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Investigating Personality Traits of Registered Nurses: Implications for Personnel Evaluation

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INVESTIGATING PERSONALITY TRAITS OF REGISTERED NURSES: IMPLICATIONS FOR PERSONNEL EVALUATION

by

Stephanie N. Means

A dissertation submitted to the Graduate College in partial fulfillment of the requirements for the degree of Doctor of Philosophy Interdisciplinary Ph.D. in Evaluation Western Michigan University April 2017

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The United States is currently facing a registered nurse (RN) shortage that is expected to reach the millions in the next few years. Since the beginning of the century, healthcare professionals and administrators have strived to develop and implement ways to increase recruitment and retention in the nursing field. It has been recognized that the key to recruitment and retention is to get the right nurse in the right place, which means focusing on clinical proficiencies as well as personality qualities and characteristics. Personality assessment has long been used to evaluate person-job (P-J) fit of applicants for positions across the spectrum of organizations and occupations. When used correctly, assessment of personality traits can result in more accurate decision making and legal creditability, as well as increased performance and efficiency.

The primary focus of this study was to investigate personality traits of registered nurses in various areas of specialization. This research also explored relationships existing between personality traits and job-related outcomes. Hogan’s Personality Inventory (HPI) was used to assess personality traits for a sample of registered nurses. Subjective measurements of performance, satisfaction, and retention were also collected.
Results of this research provide evidence of personality traits uniquely possessed by RNs in general and critical care nurses, in particular. In terms of job performance, this research found relationships existing with three of the seven HPI personality traits: Adjustment, Interpersonal Sensitivity, and Learning Approach for critical care nurses. A relationship was also found between a fourth HPI trait (i.e., Prudence) and overall job satisfaction and retention for these groups of nurses as well.

To address the final objective of this study, a model to assess P-J fit for registered nurses was conceptualized. This model aligns with the Joint Committee’s Personnel Evaluation Standards for developing, assessing, and implementing policies and procedures in personnel evaluation. As healthcare policymakers, administrators, and officials search for ways to combat the increasing shortage of nurses, this research serves as a stepping stone for assessing job-fit for registered nurses.
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Stephanie N. Means

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DEDICATION

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CHAPTER 1

INTRODUCTION

The United States is currently facing a shortage of registered nurses (RNs), which is projected to reach around 2 million nurses in the next few years (U.S. Department of Health and Human Services, 2014; Juraskchek et al., 2012; Levine, 2001). These shortages compromise not only the quality, cost and safety of patient care, but also the overall well-being of the nursing staff. Unsafe nursing staff/patient ratios have been related to high hospital-related patient mortalities and failure to rescue, as well as increases overall length of stay at the hospital (Reeves, 2007; Aiken, 2002). A survey conducted with RNs revealed that the shortage in available staff interferes with effective collaboration with other team members and increases nurses’ workloads (Reeves, 2007; Buerhaus, et al., 2009). In addition, nurses reported disproportionate job dissatisfaction, emotional exhaustion, and higher levels of stress when shortages occur (Aiken, 2002).

During these times of nursing shortages, concerns about the nursing turnover are especially sensitive. Some reports indicate nursing turnover cost to be as high as 1.3 times the salary of the departing nurse (Jones, 2007; Advisory Board Company, 1999; McConnell, 1999).

As a result of the shrinking pool of available nurses—its associated cost and adverse effects on patient care—healthcare administrators are making significant efforts to finding ways to recruit, hire, and retain registered nurses (AACN, 2010; Ladden, et al.,
In addition, in-depth research projects, initiatives, and funding are continually being initiated to increase job satisfaction and retention among the current nursing workforce (Ulrich, 2003; Coopers, 2007; AACN, 2010; Nursing Education Capacity Summit, 2009; President’s High Growth Job Training Initiative). According to the AHA (2005), the ultimate goal of the shortage is to get the right nurse in the right environment doing the right job.

Exploring person-job (P-J) fit has been studied as a key to retaining employees who are both flexible and committed (Bowen et al., 1991; Kristof, 1996; Sekiguchi, 2004). Viewed through the match between the job and an individual’s personality, P-J fit has been increasingly recognized by human resource professionals as a mechanism to assess job performance in various industries (Rothstein & Goffin, 2006; Tziner, 1987). P-J fit has also been attributed to positive selection decisions (Chuang & Sackett, 2005; Sekiguchi, 2004), increased job satisfaction (Boxx et al., 1991; Bretz & Judge, 1994), and job retention (Goodman & Svyantek, 1999). In the healthcare arena, P-J fit has been studied in the context of manager-subordinate relationships (Stevens & Ash, 2001) and in predicting intentions to quit among healthcare workers (Cooper-Thomas & Poutasi, 2011). Using the Job Descriptive Index, Haynie et al. (2007) explored the applicability of vocational choice, job satisfaction, person-fit, and personality with public health care workers (N=47). Findings from the study suggest that emotional stability is positively associated with satisfaction and job-fit from public health workers.

Personality measures have long been used to evaluate the suitability of job applicants for positions across many levels of the organization (Parnell, 1998). In fact, a
survey conducted in 2003 of recruiters in various industries indicated that 30% of
American companies used personality tests to screen job applicants (Heller, 2005; Beagrie, 2005). Another survey by the Society for Human Resource Management of Fortune 100 companies found that more than 40% used personality tests to assess job applicants ranging from front line workers to chief executive officers (Erickson, 2004). According to Butcher (2009), measuring personality traits can result in more accurate decision-making, legal creditability, and increase accuracy in terms of job-fit, performance, and retention when used correctly. In fact, one of the most widespread reasons for using personality testing is to improve employee fit, which may reduce turnover by rates as much as 70% (Geller, 2004; Berta, 2005; Daniel, 2005; Wagner, 2000).

Dating back to the 1960s, the study of personality traits has been demonstrated to significantly influence performance characteristics of nurses and nursing students (Gordon, 1960; Reece, 1961; Kibrick, 1963; Smith, 1965). More recently, a few studies have explored personality traits and characteristics of professional, registered nurses in various areas of specialization (Nichols et al., 1983; Ben & Holcombe, 1993; McPhail, 2002; Kennedy, et. al., 2014). These studies suggested that there are personality traits possessed by registered nurses, which are both measureable and unique. On the contrary, all studies except Kennedy et al. (2014) failed to show statistical evidence that links these distinct traits to important factors of recruitment, satisfaction, and retention. Furthermore, these studies often used different instruments to measure personality traits of registered nurses in various specialties. This made it difficult to 1) assess traits of RNs consistently
across studies and 2) make solid generalizations about the findings. With the exception of Kennedy, et al. (2014), most of the literature on personality traits of registered nurses is outdated and may not be reflective of personalities exhibited by today’s nursing workforce.

Therefore, the intent of this research is to expand on the current body of knowledge of personality traits of RNs who work in various specialties and determine how these traits may influence or relate to job outcomes. More specifically, the overall objectives of this research are as follows:

1) To identify personality traits of RNs who work in various nursing specialties;
2) To explore relationships existing between job performance and personality traits of registered nurses who work in various specialties;
3) To explore relationships existing between overall job satisfaction and personality traits of nursing personnel in various areas of specialization;
4) To explore the relationships between personality traits and RNs’ (retention);
5) To propose a model to evaluate job fit for registered nurses who work in various specialties.
CHAPTER II

LITERATURE REVIEW

The demand for nurses is increasing worldwide. As the current nursing workforce ages, healthcare professionals are searching for ways to attract and select, as well as retain the younger, more diverse nurses who are beginning to enter the field. Personality assessment has been used to understand how individuals fit within a certain organization or occupation. An individual’s personality is one factor that potentially influences certain positive job outcomes while in a role. Dating back 60 years ago, literature has stressed the importance of measuring personality traits of registered nurses and nursing students, as they are oftentimes related to patient, individual, and work-related outcomes. Yet there has been minimal consideration of the influence of personality on these factors in recent years.

This chapter begins with a discussion of the current nursing shortage and several strategies currently used to address this dilemma. One of the goals of the nursing shortage policies is getting the right nurse in the right place (AHA, 2005). As to such, this chapter provides a brief discussion on P-J fit and its influences on job-related outcomes. A discussion on the development of personality traits assessment and their relationships with an individual’s work performance, overall job satisfaction, and retention is also provided. This chapter concludes summarizing the research surrounding personality traits
of nurses and a brief description of personality inventories considered for use in this research.

**Nursing Shortage**

Currently, the U.S. is in the midst of a nursing shortage. Due to the aging workforce and increases in quality of healthcare, the nursing shortage is expected to increase anywhere between 260,000 and 2 million by the year 2025 (U.S. Department of Health and Human Services, 2014; Juraskcchek et al., 2012; Levine, 2001; HRSA, 2006; Buerhaus, 2009; BLS, 2013). The Health Resources and Services Administration (HRSA) also predicted that within the next five years, healthcare organizations in all 50 states will have had experienced some type of deficiency in their current nursing staff (2012). Research has linked the nursing shortage to numerous adverse patient and nurse outcomes. A report on a survey conducted with RNs revealed that the shortage in staffing levels led to major problems in early complication detection as well as interfered with the nurses’ abilities to collaborate effectively with other team members (Reeves, 2007). Another survey study of over 10,000 nurses found that 93% of nurses reported major problems with having enough time to maintain patient safety during times of shortages (Buerhaus, et al., 2005). In addition, just over three-quarters of RNs in this study also believed the shortage affected their quality of work life (Buerhaus, et. al., 2005). Several studies found insufficient levels of nursing staff increased stress and job dissatisfaction among registered nurses (Bratt et al., 2000; Needleman et al., 2001; Buerhaus, et al.,
2005). As a result, many RNs have chosen to either retire or leave the profession all together (Levtak, 2002; Kovner et al., 2007).

