has been described as the "most pervasive domain of personality," in contrast with "adjustment or emotional stability" (Costa & McCrae, 1992, p. 14).

Individuals high in neuroticism are susceptible to psychological distress. Central to the construct of neuroticism is a predisposition toward such negative emotional states as fear, sadness, embarrassment, guilt, anger, and disgust. The inverse relationship to self-efficacy is implicit in this depiction. Bandura (1997) asserted that individuals high in self-efficacy tend to minimize threats and negative emotions that could dissuade them from successfully pursuing their goals.

Bandura (1997) emphasized that self-efficacy refers to the perceptions of one's ability. He observed that novices tend to overestimate their abilities, especially in an endeavor where they believe that they will perform well. There has been some evidence from research on nursing students and college students in general that those with higher self-efficacy may make less use of effective self-regulation and study techniques (Ofori & Charlton, 2002; Vancouver & Kendall, 2006). Despite this evidence, self-efficacy does not aversely affect educational outcomes. In fact, Vancouver and Kendall found that self-efficacy and class performance are positively related to goal level among undergraduate students. This finding was consistent with the generally positive impact of high self-efficacy in educational research (Bandura). High self-efficacy can enhance performance and intensify motivation (Audia et al., 2000). Furthermore, the presence of conscientiousness in conjunction with self-efficacy may override any tendency toward being less diligent due to overconfidence.

High self-efficacy also acts as a buffer against stress (Bandura, 1997). With respect to stress susceptibility, conscientiousness, extraversion, and agreeableness have been found to protect against stress susceptibility. Neuroticism, on the other hand, has

been positively linked with vulnerability to stress, a predictable finding in view of the nature of the trait (Costa & McCrae, 1992). Little et al. (1992) reported a powerful association between neuroticism and stress.

Nursing students who are less susceptible to emotional stress, anxiety, guilt, and loneliness are more likely to pass the NCLEX-RN (Schwarz, 2005). Conscientiousness, agreeableness, and extraversion are associated with strategies to effectively cope with stress. Planning, organization, time management, and self-monitoring are characteristic of conscientiousness and are forms of problem-focused coping techniques. Students high in extraversion and agreeableness are likely to draw upon social support to cope with stress (Vollrath, 2001). Ofori and Charlton (2002) found that the adult nursing students in their study, who tended to be less confident of their academic abilities than their younger classmates were, often sought out support. This strategy enabled them to successfully complete course assignments and pass exams.

The final question encompassed the interrelationship among all the target variables. Self-efficacy and conscientiousness proved to be the major predictors of GPA. Independently, each one has a strong empirical evidence base. Self-efficacy has been used frequently in educational research and has been positively associated with academic performance (Bandura, 1997; Lynch, 2006; Vancouver & Kendall, 2006). Usually, conscientiousness has been linked with superior performance, although most findings have been drawn from occupational and organizational research. Although there are fewer applications of personality to educational research, several studies have reported an

association between conscientiousness and academic achievement (Lievens et al., 2002; McKenzie et al., 2004; Phillips et al., 2003).

According to Lievens et al. (2002), conscientiousness predicted the success of medical students in preclinical education. The researchers observed that the "more proactive" aspects of conscientiousness, such as self-discipline and achievement, exerted a stronger impact on academic success than the "more inhibitory and regulatory" aspects, such as order, deliberation, and dutifulness (p. 1055). The medical students also scored high on extraversion and agreeableness, which Lievens et al. found especially valuable for professions demanding interpersonal interactions and teamwork.

GPA is universally recognized as an indicator of future academic achievement and can directly influence student attrition (Kern et al., 1998). However, Kern et al. also emphasized that "GPA and retention need to be considered as distinct outcomes" (p. 31). Other factors such as learning and study strategies, motivation, concentration, and time management indirectly influence retention via the mechanism of GPA. In the study, these were embodied in the noncognitive aspects of conscientiousness and self-efficacy.