High nurse turnover and vacancy rates are also influenced by shortages in nursing staff. According to the American Association of Colleges of Nursing (AACN) Nursing Shortage Fact Sheet, nursing turnover ranged from 14% to 17% for RNs in general (Bernard Hodes Group, 2005; NSI, 2015) during these times of shortages. A review of 35 studies on nurse turnover (Hayes et al., 2006) reported turnover rates as high as 36% per year. The economic impact of replacing an experienced nurse can be as much as two times the salary of the departing nurse, ranging from $22K to $64K per nurse per year (Advisory Board, 1999; Atecio et al., 2003; Waldman et al., 2004; Jones, 2007; Obrien-Pallas et al., 2006; Hayes, et al, 2006; McConnell, 1999; NSI, 2015). This figure can reach up to $93K for nurses in certain specialties (HSM, 2002). Due to the nursing shortages’ adverse effects on patient and nurse outcomes, healthcare administrators are looking for ways to not only retain their current workforce, but also effectively recruit, select, and retain younger qualified nursing personnel (AACN, 2012a; Ladden, et al., 2010; Coppers, 2007).

**Strategies to Address Nursing Shortage**

According to the AACN Nursing Fact Sheet (2012a), several federal and state initiatives have been developed to address the current nursing shortage. Through the President’s High Growth Job Training Initiative, the U.S. Department of Labor awarded more than $12M to address the current shortage (2010). In April 2011, a local Minnesota
college collaborated with a local hospital to offer employees a chance to work toward a nursing degree during employment (AACN, 2012a). Beginning in 2002, Johnson & Johnson began a campaign to improve the image of nursing through various multimedia advertisements (Johnson & Johnson, 2010). Policies have also been created to redesign nursing degree programs to better align resources and retain the current nursing workforce (Nursing Education Capacity Summit, 2009). In 2009, the Nursing Education, Expansion, and Development (NEED) act was introduced by Senator Richard Durbin (D-IL). The purpose of this act is to amend formula grants for nursing schools to increase the number of faculty and students (AACN, 2009). In addition, a national centralized application service was developed to ensure all vacant seats in schools of nursing were filled to better meet the demand for RNs (AACN, 2012a). Strategic partnerships have also been created to develop more ways to allocate funds in order to hire more nursing faculty, educate more nursing students and to create healthier work environments (AACN, 2012b).

The AHA Commission on Workforce for Hospitals and Health Systems endorsed characteristics of successful recruitment and retention programs for nursing staff. Among the five characteristics, collaboration between healthcare officials and other organizations is essential in addressing workforce needs and excellence in human resource practices (AHA, 2005). The Commission concluded that the key to recruitment and retention was getting the right nurse in the right position at the right time; creating an environment conducive for new and experienced registered nurses.
As an attempt to address and control the escalating costs of turnover, nurse administrators continue to search for ways to increase job satisfaction and retention among the current nursing staff. While nursing leaders seem to understand this, they have continued to rely on hiring processes, which solely focus on clinical proficiency, leading to poor job fit within the organization (AHA, 2005).

**Person-Job (P-J) Fit**

The desirability of “fit” between individuals and their work demands has been an interest in organizational behavior and industrial/organizational psychology for a long time (Murray, 1938; Pervin, 1968; Schneider, 1987; Kristof, 1996; Holland, 1997). P-J fit is best described as the situation where individual skills meet the demands of a specific job (demands–abilities fit) or when the job meets the needs of the individual (needs–supplies fit) (Brkich et al., 2002). On the subjectively side, P-J fit refers to how employees feel about their match to the job or how well they will perform based on their subjective fit (Brkich et al., 2002). Objectively speaking, P-J fit refers to how well an individual’s characteristics and preferences are linked to their job (Brkich et al., 2002). Among characteristics and preference of P-J fit, personality traits are well studied (Erhard, 2006; Kristoff-Brown, 2000; Loundbury et al., 2008; Erdogan, 2005).

Despite initial backlash, there have been in increase in the use of these personality measures to assess the fit of individual(s) for position(s) across organizations (Rothstein, 2006). Now, evidence supports assessing personality traits due to their usefulness in explaining and predicting attitudes, performance, behaviors, and certain other outcomes.
Personality Traits Assessment and Measurement

What is personality? Personality can be defined as “thoughts, feeling, desires, intentions, and action tendencies that contribute to important aspects of individuality” (Brody & Ehrlichman, 1998). It includes preferences, temperaments, and predispositions that motivate and govern people’s behavior; how they deal with others and find their way in the world (Hogan, 2007). Oftentimes, an individual’s personality characteristics/traits can indicate how he/she typically would respond to situations created by a role. In fact, it was found that some personality styles deal with certain aspects of a given occupation better than others (Gamble et al., 2003).

Personality traits assessment. It was traditionally believed that there was little evidence to support the use of personality measures in the personnel selection process (Scroggins, et al., 2008). Two developments gave strong support for personality traits as performance predictors. The first was the emergence and widespread acceptance of the Big Five Model (i.e., Five Factor Model-FFM). This model is recognized as necessary and sufficient in describing the personality structure at a global level (Mount et al., 1998). Over 100 years of research has allowed researchers to group personality traits into five broad categories; namely Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.
The second development was seen through the strong support for the use of personality assessment for work performance prediction; the extensive use of meta-analysis based on the Big Five. The Big Five (FFM) have been used extensively to predict job performance (Barrick & Mount, 1991; Li et al., 2010; Heneman et al., 2000), job satisfaction (Judge, Heller, & Mount, 2002) and retention in diverse occupational settings. Several studies have also found consistency in the dimensions that link personality traits to job performance in specific situations or requirements (Barrick et al., 2001; Judge & Bono, 2001; Hogan & Holland, 2003; Witt & Ferris, 2003; Shin and Holland, 2004).

**Personality and job performance.** Assessing personality traits can be useful for predicting performance at work (Tett et al., 1991; Hurtz & Donovan, 2000; Salgado, 1997; Mount et al., 1998; Hough & Ones, 2001). An aspect of work involving interactions with others is one of the eight basic dimensions used to describe a higher structure of job performance (Mount et al., 1998). A meta-analysis by Organ & Ryan (1995) found Extraversion (i.e., being outgoing, talkative, and energetic) was relevant for jobs involving one aspect of interacting with others. This study suggests that individuals who were dependable, hardworking, well adjusted, and achievement-orientated workers were more likely to be cooperative and work more effectively. Hough’s (1992) meta-analysis concerning relationships between personality traits and various facets of job performance found Agreeableness (r = .17), two facets of Conscientiousness (Achievement; r = .14 and Dependability; r = .17), and Emotional Stability (r = .13) to be
related to teamwork. These findings suggest individuals who may be upbeat, outgoing, and talkative also tend to perform very well in settings requiring interpersonal interactions. Hogan et al. (1998) conducted a survey of entry-level service job applicants (N = 214) to investigate relations between job performance and personality traits. Using Hogan’s Personality Inventory, the authors found personality composites used to predict success in service jobs where employees interact with the public. In particular, the study found Prudence to be significantly related to dimensions of contextual job performance, namely work dedication (r = .17, p < .01) and interpersonal facilitation (r = .17, p < .05). The authors also found Adjustment positively related to these two dimensions as well (r = .12, p < .05 and r = .21, p < .01). Results suggest that stable and conscientious employees may possess higher levels of performance in terms of accountability and willingness to communicate and assist coworkers.

Mount et al., (1998) meta-analysis of personality traits and job performance in team vs. non-team environments found Conscientiousness (r = .26), Emotional Stability (r = .18), and Agreeableness (r = .21) related to overall performance in jobs involving interaction with others. The authors found that Conscientiousness was strongly related to performance of individuals in non-team settings, while Emotional Stability and Agreeableness were highly correlated with performance in team settings. The authors concluded that among other dimensions, personality traits should be included in models that seek to explain components of job performance relating to interactions with others.
In the healthcare arena, (Kovach et al., 2010) used a cross-sectional study to explore personality traits and job performance in 177 certified nurse aides (CNAs). Using data from both Hogan’s Personality Inventory (HPI) and Development Survey (HDS), the authors found a difference between Ambition and job performance (Kovach, 2010) for high and low performers. This study found that CNAs who had high performance scores also scored high in Ambition compared to low performers ($t(131) = 1.92, p = 0.028$).

**Personality and job satisfaction.** Job satisfaction has been studied extensively and can be defined as the degree to which an individual is content with his/her job. It is believed that job satisfaction is a function of elements within the workplace as well as attitudes and behaviors, shaped by personal characteristics (Manojilovich & Laschinger, 2002). Although not as well studied as job performance, the relationship between personality traits (such as the Big Five or FFM) and job satisfaction has been documented in a number of studies. Beginning in 1935, relationships were noted to exist between workers’ emotional adjustment and their level of job satisfaction (Hoppock, 1935). Mount and Muchinsky (1978) found that job satisfaction was positively influenced not only by the environment, but also by personality types and the level of congruence between the two. Furthermore, Hackman and Oldham’s Job Characteristics Model (1975) suggest that employees’ personal characteristics may be as important as the job characteristics themselves.

A meta-analysis studying the link between the FFM traits and overall job satisfaction found Neuroticism negatively related to job satisfaction ($r = -.29$) consistently
across all studies reviewed (Judge et al., 2002). The authors also found Conscientiousness
(r = .26) and Extraversion (r = .25) were correlated with job satisfaction. Lastly,
Openness to Experience (r = .02) was also found to be slightly related to job satisfaction.
Organ & Lingl reported that higher levels of Agreeableness were also associated with
also found an indirect relationship between personality and job satisfaction in its’
population.

In terms of healthcare personnel, Kovach and her colleagues (2010) examined
personality traits and work outcomes of certified nurse aides (N=177). Using the Hogan’s
Personality Inventory, the authors found significant relationship between job satisfaction
and Adjustment (r = 0.268, p < 0.001), Prudence ((r = 0.341, p < 0.001) and Interpersonal
Sensitivity (r = 0.275, p < 0.001) for these nursing professionals. Furthermore, a study
involving personality traits and job satisfaction of nurse anesthetists (N=923) found that
nurses who were “easy going” (r = .18, p< .01) and “orderly” (r = .11, p< .01) were more
likely satisfied with their job (Meeusen et al., 2010).

**Personality and retention.** Retention or “intend to stay” is the likelihood
perceived by the individual of continued participation in the organization (Price &
Mueller, 1981). Research on personality traits and retention is usually situated in terms of
intent to quit and/or turnover decisions. According to Thomas (2004), retention rates and
various other measures of retention are used to obtain a clearer picture of the personality
traits associated with an individual’s intentions to quit or leave the organization. In fact, a
meta-analysis concerning personality and retention revealed turnover intentions and behaviors are significantly impacted by personality traits (Zimmerman, 2008). Using a path model approach, the author was able to observe direct effects between personality traits and intent to quit and/or turnover decisions. Results suggest those who intend to quit: 1) rate low on Emotional Stability ($r = -0.29$), Conscientiousness ($r = -0.26$), and Extraversion ($r = -0.12$). In terms of turnover decisions, the authors found that an impetuous departure of the job may be experienced by those who are either low on Agreeableness or high on Openness to experience (Zimmerman, 2008).