Implications for Social Change

There has been general agreement among researchers that academic achievement alone is insufficient to explain attrition and retention in higher education. Yet despite extensive efforts to increase retention in college and university programs, most researchers have focused on a very limited number of factors that influence persistence toward attainment of a degree. Nurse education research has gone beyond many disciplines to include a range of variables affecting degree completion and successful

licensure. However, as Ofori and Charlton (2002) observed, although nurse education research has discerned an array of cognitive and noncognitive factors predicting academic success, they have typically been explored independently, thereby limiting an understanding of how they interact.

With its inherent goal of preparing students for knowledgeable and skilled professional practice, nurse education has been examined from the dual perspectives of educational and occupational research. Knowledge of the interactions between personality characteristics and GPA associated with factors related to nursing practice have the potential to increase the quality of nurse education programs and positively affect the nursing workforce by focusing efforts on the attraction and retention of individuals who are the most likely to be competent, dedicated professionals.

The association between conscientiousness and GPA was expected. As mentioned previously, only two studies did not discern a relationship between the two factors, and in both cases, the researchers were surprised with the results (Diseth, 2003; Ridgell & Lounsbury, 2004). Going beyond academic issues, the present study found that conscientiousness, extraversion, and agreeableness were positively linked with nursing practice self-efficacy, whereas neuroticism showed a negative correlation. These relationships captured the realities of professional nursing practice. Diligence, self-control, dedication, teamwork, strong interpersonal skills, and confidence in making quick and critical decisions without hesitation are the key components of successful nursing practice. By implication, nursing applicants who exhibit these characteristics should be superior academic and job candidates.

Stress is endemic in the health professions, and researchers have documented it as a contributor to nursing student attrition (Deary et al., 2003; Murff, 2005). The findings of this study showed a clear relationship between personality characteristics and stress, and the pattern that emerged was the reverse of the pattern for nursing self-efficacy: Conscientiousness, extraversion, and agreeableness were inversely related to stress susceptibility, whereas neuroticism intensified it. The juxtaposition of these findings reinforced the argument that the use of personality assessment in nurse education, paralleling its use in human resources, has the potential to improve the quality of nurse education programs and their graduates.

In the final analysis, conscientiousness and self-efficacy were strong predictors of GPA. The two constructs overlapped in such aspects as self-regulation, persistence, and motivation. Many nurse education programs teach students strategies to enhance such qualities as well as reduce stress. Knowledge of students' personality profiles would enable educators to tailor strategies more effectively to individual students.

The main objective of this study was the development of a model to guide the recruitment and retention of students who are best suited to the demands of the nursing profession. This approach has the capacity to increase the effectiveness of nurse education programs under strong pressures for accountability and the quality of the nursing workforce in an environment of increasing technological and consumer sophistication.

In response to the nursing shortage, nurse education programs and health care centers have undertaken ambitious marketing campaigns and recruiting efforts.

Knowledge of the attributes that predict success in nurse education can be used to inform these initiatives and help recruiters and educators to reach out to promising candidates. High school students, as well as adults contemplating career changes, may find this information useful when exploring a prospective nursing career.

The findings of this study may be equally valuable for promoting the successful graduation and licensure of students already enrolled in nursing programs. Despite the stability of personality traits, they can be modified to some degree by the environment (Deary et al., 2003). In particular, the behaviors associated with conscientiousness are amenable to intervention. These behaviors include the utilization of learning strategies, study skills, time management, and goal focus. Learning centers in community colleges offer assistance in learning these skills. However, such assistance is more useful if it is strategically targeted.

For the purpose of increasing the pass rates on the NCLEX-RN, Sayles et al. (2003) advocated considering learning styles, test-taking skills, social interaction profiles, and stress level profiles, in addition to academic achievement scores. They envisioned a comprehensive approach to intervention with support tailored to students' unique characteristics. Students who are preparing for the NCLEX-RN have already completed most of the program. Attrition is the highest during the first year (Ehrenfeld & Tabak, 2000; Potolsky et al., 2003). The findings from this study may be used to identify students at risk for dropout early in nurse education programs and to create customized intervention strategies.

The personality profiles also may be useful for matching new students with suitable mentors or tutors. Mentorship is a potentially valuable mechanism for enhancing academic performance and retention that often is undermined by a poor match between mentor and protégé. A model based on a profile developed from personality traits, self-efficacy, stress susceptibility, and GPA is dually effective for identifying at-risk students and strong, suitable mentors.

Self-efficacy beliefs arise from learning experiences and are extremely amenable to modification (Bandura, 1997). Interventions targeting the four sources of self-efficacy, that is, mastery experience, vicarious learning or modeling, social persuasion, and somatic or emotional states, have documented effectiveness in improving performance. The fourth source of self-efficacy, namely, the person's somatic or emotional state, is directly related to stress response. Stress management and relaxation techniques often are used to allay test anxiety or, more broadly, reduce academic and occupational stress. Having a multidimensional image that includes personality traits and stress susceptibility as well as self-efficacy and academic performance should enhance the effectiveness of strategies designed to raise nursing students' self-efficacy.

More than 2 decades ago, George and Owen (1983) recommended the personality assessment of nursing students to structure the learning environment to promote their success. They called on nursing faculty to apply the resulting personality profiles, that is, to work with students to devise strategies to build on or modify personality traits as the students desire, advance students' growth and development, and enable them to cope with stressors endemic to clinical settings. Nurse education programs designed with these

features can be very successful in promoting high rates of retention (Valencia-Go, 2005). However, these programs remain few in number, and current trends in nurse education admissions suggest that this is an excellent time to act on recommendations to use personality assessments as part of a multifaceted approach to increasing retention among aspiring RNs.

Recommendations for Action

The results of this study have the potential to assist nurse educators, admissions officials of nurse education programs, and recruiters for nurse education programs. Ehrenfeld and Tabak (2000) found that although admission interviews could aid in enhancing the retention of nursing students, they are only partially effective for screening candidates. The nursing students and faculty in their study recommended devising personality tests tailored to the requirements of the nursing profession as a strategy to improve the interview process. College admission counselors are encouraged to administer a personality inventory such as the NEO-FFI or the SUS to ascertain students' personality traits and susceptibility to stress. The students can then be placed in support services, such as counseling, peer mentoring, or instructional/academic support, which affords them greater awareness of what they will need to complete a nurse education program successfully. The administration of personality assessments is common in human resources management. Building on this, the researcher recommends future study on the personality profiles of RNs in various stages of professional practice (student, graduate, novice, expert) and the attributes of professional nursing practice to develop specially tailored assessment tools.

The relationship among personality factors, self-efficacy, stress susceptibility, and GPA can be synthesized into a multidimensional model for guiding the development of suitable personality assessments. By extension, it also can guide the selection process of students in nurse education. A model of this type can be adapted to fit different purposes. Learning styles assessment in conjunction with personality profiles can be used for tailoring strategies to promote the success of students already enrolled. These results also can be used to inform interventions for students preparing to take the NCLEX-RN.

The specific focus of this study was nursing students in a 2-year nurse education program. A model formulated from the results could be distributed to the administrators and faculty of community college nursing programs. Different programs and college campuses have different characteristics and different student populations. Because the model is meant to be flexible, program staff and administrators can adapt it to the unique features of their programs. The model also might be used to guide students with different profiles in choosing a particular nursing career (e.g., public health nursing, critical care, psychiatric nursing, nurse practitioner).

Online communications channels such as listservs and discussion boards would be useful venues for expanding the audience for this information. They also could be used to solicit input and feedback from nurse educators, administrators, and students to improve or build upon the model and improve strategies for promoting nursing students' successful graduation.

New nursing graduates generally work under preceptorship. The profiles derived from the target variables could be useful for helping novice RNs succeed in their chosen

careers. As envisioned by George and Owen (1983), the student assessments could serve as a tool to aid students throughout their academic careers. Ongoing assessment also enables students, educators, mentors, tutors, or preceptors to evaluate the effectiveness of various interventions and strategies.