Additional evidence exists suggesting that personality traits can be useful in determining favorably matches with the characteristics of the job (Connolly & Viswesvaran, 2000; Hart, 1999; and Judge, et al., 1999). As a result, exploring and assessing the relationships between personality and job outcomes may increase an individual’s fit within the job.

**Personality and person-job (P-J) fit.** Dating back to the 1960’s, Holland’s theory of personality suggests that an individual’s occupation is reflective not only of his/her knowledge and skills, but also ability and personality (Holland, 1959; 1997). A distinctive combination of personality traits can be linked to a person’s self-identification; in particularly their values and behaviors (Spokane, et al., 2002). Holland found that individuals possess unique personality traits best suited for adaptableness (i.e. job-fit) in certain organizations and/or work environments (Holland, 1959). He believed that “by matching the right personality with the right organization, you can achieve a
better synergy and avoid pitfalls such as high turnover and low job satisfaction” (Holland, 1959).

**Personality and nursing.** Nursing is a very demanding profession, requiring an individual to possess a unique set of skills, knowledge, and personal attributes. Personality traits and characteristics of registered nurses were once considered to be of great importance because they oftentimes influence patient interaction, work satisfaction, and overall career success (Gordon, 1960; Bennet & Gordon, 1944; Murrells, et al., 2008). Table 1 describes studies investigating personality traits of professional RNs in various areas of specialization.
Table 1. Studies Exploring Personality Traits of RNs

<table>
<thead>
<tr>
<th>Nursing Specialty</th>
<th>Reference</th>
<th>Personality Inventory</th>
<th>Sample Size</th>
<th>Personality Traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Care</td>
<td>Levin, 1998</td>
<td>16PF</td>
<td>200</td>
<td>Aggressive, Task-oriented, Efficient, Decision-making</td>
</tr>
<tr>
<td>Oncology</td>
<td>Ben &amp; Holcombe, 1993</td>
<td>MBTI</td>
<td>40</td>
<td>Sensing, Feeling, Introverts</td>
</tr>
<tr>
<td>Cancer/Palliative</td>
<td>Gambles, et. al, 2003</td>
<td>MBTI and 16PF</td>
<td>224</td>
<td>Extravert, Feeling</td>
</tr>
<tr>
<td>Gentological</td>
<td>Nichols, et. al, 1983</td>
<td>CPI</td>
<td></td>
<td>Communally, Femaleness</td>
</tr>
<tr>
<td>US vs. Australia</td>
<td>Wright &amp; Smith, 1993</td>
<td>EPPS</td>
<td>445</td>
<td>Low: Dereference, Order, Autonomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>High: Intraception, Dominance, Heterosexuality, Aggression</td>
</tr>
<tr>
<td>Emergency</td>
<td>Kennedy et. al, 2014</td>
<td>NEO-PI-3</td>
<td>72</td>
<td>Extraversion, Openness to Experience, Agreeableness</td>
</tr>
</tbody>
</table>

16PF (Cattell’s Sixteen Personality Factors), MBTI (Myers-Briggs Type Indicator), CPI (California Psychological Inventory), EPPS (Edwards Personal Preference Schedule), NEO-PI (Neo Personality Inventory)
In a study identifying personality traits of critical care nurses, Cattell’s 16PF was used to identify personality traits of nurses who both enjoy the field and tend to remain active after orientation. Results from this study found critical care nurses to be aggressive, task-oriented, efficient, and independent decision-makers (Levin et al., 1988). Using the California Psychological Inventory (CPI), Nichols et al. (1983) studied the characteristics of certified gerontological nurses and students. This study revealed personality differences between nurses who select certification and those who select educational means of professional development. Differences on the scales of communality and femaleness were found among the study population.

Bean and Holcombe (1993) used the Personal Style Inventory, to examine personality traits of oncology nurses. This inventory, based on Carl Jung’s personality dimensions, found that over half of the nurses were introverts, sensing, feeling, and judging. The authors concluded that assessing personality traits of RNs may provide insight to their suitability with a particular situational context as well as healthcare setting. On the contrary, findings from Gambles, et al.’s (2003) study of personality traits of cancer and palliative care nurses suggested RNs were extraverted and feeling type. Using both Cattell’s Sixteen Personality Factors and the Myer-Briggs Type Indicator, this study suggested that these groups of nurses were more assertive, forward thinking, independent and less conventional.

In a study comparing U.S. nurses to Australian nurses, it was found that distinct personality traits influence successful functioning as a RN in bureaucratic organizations.
Wright & Smith (1993). Analysis revealed personality pattern differences among RNs working in various contexts. Results from Edwards Personality (EPPS) assessment revealed nurses in the United States exhibited a low need for Dereference, Order, and Autonomy. These nurses also exhibited a high need for Intraception, Dominance, and Aggression. Findings suggest that while U.S. nurses tend to deemphasize respect of authority and being organized, they are highly dominating, and critical of other behaviors.

More recently, Kennedy and colleagues (2014) explored personality traits of emergency nurses. The authors used the Neo Personality Inventory (NEO-PI-3) to investigate whether emergency RNs exhibit different personality traits than those exhibited by population norms provided by the inventory. Results indicated emergency RNs scored higher on Extraversion, Openness to Experience, and Agreeableness. The authors concluded that examining personality traits may influence and/or improve recruitment and retention from these types of nurses.

Previous studies exploring personality traits of registered nurses used an array of personality inventories and involved RNs from various specializations; making it difficult to compare and generalize across studies. As such, the first step of this research was to determine which personality inventory was capable of accurately measuring traits of RNs in various areas of specialization. The next section provides a brief description of several instruments or inventories that were considered for use in this research as displayed in Table 2. These personality assessments were selected because: a) previous evidence of
use in exploring traits RNs and/or other healthcare personnel and/or b) evidence of use in exploring traits and their influence on job-related outcomes.

Table 2. Personality Inventory/Instruments Considered

<table>
<thead>
<tr>
<th>Category</th>
<th>Personality Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Empirical</strong></td>
<td>Minnesota Multiphasic Personality Inventory (MMPI)</td>
</tr>
<tr>
<td></td>
<td>California Psychological Inventory (CPI)</td>
</tr>
<tr>
<td></td>
<td>Personality Assessment Inventory (PAI)</td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>Edwards Personal Preference Schedule (EPPS)</td>
</tr>
<tr>
<td></td>
<td>*Myers-Briggs Type Indicator (MBTI)</td>
</tr>
<tr>
<td></td>
<td>*Personality Research Form (PRF)</td>
</tr>
<tr>
<td></td>
<td>*Jackson Personality Inventory (JPI)</td>
</tr>
<tr>
<td></td>
<td>*Work Personality Index (WPI)</td>
</tr>
<tr>
<td><strong>Factor Analytical</strong></td>
<td>*Cattell's 16 Personality Factors (16PF)</td>
</tr>
<tr>
<td></td>
<td>*NEO Personality Inventory (NEO-PI)</td>
</tr>
<tr>
<td></td>
<td>*Hogan Personality Inventory (HPI)</td>
</tr>
</tbody>
</table>

*Inventories considered for use in study. Source:
CHAPTER II
LITERATURE REVIEW

Personality Traits Inventories

It was traditionally believed that there was little evidence to support the use of personality measures in the personnel selection process. This is mostly due in part to the focus placed on the identification of psychopathology (Goodstein, & Lanyon, 1999). Today, employers are usually more concerned with common issues such as: a) whether or not the candidate will show up on time on a regular basis, b) whether the candidate will relate to co-workers, and c) the degree of potential leadership the candidate can expect to exercise (Goodstein, & Lanyon, 1999). It is not surprising that traditional empirically based personality instruments such as the Minnesota Multiphasic Personality Inventory (MMPI) and the Personality Assessment Inventory (PAI) are not useful in answering such issues posed (Lanyon & Goodstein, 1997). Furthermore, instruments that are capable of addressing these personnel issues oftentimes involve complicated scales (i.e., California Psychological Inventory) and/or may require considerable clinical expertise for interpretation (i.e. Edwards Personality Preference Schedule (EPPS) (Goodstein & Lanyon, 1999).

Myers-Briggs Type Indicator (MBTI)

Created by Katharine Briggs and Isabel Myers in 1956, the Myers-Briggs Type Indicator is based on Carl Jung’s theory of psychological type. The MBTI was designed with the belief that different vocations favored different personality orientations. The
self-reported inventory is composed of 94 forced-choice items assessing four dimensions of personality: Introversion/Extraversion, Sensation/Intuition, Thinking/Feeling and Judging/Perceiving (CPP.com; Briggs-Myer & Meyers, 1995). The MBTI categorizes people by their attitudinal, judgmental, and perceptual propensities, or functions. Each of these dimensions is assumed to consist of two mutually exclusive components, one of which is the dominant feature of the individual's personality. According to MBTI theory, there are 16 personality types, each of which are considered qualitatively unique and represent a specific cluster of cognitive and affective preferences (Briggs-Myer & Meyers, 1995). Respondents are classified into one of 16 personality types based on the largest score obtained for each bipolar scale.

The MBTI has been the focus of extensive research and significant evidence has accumulated suggesting the inventory has satisfactory validity and reliability (Carlson, 1985; Furnham & Stringfield, 1993). Test-retest reliabilities for each of the four scales of the MBTI are consistent across several studies (Carskadon, 1977; Carskadon, 1979b; Howes & Carskadon, 1979; Strieker & Ross, 1962). For the past 20 years, the MBTI has gained popularity and has been used in a variety of settings, including corporations (Moore, 1987; Bridges, 1992), academic settings (Provost & Anchors, 1987), and counseling settings. MBTI has also been used for team building, group dynamics, professional development, marketing, family business, leadership training (McCaulley, 1990), executive coaching, life coaching, personal development and marriage counseling. In fact, the MBTI has been used by 89 of the Fortune 100 companies (CPP.com) and in
medical education as a tool for career counseling and predicting medical specialty choice (McCaulley, 1978).

**Personality Research Form (PRF)**

During the 1960s, Jackson’s Personality Research Form (PRF) was first to take advantage of the advancement of methodically constructed inventories (Lanyon & Goodstein, 1997). The PRF was designed using internal consistency procedures to establish 21 personality traits: Abasement, Achievement, Affiliation, Aggression, Autonomy, Change, Cognitive Structure, Defendence, Desirability, Dominance, Endurance, Exhibition, Harm Avoidance, Impulsivity, Infrequency, Nurturance, Order, Play, Sentience, Social Recognition, Succorance, and Understanding (Lanyon & Goodstein, 1997).

The PRF is used to study assertiveness training, behavior, decision making, emotional development, employee attitudes, job performance, leadership and style, and risk-taking (Jackson, 1984). This personality assessment has also been useful in personnel selection and counseling settings. The PRF has been referenced in over 1,500 publications, making it one of the most highly cited psychological assessments (Jackson, 1984). Results from this inventory are highly reliable, extensively validated, and comprehensively measures normal personality (Jackson, 1984). One of the downsides to the PRF is that the samples used for test development, norms, and validity involved mainly college undergraduates (Lanyon & Goodstein, 1997).
Jackson Personality Inventory (JPI)

In 1976, Jackson developed another personality test to assess traits that that reflects a variety of social, cognitive, and value orientations affecting an individual’s functioning (Lanyon & Goodstein, 1997). Jackson Personality Inventory (JPI) was developed using some of the same methods as PRF, but with a higher degree of psychometric sophistication. The inventory has five domains and 15 scales, and considered one of the most psychometrically sound measures of personality. The five domains of JPI are: Analytical, Extroverted, Emotional, Opportunistic, and Dependable (Jackson, 1994).

Jackson’s Personality Inventory is useful in personnel selection and counseling as it covers a broad range of personality dimensions (Jackson, 1994). According to Lanyon & Goodstein (1997), this inventory correlation shows a high degree of empirical validity, which increases its potential for becoming very useful. Test norms are based on the responses of 1,107 North American individuals.

Work Personality Index (WPI)

A measure of work personality characteristics, the Work Personality Index (WPI) provides a valid and dependable measure of traits that directly influence work performance and task effectiveness (Bakker & Mcnab, 2001). Although not situated in theory, the WPI is a model built upon personality traits found in the Occupational Information Network (O*NET). Based on a combination and ordering of personality traits to predict job performance, the WPI has 21 traits encompassed in five global constructs. This inventory has been used in coaching and individual development, team
building, and personnel selection (Bakker & McNab, 2001). It has been very applicable in sales, management, and social services jobs. The WPI has been standardized on a large sample well of over 8,000 individuals. It has been used in a wide variety of settings, demonstrating internal consistency ranging from 0.79 - 0.89. Evidence also supports construct, convergent, and discriminant validity. The Work Personality Index has been correlated with the Myers Briggs Type Indicator (Bakker & McNab, 2001).

**Cattell’s 16 Personality Factors (16PF)**

Beginning in the 1940s, Raymond Cattell and his colleagues used factor analysis in an attempt to try to discover and measure the fundamental traits of human personality. Based on extensive factor analyses of self-report inventories, biographical data, and behavioral observations, Cattell defined 16 factors that he regarded as the “source traits” of normal personality structure (Cattell & Mead, 2008). Beginning with the Five Factor Model, this inventory comprehensively measures the normal range of personality and is found to be effective in a variety of settings where an in-depth assessment of the whole person is needed (Cattell & Mead, 2008).

Centuries of extensive research have provided evidence of Cattell’s 16PF utilization in clinical, counseling, industrial organizational, educational, research, and medical settings (Cattell, et al., 1970; Conn & Rieke, 1994; Krug, & Johns, 1990; Piotrowski & Keller, 1989; Phillips et al., 1985; Roy, 1995; Walter, 2000; Schnerger & Watterson, 1998). Since 1974, more than 2,000 publications have investigated the inventory’s relevance in outplacement counseling, coaching, development and

Considered as one of the top commonly used instruments, Cattell’s 19PF has shown high ability to predict occupational outcomes and variances about specific behaviors (Ashton, 1998; Judge et al., 2002; Butcher & Rouse, 1996; Watkins et al., 1995). More specifically, the inventory has also been useful in predicting many important job-related dimensions such as team roles and team climate (Burch and Anderson, 2004), social skills (Conn & Rieke, 1994), job satisfaction (Lounsbury et al., 2004), and job training success (Tango & Kolodinsky, 2004).

Despite efforts to correct, the 16PF has serious deficiencies, which involve contradictions in test construction, massive amounts of validity data making it hard to evaluate, and no support for overall validity (Walsh, 1978). Thusly, it is recommended that the 16PF be used carefully (Lanyon & Goodstein, 1997).

**NEO Personality Inventory (NEO-PI)**

One of the best known and widely researched inventories representing the Big Five factor structure is known as the NEO Personality Inventory (NEO-PI). Originally developed in the late 1970s, the NEO PI was revised to include all Big Five personality traits. This inventory measures interpersonal, motivational, emotional, and attitudinal styles of adults and adolescents (Piedmont, 1998). In 1990, Costa and McCrae, further revised the instrument to what is now known as NEO PI-R. This inventory has been very useful in employment screening, incorporating facets within scale. It assesses five major
domains of personality, which include: Neuroticism (N), Extroversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C).

Construct, convergent, and divergent validity of the NEO PI-R have been demonstrated in numerous studies by the authors. In addition, domain and facet-level reliability of this inventory ranges from 0.56 - 0.95 (Piedmont, 1998). Reviews of the NEO were positive. Widiger (1992) considered it the best representation of the Big Five dimensions and was especially impressed with the research on validity and reliability reported in the manual. In addition, Hess (1992) praised many aspects of the test’s construction and validation.

**Hogan Personality Inventory (HPI)**

Developed in the late 1970s by R. Hogan, Hogan’s Personality Inventory (HPI) is widely based on the Five Factor Model and used to measure normal personality traits and to predict job performance in the adult population (Hogan, 2007). Based on socio-analytic theory, the HPI captures key behavioral tendencies relevant to getting along with and getting ahead of others.

HPI has been used for selecting personnel, assessing certain individualized aspects, and making decisions on career-related matters (Hogan, 2007). This inventory has been tested and validated in more than 200 occupations covering all major industries, such as student, U.S. Armed Forces, clerical, sales, law enforcement, academic administrator, prison, and hospital worker populations (Hogan, 2007). Reliability measures of HPI, such as internal consistency and test-retest reliability, have also been demonstrated within the mentioned populations (Hogan & Hogan, 2007). The validity
scale of the inventory detects irregular and/or hasty responding. Hogan’s Personality Inventory has been matched with other tests and inventories, including Cattell’s 16 Personality Factors, California Psychological Inventory, and Jackson Personality Inventory (Hogan & Hogan, 2007).

Hogan’s Personality Inventory has seven primary personality scales: Adjustment, Ambition, Sociability, Interpersonal Sensitivity, Prudence, Inquisitive, and Learning Approach. A brief description of HPI traits can be seen in Appendix A. The inventory includes one validity scale, and 41 subscales. Individual personality scores can be classified into the following categories:

- **High:** at or above 65\(^{th}\) percentile
- **Average:** between 36\(^{th}\) and 64\(^{th}\) percentile
- **Low:** at or below 35\(^{th}\) percentile
Measuring and assessing personality traits of individuals can be traced back as early as the 1800s. Despite trials and tribulations as seen through the “faking” controversies (Ones and Viswevaranm, 1998; Rothestein and Goffin, 2000; Goffin and Christianson, 2003) and through a revolution that taught us that personality could not be measured, personality assessment made a comeback. Throughout the years, personality assessment has been used in engineering, sales, and various other occupations and industries for selection purposes. Research studies have linked overall job satisfaction (Judge, Heller, and Mount, 2002), performance (Barrick and Mount, 1991; Barrick et al., 2001; Hough and Ones, 2001; Schmidt and Hunter, 1998), and retention (Tzang, 2003) to specific personality traits and characteristics of individuals in a wide range of occupations (Barrick and Mount, 1991).

In the healthcare arena, several studies have explored personality traits of registered nurses and other healthcare personnel (Ben and Holcombe, 1993; Smith and Wright, 1993; McPhail, 2002; Gambles et al., 2003, Kennedy et al, 2014). Although these studies discussed implications and the importance of measuring these traits for relevant job and organization functions, the authors presented no clear evidence linking traits to job-related outcomes such as performance, satisfaction, and/or retention for the
registered nurses. Furthermore, these studies used a variety of inventories to explore personality traits of nurses in several areas of specializations.

At the onset of this research, a pilot study was conducted to determine the design, sample population, and processes to identify personality traits and explore links to job-related outcomes for registered nurses. More specifically, the objectives of the pilot study were to: 1) identify and choose a personality instrument/inventory capable of measuring personality traits of registered nurses, 2) select a sample population of nurses from various nursing specialties, and 3) explore personality traits of specialized registered nurses. The following sections provide a discussion on the methods and procedures used to address pilot study objectives. Findings from the pilot study were then used in refining the overall research objectives and methods and procedures for the final study.

**Pilot Study: Objective 1**

The first objective of the pilot study was to select a personality assessment instrument capable of accurately measuring personality traits of registered nurses in various areas of specialization. Personality assessment testing is a multi-million-dollar industry with hundreds of inventories used for selection and hiring purposes. Based on a review of literature, there are a few criteria to consider when selecting and evaluating an instrument for use in research (Switzer et al, 1999). Application (APP), the purpose for which the instrument will be used, should be one of the first considerations when choosing an instrument for use in research. According to Switzer and colleagues (1999), it is highly desirable to select an instrument(s) that is congruent with the goal(s) of the
research; one that will capture the phenomenon being studied. For this study, it is important to define the type of personality to measure. According to Cook (2009), there are at least eight different models of personality. Each of these models is capable of objectively measuring traits. In addition, it was advantageous to choose an instrument(s) that had been tested with populations similar to the study population (Switzer et al, 1999).