In the present study, traditional students, that is, students under the age of 25, comprised only 18% of the sample. In fact, George and Owen (1983) based their study on adult nursing students. Research has shown that adult students tend to do well in nursing programs, regardless of their formal entry qualifications (Houltram, 1996; Kevern et al., 1999). The application of a predictive model to the recruitment of adults aspiring to a nursing career could prove especially advantageous in recruiting excellent candidates. Adult students tend to be powerfully motivated to achieve their career goals. The knowledge gained from this study may be a valuable resource for career counselors confronted with increasing numbers of clients contemplating career changes.

Recommendations for Further Study

One factor not addressed by this study was learning styles. De Raad and Schouwenburg (1996) observed that learning styles are related to qualities of self-efficacy, self-control, and self-confidence, which are reflected in facets of the five broad personality domains. George and Owen (1983) recommended that personality be related to learning preferences as a strategy to promote the academic success of nursing students. Despite its promise, this recommendation appears to have been ignored. With the current resurgence in interest in personality traits, this presents an excellent channel for additional research.

The growing numbers of adult students on community college campuses have generated research into retention strategies specifically tailored to the needs and preferences of adults. Nursing students between the ages of 30 and 39 comprised the largest age group in the present study. Some 30% of the participants were 40 and older. Future research applying the variables used in the present study to traditional and adult students might discern differences that are potentially useful for guiding interventions. In addition, an interaction of age and personality could enhance matching students with mentors and tutors.

Another direction for future research is replicating the present study with baccalaureate nursing students. Graduation rates from bachelor of science nursing programs increased by only 2.2% during the same period that graduations from associate degree programs increased by 7% (Jacobson & Kaufman, 2004). Boosting admissions and graduation rates in both 2-year and 4-year nurse education programs is essential to offset the projected nursing shortage.

Conclusion

After a decade of declining enrollments, nurse education programs are experiencing an upsurge in interest. The majority of new RNs graduate from community college programs, where nursing now tops the list of "hot programs" (McPhee, 2004). At the same time, attrition remains a serious problem exacerbated by projections of an acute shortage of RNs. GPA has long been held as a marker for future academic success. However, a compelling body of evidence has shown that GPA alone is insufficient to predict successful college persistence and graduation. Although noncognitive factors are

assuming more prominence in educational research, most studies have focused only on one or two. Building on a large body of research applying personality theory to occupational performance, the present study was designed to explore the relationship among personality traits, nursing practice self-efficacy, stress susceptibility, and GPA among students enrolled in a 2-year nurse education program.

Of all the personality factors, conscientiousness had the most powerful impact, a finding that corresponded to the overall body of previous research. Extraversion and agreeableness correlated positively with self-efficacy and negatively with stress susceptibility. This pattern was not surprising because nursing practice is a social career where interpersonal interactions and teamwork are integral to job performance. Conversely, neuroticism was inversely related to self-efficacy and predicted a predisposition to stress susceptibility. This finding also was consistent with other research and has important implications for nursing, where dealing with stress is a daily reality. In the final analysis, conscientiousness and self-efficacy emerged as the major predictors of GPA. The findings of this study may provide the basis for a model of student retention in a field where qualified graduates are in extremely high demand.

Summary

Chapter 5 included an overview of the study, an interpretation of findings, implications for social change, and recommendations for action. This study was driven by the concept that noncognitive factors, namely, personality characteristics, play a prominent role in the successful retention, graduation, and licensure of nursing students. The variables were selected to represent the demands confronted by nursing students

during their education and in professional practice. It is intended that the findings of this study be used to develop a model that will guide the recruitment and retention of nursing students, and serve as a springboard for future research into the full range of noncognitive influences on nursing students' GPA.

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APPENDIX A: DEMOGRAPHICS QUESTIONNAIRE

Completing this questionnaire indicates that I am at least 18 years old and I am giving my informed consent to be a participant in this study.

Demographics

1. Is this your first Associates degree? __yes __no

2. If you have another degree, please give title and major_____

(Example: BA in English)

3. How many semesters of Clinical nurse education have you had to date, including your current semester? __1 __2 __3 __4 __5 +

4. When do you plan to graduate?

__January –June 2008

__January –June 2009

5. What is your gender __Male ___Female

6. What is your race?

__White, non-Hispanic __Black, non-Hispanic

__Hispanic __Asian

__ Pacific Islander __American Indian/Native Alaska

Other (please provide) _____

7. What is your age ____

Administrative purposes only: Participant do not complete

Student assigned #_____ GPA_____

APPENDIX B: NURSING PRACTICE SELF-EFFICACY

Please rate each statement according to your confidence in your ability to perform as a nurse at the conclusion of your education.

The rating scale is: SD = Strongly Disagree; D= Disagree, N= Neutral, A= Agree. SA= Strongly Agree

When I graduate from my nursing program, I am confident that with the proper training I will be able to:

1. Manage my patients' care.	SD	D	N	A	SA
2. Use my current knowledge.	SD	D	N	A	SA
3. Be an advocate for my patients within the health care system.	SD	D	N	A	SA
4. Practice nursing in a variety of settings.	SD	D	N	A	SA
5. Care for patients from diverse backgrounds.	SD	D	N	A	SA
6. Use theory to guide my nursing practice.	SD	D	N	A	SA
7. Evaluate health information in relation to my nursing practice specialty.	SD	D	N	A	SA
8. Use research results to guide my nursing practice.	SD	D	N	A	SA
9. Create partnerships with other health care.	SD	D	N	A	SA
10. Be a leader in interdisciplinary health care teams.	SD	D	N	A	SA
11. Communicate effectively with my patients.	SD	D	N	A	SA
12. Communicate effectively with other health-care professionals.	SD	D	N	A	SA
13. Teach patients about their health care problems.	SD	D	N	A	SA
14. Evaluate nursing care outcomes.	SD	D	N	A	SA

15. Participate in nursing research studies.	SD	D	N	A	SA
16. Take on responsibility for my on-going learning.	SD	D	N	A	SA
17. Participate in the political process as it affects health care.	SD	D	N	A	SA
18. Take part in evaluating nursing delivery systems.	SD	D	N	A	SA
19. Use critical thinking skills for problem solving.	SD	D	N	A	SA
20. Use the scientific process for developing nursing interventions.	SD	D	N	A	SA
21. Include my patient in developing nursing interventions.	SD	D	N	A	SA
22. Protect patient privacy.	SD	D	N	A	SA
23. Maintain patient confidentiality.	SD	D	N	A	SA
24. Document my nursing care accurately.	SD	D	N	A	SA
25. Be accountable for my own nursing actions.	SD	D	N	A	SA
26. Perform a community health risk assessment.	SD	D	N	A	SA
27. Assess vital signs.	SD	D	N	A	SA
28. Apply infection control measures .	SD	D	N	A	SA
29. Administer medication by all routes.	SD	D	N	A	SA
30. Start intravenous therapies.	SD	D	N	A	SA
31. Provide appropriate pain reduction procedures.	SD	D	N	A	SA
32. Provide emotional support for all of my patients.	SD	D	N	A	SA
33. Implement risk reduction strategies for	SD	D	N	A	SA

public health issues.					
34. Evaluate the effectiveness of health promotion strategies.	SD	D	N	A	SA
35. Anticipate my patients health care complications.	SD	D	N	A	SA
36. Assess the spiritual needs of my patients.	SD	D	N	A	SA
37. Use technologies, such as computers appropriately.	SD	D	N	A	SA
38. Use professional standards of care to guide my nursing practice.	SD	D	N	A	SA
39. Take action against unsafe nursing practice by others.	SD	D	N	A	SA
40. Demonstrate an understanding of global influence on local health care needs.	SD	D	N	A	SA
41. Include knowledge of cost factors in providing health care services.	SD	D	N	A	SA
42. Practice nursing within the legal scope of the profession.	SD	D	N	A	SA
43. Develop my own professional goals.	SD	D	N	A	SA