A refined search based on the application properties narrowed the choice to seven inventories. The following seven instruments have been used in the past to measure personality traits in the healthcare arena:

- Myers Briggs Type Indicator (MBTI)
- Cattell’s 16 Personality Form (16PF)
- Personality Research Form (PRF)
- Jackson Personality Inventory (JPI)
- NEO Personality Inventory-Revised (NEO-R)
- Work Personality Index (WPI)
- Hogan’s Personality Inventory (HPI)

After identifying these inventories based on general applicability, psychometric properties of the instruments were considered. According to the American Educational Research Association, The American Psychological Association and the National Council on Measurement in Education, validity is one of the most important considerations when choosing an instrument for research (American Educational Research Association, The American Psychological Association and the National Council on Measurement in
Education, 1985). An instrument is deemed valid if it measures what it is supposed to measure (Hedges, 2008). The instrument/inventory must also be reliable or consistent in measuring the phenomenon repeatedly (Hedges, 2008). When selecting an instrument to use for this pilot study, reliability and validity were deemed extremely important and thus were given equal consideration for this study. As a result, the author coded these two variables as REV.

There are also administrative issues to consider when evaluating and selecting an instrument for use in research. The number of questions (NOQ) contained and the time it takes (TTK) to complete the instrument are very important in the selection process. Generally speaking, a survey that takes longer and has more questions is less likely to be completed accurately. The method of administration (MOA) and scoring (SCO) (i.e., manually or electronically) are also considered when selecting an inventory. The MOA refers to how the instrument is administered to participant (i.e. pencil/paper, computer software, on-line, and assessment centers). The method by which the instrument is scored is an important consideration due to the fact that use of some of these instruments may require training and/or a certain level of expertise in order to score or interpret the results.

Based on the availability of personality instruments and the various criteria in which to consider use, the Analytical Hierarchy Process (AHP) was used to select an instrument to measure personality traits of registered nurses.
Analytical Hierarchy Process (AHP)

Developed by Thomas L. Saaty in the 1970s, the Analytical Hierarchy Process (AHP) is a multi-criteria decision making process that allows individuals or groups to shape ideas and define problems by making their own assumptions. The three basic principles in the AHP are: 1) identifying the decision problem (i.e. goal), 2) comparing the criteria for judgments, and 3) synthesizing the priorities (Saaty, 1988).

Identify decision problem. The first step of the AHP was to define the problem and specify the solution desired. The goal of the first objective was to select a personality instrument that is capable of measuring personality traits of registered nurses. Priorities were established by creating a structured hierarchy. This structure was then used to create a pair-wise comparison matrix of the relevant criteria. As seen in Figure 1, Level 1 states the decision problem or goal. Level 2 consists of the six previously described criteria for evaluating and selecting an instrument for research use. The six criteria are: Application (APP), reliability/validity (REV), number of questions (NOQ), method of administration (MOA), time to take (TTK), and scoring (SCO). Level 3 of this structured hierarchy compared the seven personality inventories on each criterion described in the second level of the structure. In Figure 1, lines connecting the clusters result in pair-wise comparisons at each level.
Goal: To select a personality inventory/instrument capable of measuring personality traits of RNs in various areas of specialization

Figure 1. Analytical Hierarchy Structure for Selection of Personality Inventory
**Pair-wise comparison matrix.** A pair-wise comparison matrix was created in order to establish priorities among the criteria of the hierarchy. This matrix compares elements with respect to a criterion in the superior level. The six Level 2 criteria were compared using Saaty’s Scale of Importance (Saaty, 1998). This numerical system is used to classify the level of importance of one criterion when compared to other criterion in the same level. A copy of Saaty’s Scale of Importance can be seen in Appendix B. Judgment decisions are indicated by numbers as well as with arrows signifying dominance. A blue arrow pointing to the left indicates the element to the left has dominance over the one above.

The Nursing Research Counsel (NRC) at the study hospital were consulted and asked to complete a pair-wise comparison matrix for the hierarchy structure. Table 3 displays a summary of the comparison matrix completed by the counsel for Level 2 criteria. Similarly, the six personality instruments (Level 3) were also compared to one another based on each of the criteria in Level 2 using the same scale of importance. For example, overall the NRC believed that reliability/validity (REV) had “very strong importance” over the application (APP) of the instrument. This relationship was depicted by placing a 7 in the matrix cell and an arrow pointing left toward REV.
Table 3. Pair-wise Comparisons for Criteria for Selection of Personality Inventory

<table>
<thead>
<tr>
<th></th>
<th>APP</th>
<th>REV</th>
<th>NOQ</th>
<th>MOA</th>
<th>TTK</th>
<th>SCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>APP</td>
<td>1/7</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>REV</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>NOQ</td>
<td>1/9</td>
<td>1/8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MOA</td>
<td>¼</td>
<td>1/7</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TTK</td>
<td>1/5</td>
<td>1/7</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SCO</td>
<td>1/3</td>
<td>1/6</td>
<td>1</td>
<td>1</td>
<td>1/3</td>
<td></td>
</tr>
</tbody>
</table>

APP(Application); REV(Reliability/Validity, NOQ(Number of Questions), MOA(Method of Administration); TTK(Time To Take), SCO(Scoring)

**Synthesis.** In order to obtain a set of overall priorities for the goal or decision problem, pair-wise comparisons were pulled together and synthesized. SuperDecisions software, created by Roaznne and Thomas Saaty (1998), was used to synthesize Level 3 and the overall hierarchal structure. Once all pair-wise comparisons were completed, the software checked for inconsistencies in judgments for Level 2 (criteria) and Level 3 (personality instruments) elements (Table 4). According to the authors of the software, consistency levels for all levels of the structure must be at or below ten percent for judgements to be considered valid.
Table 4. AHP Consistency Ratios for Level 2 Criteria and 3 Personality Instruments

<table>
<thead>
<tr>
<th>Pair-wise comparisons among criteria instruments</th>
<th>Consistency Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 2 (criteria)</strong></td>
<td></td>
</tr>
<tr>
<td>On Application</td>
<td>7.8%</td>
</tr>
<tr>
<td>On Reliability/Validity</td>
<td>0.0%</td>
</tr>
<tr>
<td>On Number of Questions</td>
<td>5.3%</td>
</tr>
<tr>
<td>On Administration</td>
<td>5.0%</td>
</tr>
<tr>
<td>On Time to Take</td>
<td>5.3%</td>
</tr>
<tr>
<td>On Availability</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pair-wise comparisons of personality instruments</th>
<th>Consistency Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 3 (instruments)</strong></td>
<td></td>
</tr>
<tr>
<td>16PF, CPI, HPI, JPI, MBTI, NEO PI-R, PRF, WPI</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

HPI (Hogan’s Personality Inventory); MBTI (Myer Briggs Type Indicator); WPI (Work Personality Index); 16PF (Cattell’s 16 Personality Factors); PRF (Personality Research Form); JPI (Jackson Personality Inventory); NEO PI-R (NEO Personality Inventory-Revised).
As seen in the Table 4, all of the consistency ratios were below 10% and therefore demonstrated “satisfactory” consistency throughout the structured hierarchy. The final stage of the synthesis chose the instrument with the highest overall score. Based on the comparisons of Level 2 criteria for each instrument, Hogan’s Personality Inventory (HPI) received the highest overall AHP score and therefore was chosen to measure personality traits of registered nurses in different specialties (Table 5).

Table 5. Overall AHP Score for Personality Instruments

<table>
<thead>
<tr>
<th></th>
<th>HPI</th>
<th>MBTI</th>
<th>16PF</th>
<th>PRF</th>
<th>CPI</th>
<th>JPI</th>
<th>WPI</th>
<th>NEO PI-R</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HPI</strong></td>
<td>0.129*</td>
<td>0.128</td>
<td>0.113</td>
<td>0.113</td>
<td>0.101</td>
<td>0.109</td>
<td>0.098</td>
<td>0.090</td>
</tr>
</tbody>
</table>

After selecting an instrument to explore personality traits of registered nurses, the next step of the pilot study was to identify a sample of registered nurse representative of various nursing specialties.
Pilot Study: Objective 2

The second objective of the pilot study was to select a sample population of registered nurses in specialties representative of the today’s workforce. Currently there are over 32 different nursing specialties represented in the healthcare field ranging from critical to occupational health care (www.ONET.com; Summary Report for Nurse Practitioners, 29-1171.00, 2016). A healthcare coordinator at one local Southwest Michigan hospital was consulted to identify nursing specialties represented within its healthcare organization. As seen in Appendix C, there were 20 nursing specialties represented at the study hospital. These 20 nursing specialties were compared to nursing specialties represented at the “Top 14 Ranked Hospitals in the United States” (U.S. World Report & News, 2011).

A Pareto analysis was used to identify the most commonly represented nursing specialties in the U.S. This analysis, also known as the “80/20” rule, separates a limited number of input factors; known as the “vital few” from the other numerous possibilities. Results of Pareto’s analysis are visually illustrated in a bar graph where information is displayed in a descending order, establishing priorities for what problems should receive the most attention. As seen in Figure 2, there were 11 nursing specialties that fell within the limits set forth by the Pareto analysis. There were twelve healthcare systems which employ registered nurses specializing in Neurovascular and Cardiology. Eleven healthcare facilities also had RNs in their Emergency department. Nine hospitals had nursing units in General Surgical, OrthoSurgical, Pediatrics, and Mother/Baby. Nurses
employed in Labor and Delivery units were represented in approximately eight healthcare systems. Since the Pareto analysis sets a cumulative cutoff value of 80%, the last three nursing specialties considered for the pilot study were General Medical, Surgical/Trauma and Neonatal Intensive Care.
Figure 2. Pareto Analysis of Nursing Specialties Represented at Top Hospitals in U.S
Pilot Study: Objective 3

The final objective of the pilot study was to explore personality traits of registered nurses in various specialties. Approval to conduct the study was received from Human Subject Institutional Review Boards (HSIRB) from both Western Michigan University and the Southwest Michigan hospital where the study was conducted (Appendix D). Permission to use Hogan’s Personality Inventory was granted by Mrs. Ashley Palmer, a representative for Hogan’s Assessment Systems (HAS). A demographics questionnaire was created to capture personal characteristics and job-related outcomes for registered nurses participating in the study.

Initial contact was made with nursing managers from various units of the healthcare facility via telephone and/or email. The purpose of the study was described to nursing managers and permission was requested to recruit registered nurses from each department for participation in the pilot study. Nursing managers from Neonatal Intensive Care, Surgical/Trauma Intensive Care, and the General Medical Unit responded positively and approved the study to be conducted on their unit.

Upon approval from the nursing manager, the principal investigator attended a monthly staff meeting conducted on each unit. During a brief presentation, the purpose of the study and informed consent were thoroughly explained. Registered nurses were also encouraged to ask questions about participation in this study. At the conclusion of the presentation, nurses were asked to sign the informed consent if they agreed to participate in the study. Registered nurses who signed the consent form were given a link to both the
personality inventory and demographics survey. These participating RNs were also given
protected identification numbers and passwords in order to access both surveys.

All steps were taken to preserve confidentiality of RNs participating in the study. Nurses were also informed that the study received approval from both the study hospital and institutional review boards. Registered nurses were assured that individual personality profiles and demographics data could not be accessed by anyone other than the principal investigator and that only aggregate findings would be disseminated. Nurses were told they could participate in the study at any time by signing and returning the informed consent. Blank consent forms were left in each unit’s breakroom. A locked drop box was left in the breakroom on each unit for the return of informed consent forms. The author checked the lockbox weekly in order to obtain consent forms from nurses wanting to participate after the initial presentation.

**Instrumentation and Administration**

Upon HSIRB approval, RNs who specialize in General Medicine (GMU), Neonatal Intensive Care (NICU), and Surgical/Trauma Intensive Care (SICU) were asked to participate in the pilot study by completing Hogan’s Personality Inventory (HPI) and the demographics questionnaire.

**Hogan Personality Inventory (HPI).** Hogan’s Personality Inventory is an online personality assessment instrument used primarily for personnel selection, staff development, and decision making in career choices. Based on the Five Factor Model, HPI measures normal personality traits in the adult population. The inventory consists of
206 items measuring seven personality traits; namely Adjustment, Ambition, Prudence, Sociability, Interpersonal Sensitivity, Inquisitive, and Learning Approach. The inventory also includes a validity scale and 41 subscales. Personality scores are based on the following percentile ratings system: High: at or above 65th percentile, Average: between 36th and 64th percentile, and Low: at or below 35th percentile.

Administration of HPI was handled via email through Hogan Assessment System (HAS) website where links to access the instrument, user identification number, and passwords were provided by HAS personnel. Results of personality traits assessments of RNs in the study were provided to the author by HAS staff via Microsoft Excel spreadsheet. Due to copyright laws, a copy of Hogan’s Personality Inventory could not be obtained.

**Demographics survey.** A demographics questionnaire was created to capture relevant background information about registered nurses participating in the study. The questionnaire contained general background demographics including age and gender.

Previous research demonstrated that nurses working in different areas of the field exhibit personality traits unique to their specialization. As a result, RNs were asked to indicate their department (i.e., nursing specialty) and job title. The survey also asked participants to indicate their total time spent in the field and working on their current unit, shift worked (i.e. day or night), and any other areas of nursing previously employed. These job-related factors may aid in analysis when exploring similarities and differences among nurses.
The demographics survey was distributed via web link through SurveyMonkey. In order to align survey responses to personality assessment results, RNs were asked to provide the same identification number as assigned to complete Hogan’s Personality Inventory. As specified in the informed consent, identifying information (i.e. first and last name) was only known by the authors. Records were kept in a locked file cabinet. All data of registered nurses’ personality and demographic information was disseminated in aggregate.

Responses from the demographics survey and HPI assessment were downloaded and coded using SPSS 19. Due to the small sample size, simple descriptive statistics were used to discuss responses from the demographic survey and personality inventory. An ANOVA was conducted to determine mean differences in personality traits among registered nurses in the nursing specialties represented. The following sections discuss findings from the third objective of the pilot study.

Findings

Nursing sample. A total of 31 nurses completed Hogan’s Personality Inventory. There were 21 RNs who completed both the HPI personality instrument and demographics survey (i.e., response rate: 47%). There were 10 registered nurses who did not complete the demographics survey, for reasons unknown. As a result, demographic data for these nurses was not used in all aspects of data analysis for the pilot study.
Further contact and follow up was made with these nurses in order to incorporate the missing demographic data of the pilot study into data analysis for the final study.

**Nursing specialties.** Approximately 48% (n=10) of registered nurses completing the demographics survey were employed on the neonatal intensive care unit (NICU). There were six nurses (29%) from surgical and trauma intensive care (SICU) and 5 (23%) nurses from the adult general care unit (GMU) who also completed the demographic survey. One nurse specializing in adult critical care also completed the survey. Although this nurse was a part of the Float Pool nursing personnel, she indicated that most of her time had been spent on the general medical unit. As a result, this nurse was placed in the GMU specialty category.

**Gender and age.** All the nurses (100%) participating in the pilot study were female. This aligns with the U.S. Department of Labor, Bureau of Labor Statistics (2008) which reports that a majority of the current nursing workforce are women (92%). As seen in Table 6, just over one-third (38%) of the participating registered nurses were between the ages of 25 and 29. Surgical and Trauma Intensive Care elicited the highest number of respondents in this age range category (n= 4). There were three nurses who were less than 25 years of age, between 30-34 years, and between the ages of 50-59.
Table 6: Age Range for Nurses

<table>
<thead>
<tr>
<th>Age Range</th>
<th>N</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 25 years</td>
<td>3</td>
<td>14%</td>
</tr>
<tr>
<td>25-29</td>
<td>8</td>
<td>38%</td>
</tr>
<tr>
<td>30-34</td>
<td>3</td>
<td>14%</td>
</tr>
<tr>
<td>35-39</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>40-49</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>50-59</td>
<td>3</td>
<td>14%</td>
</tr>
<tr>
<td>60 years or older</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>100%</td>
</tr>
</tbody>
</table>
Total time in nursing. In terms of time spent employed as a registered nurse, six RNs reported being in their field between 5-10 years (Table 7). Each of the three nursing specialties had an equal number of RNs who fell into this category. There were five RNs who indicated having served as a nurse between 3-5 years and 10 years or more. In both case, nurses in SICU had the highest number of responses (n=3) in these categories.

Table 7. Total Time in Nursing

<table>
<thead>
<tr>
<th>Total time as RN</th>
<th>GMU</th>
<th>SICU</th>
<th>NICU</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 1 year</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-3 years</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3-5 years</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>5-10 years</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>
Time spent on the unit. When asked about the total time spent on the current unit, just over one-third (33%) reported spending between 3-5 years; with most RNs being employed on GMU (n=4). As seen in Table 8, there were six RNs (29%) who were recently employed on their unit (i.e. 1-3 years), four of which work in Surgical/Trauma Intensive Care (SICU). Four RNs (19%), three of which are employed on NICU, have worked at the study hospital for 10 years or more. Overall, test analysis found no statistically significant differences between age, time on unit, or time in the profession among nurses participating in the study.

Table 8. Total Time Spent on Unit

<table>
<thead>
<tr>
<th>Total time on current unit</th>
<th>GMU</th>
<th>SICU</th>
<th>NICU</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 1 year</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1-3 years</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3-5 years</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>5-10 years</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>
**Personality traits.** There were 31 nurses who completed Hogan’s Personality Inventory for the pilot study. As seen in the Table 9, General Medical Unit nurses (n=9) scored *average* (i.e., 36th to 64th percentile) in five of the seven personality traits assessed. These RNs also scored *high* in Interpersonal Sensitivity and Learning Approach. According to Hogan’s Personality Inventory, these nurses specializing in general medicine demonstrate traits of being balanced and easy to approach. They may be seen as hardworking and good team players. Personality results also indicate that the nurses caring for this elder population tend to be congenial, nurturing, thoughtful and trustworthy.

Neonatal Intensive Care nurses (n=11) scored *average* on five of the seven HPI personality traits assessed. These RNs also scored *low* in Adjustment and Inquisitive. Findings suggest these RNs tend to friendly and cooperative. They are usually comfortable with confronting conflict as they are able to voice their own opinion. While NICU RNs oftentimes encourage others to stay up-to-date with current trends, they also have the ability to look beyond standard procedures to solve problems (Hogan, 2007). Results from the inventory revealed that registered NICU nurses are very practical, level-headed, and enjoy repetitive hands-on activities and approaches (Hogan, 2007).
Table 9. Personality Traits of General Medical, Neonatal Intensive, and Surgical/Trauma Intensive Care Registered Nurses

<table>
<thead>
<tr>
<th></th>
<th>GMU (n=9)</th>
<th></th>
<th>NICU (n=11)</th>
<th></th>
<th>SICU (n=11)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>HPI Personality Category</td>
<td>Min</td>
<td>Max</td>
<td>Mean (SD)</td>
<td>HPI Personality Category</td>
</tr>
<tr>
<td>Adjustment (ADJ)</td>
<td>47(23)</td>
<td>Average</td>
<td>3</td>
<td>84</td>
<td>28(21)</td>
<td>Low</td>
</tr>
<tr>
<td>Ambition (AMB)</td>
<td>43(30)</td>
<td>Average</td>
<td>2</td>
<td>87</td>
<td>35(23)</td>
<td>Average</td>
</tr>
<tr>
<td>Sociability (SOC)</td>
<td>54(32)</td>
<td>Average</td>
<td>7</td>
<td>89</td>
<td>46(22)</td>
<td>Average</td>
</tr>
<tr>
<td>Interpersonal Sensitivity (INP)</td>
<td>61(35)</td>
<td>High</td>
<td>11</td>
<td>100</td>
<td>45(32)</td>
<td>Average</td>
</tr>
</tbody>
</table>
Table 9—continued

<table>
<thead>
<tr>
<th></th>
<th>GMU (n=9)</th>
<th></th>
<th></th>
<th>NICU (n=11)</th>
<th></th>
<th></th>
<th>SICU (n=11)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>HPI</td>
<td>Min</td>
<td>Max</td>
<td>Mean (SD)</td>
<td>HPI</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Prudence (PRU)</td>
<td>67(28)</td>
<td>Average</td>
<td>16</td>
<td>88</td>
<td>45(31)</td>
<td>Average</td>
<td>4</td>
<td>92</td>
</tr>
<tr>
<td>Inquisitive (INQ)</td>
<td>34(23)</td>
<td>Average</td>
<td>12</td>
<td>76</td>
<td>28(10)</td>
<td>Low</td>
<td>12</td>
<td>46</td>
</tr>
<tr>
<td>Learning Approach</td>
<td>66(30)</td>
<td>High</td>
<td>46</td>
<td>79</td>
<td>47(34)</td>
<td>Average</td>
<td>2</td>
<td>95</td>
</tr>
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<td></td>
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</table>

GMU: General Medical Unit, NICU: Neonatal Intensive Care Unit, SICU: Surgical/Trauma Intensive Care, HPI personality levels: Low: at or below 35th percentile, Average: between 36th and 64th percentile, and High: at or above 65th percentile.
Registered nurses specializing in Surgical/Trauma Intensive Care scored average in Adjustment, Interpersonal Sensitivity, and Learning Approach. These RNs scored low in Ambition, Sociability, and Inquisitive and high in Prudence. Results of personality assessment revealed nurses specializing in Surgical/Traumatic Intensive Care (n=11) tend to be both approachable and accessible (Hogan, 2007). According to Hogan, these RNs are willing to listen to others’ suggestions as well as work in teams. Registered nurses in surgical intensive care also are usually goal-oriented and interested in applying knowledge learned (2007).