APPENDIX C: SUSCEPTIBILITY UNDER STRESS SURVEY

Please circle every item at the appropriate level between Almost Always (1) and Never (5)

1 2 3 4 5	1. I eat at least one hot, balanced meal per day.
1 2 3 4 5	2. I get 7-8 hours of sleep at least 4 nights per week.
1 2 3 4 5	3. I give and receive affection regularly.
1 2 3 4 5	4. I have at least one relative within 50 miles on whom I can rely.
1 2 3 4 5	5. I exercise to the point of perspiration at least twice per week.
1 2 3 4 5	6. I use tobacco (cigarettes, pipe, cigars, snuff, chewing tobacco).
1 2 3 4 5	7. I drink fewer than 5 alcoholic drinks per week.
1 2 3 4 5	8. I am the appropriate weight for my height.
1 2 3 4 5	9. I have an income adequate to meet basic expenses.
1 2 3 4 5	10. I get strength from my religious beliefs.
1 2 3 4 5	11. I regularly attend a club of social activities.
1 2 3 4 5	12. I have a network of friends and acquaintances.
1 2 3 4 5	13. I have one or more friends to confide in about personal matters.
1 2 3 4 5	14. I am in good health (including eyesight, hearing and teeth).
1 2 3 4 5	15. I am able to speak openly about my feelings when angry or worried.
1 2 3 4 5	16. I have regular conversations with the people I live with about domestic problems (chores, money, daily living issues).
1 2 3 4 5	17. I do something for fun at least once per week.
1 2 3 4 5	18. I am able to organize my time effectively.
1 2 3 4 5	19. I drink fewer than 3 cups of coffee (or tea or cola drinks) per day.
1 2 3 4 5	20. I take quiet time for myself during the day.
1 2 3 4 5	21. I have an optimistic outlook on life.
1 2 3 4 5	22. I am able to forgive old hurts, insults and embarrassments.

CURRICULUM VITAE

Nancy Wilson-Soga

Academic Degrees

2003-Present Walden University, Minneapolis, MN.
Doctoral candidate, Counseling Psychology

1997 Fairleigh Dickenson University, Madison, NJ.
Certification as legal nurse consultant.

1989 Long Island University, Dobbs Ferry, NY.
Master's of Science, Clinical Counseling

1986 Cameron University, Lawton, OK.
Bachelor of Science, Psychology

1984 Cameron University, Lawton, OK.
Associate of Science, Nursing

Professional Experience

The Biofeedback Center, (November 2006-November 2007), Bethlehem, PA.
Doctoral intern in private practice specializing in stress management

Family Guidance Center of Warren County, (June 2006-November 2006), Phillipsburg, NJ.
Practicum field training experience as part of doctoral requirement

Warren County Community College, Washington, NJ (September 2001-Current).
Assistant professor of psychology

Assistant Professor/Coordinator of Allied Health, WCCC (September 2002-June 2006).

Thomas Edison State College, Trenton, NJ (June 2008-Present).
Part-time instructor

Independent Legal Nurse Consultant (1990-2003).
President of a legal nurse consulting firm

Essex County College West Essex Campus, West Caldwell, NJ (2001-2002).
Instructor

Fairleigh Dickenson University, Madison, NJ, Campus (1997-2000).
Adjunct professor

Visiting Nurse Association of Northern New Jersey (1994-1998).
Psychiatric nurse

NYS Association for Retarded Citizens, Rockland County Chapter (1987-1994).
Director of senior services

Center for Conflict Resolution, New City, NY (1991-1999).
Divorce mediator

Professional Memberships

2005 Psi Chi: National Honor Society in Psychology.

American Psychological Association, Washington, DC. Graduate Student Affiliate.

American Association of Legal Nurse Consultants, Illinois, Active Member.

American Association of Legal Nurse Consultants, Morristown, NJ, chapter. Board position of president for 2002. Responsible for overseeing all departments within the organization. This is one of the largest chapters within membership of its national organization of AALNC.