Based on the data obtained from HAS staff, an ANOVA was computed to determine whether Hogan’s personality traits differ among RNs in the specialties represented. Analysis indicated that Sociability of RNs in different units (α = 0.05) were significantly different. Results suggest significant differences in GMU RNs when compared to nurses in SICU on the Sociability trait ($F(2,28) = 3.47, p < .05$).

Post Hoc homogenous (Tukey) procedure was used to determine the nature of differences between the nursing specialties. Analysis revealed that RNs in SICU scored significantly lower on the Sociability trait ($M = 26, SD = 20$) than GMU nurses ($M = 54, SD = 32$). This suggests that nurses who care for the general adult medical population tend to be more outgoing, talkative, and friendly than RNs specializing in surgical and trauma intensive care. This may be due to the culture of each setting: GMU nurses encounter the adult elderly population who may need a more nurturing relationship, whereas the Surgical Intensive Care Unit (SICU) environment is more intensive and fast-
paced—a critical care setting where patients are less likely to be conscious or fully coherent.

Furthermore, observations revealed that none of the Hogan’s personality traits categories (i.e., High, Average, and Low) were similar across nursing specialties represented. For example, GMU and SICU nurses scored average in Adjustment, while NICU scored low in this personality trait. Given the busy work environment and the attention needed to care for neonates, there is no coincidence that NICU nurses exhibit traits such as being observant and attentive to detail, and cautious. Observations made in a time study of nurses’ productivity found that nurses employed on these units tend to work together on patient assignments (Utkan, et. al, 2009; Butt et al., 2004). This finding aligns with characteristics of being good team players as specified in Hogan’s description of individuals scoring low in the Adjustment personality trait (Hogan, 2007).

Nurses in GMU scored high in Interpersonal Sensitivity compared to Surgical and Neonatal Intensive Care nurses who scored average in this trait. According to Hogan’s description, individuals who score high in Interpersonal Sensitivity tend to build nurturing, diplomatic, and trustworthy relationships (2007). This personality trait is essential in an environment where GMU nurses in the study hospital mainly care for the elderly population who may be at the onset of Dementia or Alzheimer and seldom remember their loves ones and caregivers.
Full Study: Methods and Procedures

Given the results of the pilot study, the following methods and procedures were used in the full study. Recall from Chapter 1, the objectives of the full study were to: 1) identify personality traits of RNs who work in various nursing specialties; 2) explore relationships existing between job performance and personality traits of registered nurses who work in various specialties; 3) explore relationships existing between overall job satisfaction and personality traits of nursing personnel in various areas of specialization; 4) explore the relationships between personality traits and RNs’ (retention); and 5) propose a model to evaluate job fit for registered nurses who work in various specialties.

Similar to the pilot study, contact was made with nursing managers from various units of the healthcare facility via telephone and/or email. The purpose of the study was described and permission was requested to recruit registered nurses from each unit for participation in the study. As personality traits have been shown to differ among nursing specialties, registered nurses in General Medicine, Neonatal and Surgical/Trauma Intensive Care were continually encouraged to participate in the study. Nursing managers from Neurovascular and Cardiology also responded positively to the request to conduct the study on their unit. As a result, RNs from both units were asked to participate in the full study. In order to have a more comprehensive dataset, follow-up correspondences were made to nurse who had not completed the HPI or demographics survey during the pilot study.

Upon approval from the nursing managers, the principal investigator attended a monthly staff meeting conducted on each unit. During a brief presentation, the purpose of
the study and the informed consent were thoroughly explained. Registered nurses were also encouraged to ask questions about participation in this study. At the conclusion of the presentation, nurses were asked to sign the informed consent if they agreed to participate in the study. Registered nurses who signed the consent form were given a link to both the HPI and demographics surveys. Secured identification numbers and passwords were given to RNs in order to access the HPI and demographics survey.

All steps were taken to preserve confidentiality of RNs participating in the study. Nurses were also informed that the study received approval from both the study hospital and institutional review boards. Registered nurses were assured that individual personality profiles and demographics data could not be accessed by anyone other than principal investigator and that only aggregate findings would be disseminated. Nurses were told they could participate in the study at any time by signing and returning the informed consent. Blank consent forms were left in each unit’s breakroom. A locked drop box was left in the breakroom on each unit for the return of informed consent forms. The author checked the lockbox weekly in order to obtain consent forms from nurses wanting to participate after the initial presentation.

Instrumentation and Administration

Permission to continue using Hogan’s Personality Inventory was granted by Hogan’s Assessment Systems (HAS). Similar to the pilot study, administration of the HPI was handled via email through the HAS website where links to access the instrument, user identification number, and passwords were provided by company personnel. Results
of personality traits assessments of RNs in the study were provided to the author by HAS staff via a Microsoft Excel spreadsheet.

To address the second objective, the demographics survey also included questions to capture job-related outcomes including performance, job satisfaction, and retention for registered nurses. In terms of job performance, RNs were asked to indicate whether they had received any job performance award(s) while working in their current nursing specialty (Borman et al, 1991). Although a simplistically crude manner in which to measure job performance, certain restrictions limited the measurement of this job related factor. Nurses were also asked to indicate their perception of overall job satisfaction using a 5-point Likert scale, ranging from very satisfied to very dissatisfied (Scarpello and Campbell, 1983).

Price and Mueller’s Causal Model of Professional Turnover (1981) provided two questions that were used to measure RNs’ intent to stay. The first question asked about feelings while working on the unit and included a 5-point Likert scale with responses ranging from definitely will not leave to definitely will leave. The second question asked about expectation to leave the unit in the near future. This question is also scored on a 5-point Likert scale with responses ranging from definitely will not leave in the near future to will definitely leave in the near future.

The demographics survey was distributed via web link through SurveyMonkey. In order to align survey responses to personality assessment results, RNs were asked to
provide the same identification number as assigned to complete Hogan’s Personality Inventory. As specified in the informed consent, identifying information (i.e. first and last name) was only known by the authors. Records were kept in a locked file cabinet at the university institution. All data of registered nurses’ personality and demographic information was only disseminated in aggregate. A complete copy of the demographics survey can be found in Appendix E.

**Sample Size**

In order to overcome the small sample size issue faced in the pilot study, all RNs who participated in the studies (i.e. pilot and full) were offered a $5 gift certificate upon completion of both the HPI and demographics survey. This change to the study was amended and approved by the HSIRB of the university and healthcare facility (See Appendix D). The next chapter discusses results and findings of the full study investigating personality traits and job-related outcomes among registered nurses in various areas of specialization.
CHAPTER IV

RESULTS AND DISCUSSION

This chapter discusses results from the study that explored personality traits of nurses in various areas of specialization. The chapter presents findings supporting relationships found between RN personality traits and job-related outcomes. Recall from the previous chapter, methods and procedures for the full study were very similar to those of the pilot study. In addition to nurses who were initially recruited for the pilot study (i.e. GMU, NICU, SICU) additional RNs from these units were also encouraged to participate. Registered nurses from Neurovascular and Cardiology units were also asked to participate in the study. These RNs were recruited after a brief presentation detailing the study was given at a monthly staff meeting. Upon signing an informed consent to participate, RNs received access to complete Hogan Personality Inventory (HPI) and the demographics survey. The personality instrument, HPI, was administered to assess personality traits of registered nurses. In addition, a demographic survey was created and distributed in order to obtain nurses’ personal and job-related information which included measures of job performance, overall satisfaction, and retention (Appendix E). Follow-up correspondences were made to RNs who did not complete the demographics survey during the pilot study.

Data was analyzed using SPSS version 19.0 (SPSS, 2010). Prior to conducting any statistical procedures, normality tests were conducted and all assumptions were met.
A significance level of 5% (p<0.05) was considered for all test analysis. Non-parametric analyses were used when appropriate. Regression analyses were conducted to identify how personality predicts certain job outcomes for RNs in the study.

Despite several attempts, missing demographic data for the ten nurses in the pilot study was not obtained. Some of the nurses had either left their unit and/or simply did not respond to correspondences made. Demographic information for this group of RNs was considered missing and not included in all portions of data analysis of this final study. The following section discusses findings of data collected from RNs employed in five specialty areas.

**Demographics**

**Response Rate**

Overall, 52 professional registered nurses participated in the study\(^1\). The response rate for RNs participating in this study was 60%. Table 10 displays the response rate for previous studies involving personality traits of nursing personnel. An analysis of variance (ANOVA) was performed to determine differences in the rate of response for this study as compared to previous studies concerning personality traits of healthcare personnel. Analysis found no significant difference (p > .05) in response rates for RN participation from previous literature compared to nurses participating in this study.

---

\(^1\) Signed informed consent and completed HPI and/or demographics survey
Table 10. Response Rates for Research on Personality Traits of Registered Nurses

<table>
<thead>
<tr>
<th>Source</th>
<th>RN Specialty</th>
<th>N</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levin (1998)</td>
<td>Critical Care</td>
<td>200</td>
<td>20%</td>
</tr>
<tr>
<td>Bean &amp; Holcombe (1993)</td>
<td>Oncology</td>
<td>40</td>
<td>98%</td>
</tr>
<tr>
<td>Burgess et al (2010)</td>
<td>Intensive Care Unit</td>
<td>83</td>
<td>55%</td>
</tr>
<tr>
<td>McPhail (2002)</td>
<td>Direct Care</td>
<td>40</td>
<td>59%</td>
</tr>
<tr>
<td>Gambles et al(2003)</td>
<td>Cancer/Palliative</td>
<td>224</td>
<td>80%</td>
</tr>
<tr>
<td>Nicholas et al (1983)</td>
<td>Gentological</td>
<td>45</td>
<td>46%</td>
</tr>
<tr>
<td>Wright &amp;Smith (1993)</td>
<td>NSW(all areas)</td>
<td>349</td>
<td>78%</td>
</tr>
<tr>
<td>Kennedy et. al, (2014)</td>
<td>Emergency</td>
<td>95</td>
<td>76%</td>
</tr>
<tr>
<td>Current Study</td>
<td>Surgical Intensive Care, Neonatal Intensive Care, Medical Intensive Care, General Medical, Cardiology, Neurovascular</td>
<td>52</td>
<td>59%</td>
</tr>
</tbody>
</table>
Nursing Specialty

There were 42 registered nurses who completed the demographic survey. Due to the small sample of RNs in each nursing specialty, nurses were grouped into two major categories: Critical and Non-Critical care (Table 11). Based on nursing unit classifications in the study hospital, non-critical care consists of RNs employed in General Medical Unit, Cardiology, and Neurovascular. Critical care comprised of nurses in Medical Intensive, Neonatal Intensive, and Surgical Intensive Care. Previous research describes personality traits uniquely exhibited in oncology & cancer/palliative nurses (Bean & Holcombe 1993, Gambles et al., 2003). It was found that nurses in the General Medical Unit of the study hospital specialize in caring for patients with cancer. As a result, descriptive statistics and test analyses were performed and interpreted for these RNs as well.

As seen in the Table 11, there were 18 (35%) non-critical and 34 (65%) critical care nurses who participated in the study. The General Medical Unit elicited the highest number of non-critical care nurses (n=11, 21%), while NICU RNs had the highest number of participants in the critical care category (n=19, 56%).
Table 11. Response Rate per Nursing Category

<table>
<thead>
<tr>
<th>Nursing Category</th>
<th>Specialty</th>
<th>Number of RNs consented</th>
<th>Number of RNs participated</th>
<th>Response Rate per RN specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NICU</td>
<td>22</td>
<td>19</td>
<td></td>
<td>86.4%</td>
</tr>
<tr>
<td>SICU</td>
<td>18</td>
<td>10</td>
<td></td>
<td>55.6%</td>
</tr>
<tr>
<td>MICU</td>
<td>7</td>
<td>5</td>
<td></td>
<td>71.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>47</td>
<td>34</td>
<td></td>
<td>72.3%</td>
</tr>
<tr>
<td><strong>Non-Critical Care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GMU</td>
<td>22</td>
<td>11</td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>CARD</td>
<td>12</td>
<td>4</td>
<td></td>
<td>33.3%</td>
</tr>
<tr>
<td>NEURO</td>
<td>6</td>
<td>3</td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40</td>
<td>18</td>
<td></td>
<td>45%</td>
</tr>
</tbody>
</table>
Nurses’ Age

In terms of age, the author was able to obtain RNs actual age as provided on the introduction page of Hogan’s Personality Inventory. Table 12 provides descriptive statistics for age for critical and non-critical care nurses. The average age of RNs was 38 years (SD= 12). The median age was 34 years. As seen in the table, the mean age of critical care RNs was 39 years (SD =12). Age for these RNs ranged from 23 to 61 years old. In terms of non-critical care nurses, the average age was 37 years (SD= 12). The median was 34 years and the most frequently reported age was 25 years. The age range for non-critical care RNs was between 27 and 57 years old. The average age for GMU nurses was 39 years (SD = 13). The age range for these nurses as between 25 and 57 years and the median was 33 years.

Table 12. Descriptive Statistics for Age of Critical, Non-Critical, and GMU RNs

<table>
<thead>
<tr>
<th>Nursing Category</th>
<th>Mean(SD) years</th>
<th>Median/Mode years</th>
<th>Min (years)</th>
<th>Max (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Care</td>
<td>39 (12)</td>
<td>34/34</td>
<td>23</td>
<td>61</td>
</tr>
<tr>
<td>Non-Critical</td>
<td>37 (12)</td>
<td>34/25</td>
<td>27</td>
<td>57</td>
</tr>
<tr>
<td>GMU</td>
<td>38 (13)</td>
<td>33/25</td>
<td>25</td>
<td>57</td>
</tr>
</tbody>
</table>
Time Spent as Nurse

Overall, 13 (31%) nurses reported working in the profession for 5-10 years or more than 10 years. Nine RNs (21%) reported between 3-5 years, while five (12%) reported having worked in the nursing profession between 1-3 years. As seen in Table 13, 40% (n=12) of critical care RNs reported working in the nursing field for more than 10 years. Seven (23%) RNs reported working in the critical care profession between 5-10 years. There were six critical care RNs who had worked in nursing between 3-5 years.

Approximately half of non-critical care RNs (n=6) have been employed in nursing between 5-10 years and three (25%) who have been in nursing for 3-5 years. The remaining non-critical care RNs reported spending less than a year, 1-3 years, and more than 10 years in the profession. In terms of GMU nurses, six RNs spent between three and five years working in their department/unit. One GMU nurses had worked in the unit between 5 and 10 years.
Table 13. Frequencies of Time as RN for Critical, Non-critical, and GMU Nurses

<table>
<thead>
<tr>
<th>Time as RN</th>
<th>Less than 1 year</th>
<th>1-3 years</th>
<th>3-5 years</th>
<th>5-10 years</th>
<th>Over 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical care (n = 30)</td>
<td>1 (3.3%)</td>
<td>4 (13.3%)</td>
<td>6 (20.0%)</td>
<td>7 (23.3%)</td>
<td>12 (40.0%)</td>
</tr>
<tr>
<td>Non-critical care (n = 12)</td>
<td>1 (8.3%)</td>
<td>1 (8.3%)</td>
<td>3 (25.0%)</td>
<td>6 (50.0%)</td>
<td>1 (8.3%)</td>
</tr>
<tr>
<td>GMU (n = 7)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>6 (86%)</td>
<td>1 (14%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

The next sections of this chapter discuss findings as related to the five research objectives. As previously mentioned, these objectives were to:

1. Identify personality traits of RNs who work in various nursing specialties;
2. Explore relationships existing between job performance and personality traits of registered nurses who work in various specialties;
3. Explore relationships existing between overall job satisfaction and personality traits of nursing personnel in various areas of specialization;
4. Explore the relationships between personality traits and RNs’ (retention); and
5. Propose a model to evaluate job fit for registered nurses who work in various specialties.
Objective 1: Personality Traits of Registered Nurses

The first objective of the study was to explore and identify personality traits of registered nurses in various areas of specialization. All 52 registered nurses completed Hogan’s Personality Inventory (HPI). On average, nurses took approximately 15-20 minutes to complete the personality assessment. Results of the assessment were verified and validated by personnel of Hogan Assessment Systems (HAS) and forwarded via email to the author.

Nurses Overall

Table 14 provides descriptive statistics and personality traits percentile frequencies for the seven personality traits assessed for RNs in this study. As seen in the table, nurses in general scored average in five of the seven traits, suggesting that RNs are balanced (Adjustment), friendly (Sociability), cooperative (Interpersonal Sensitivity), mindful of details (Prudence), and encourage others to stay up to date on the latest trends in the field (Learning Approach). The overall low score in Ambition and Inquisitive reveal these RNs are also practical, levelheaded, and prefer to have tasks assigned to them (Hogan & Hogan, 2007).
Table 14. Descriptive Statistics of Personality Traits for RNs Overall

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Mean(SD)</th>
<th>HPI Category</th>
<th>Median/Mode</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ</td>
<td>41(26)</td>
<td>Average</td>
<td>37/49</td>
<td>3</td>
<td>94</td>
</tr>
<tr>
<td>AMB</td>
<td>34 (24)</td>
<td>Low</td>
<td>33/47</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>SOC</td>
<td>37(29)</td>
<td>Average</td>
<td>31/7</td>
<td>1</td>
<td>98</td>
</tr>
<tr>
<td>PRU</td>
<td>58 (29)</td>
<td>Average</td>
<td>67/88</td>
<td>9</td>
<td>100</td>
</tr>
<tr>
<td>IPS</td>
<td>48(32)</td>
<td>Average</td>
<td>39/83</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>INQ</td>
<td>34(22)</td>
<td>Low</td>
<td>32/32</td>
<td>1</td>
<td>83</td>
</tr>
<tr>
<td>LRN</td>
<td>57(28)</td>
<td>Average</td>
<td>58/58</td>
<td>2</td>
<td>100</td>
</tr>
</tbody>
</table>

ADJ=Adjustment, AMB=Ambition, SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, INQ=Inquisitive, LRN=Learning Approach
The literature on personality traits of nurses in general is very sparse. Although, the author did find one study (Wright & Smith, 1983) which explored personality profiles of American and Australian nurses. This study found significant differences in personality traits exhibited between these two groups of nurses. Unfortunately, this study used the Edwards Personal Preference Schedule (EPPS), in which the author found no correlation with Hogan’s Personality Inventory.

**Critical Care RNs**

Critical (intensive/emergency) care nurses focus on providing the most acute care for critically ill and/or unstable patients. As previously stated, there were 34 critical care nurses who participated in this study. Table 15 displays descriptive statistics for personality traits assessed in critical care RNs. As seen in the table, critical care RNs scored average in five of the seven personality traits assessed (i.e. Adjustment, Ambition, Prudence, Interpersonal Sensitivity, and Learning Approach). These nurses scored low on Sociability and Inquisitive. According to Hogan’s description of personality traits, these findings suggest critical care nurses may be very balanced, stable, practical and task-oriented. These nurses also tend to think with a level head, can tolerate repetitive tasks, and work well in teams. Furthermore, findings suggest critical care RNs may be seen as friendly, quiet and reserved; approaching new ideas with caution and sticking to familiar methods for solving problems (Hogan & Hogan, 2007).
Table 15. Descriptive Statistics of Personality Traits for Critical Care RNs

<table>
<thead>
<tr>
<th>Critical Care RNs</th>
<th>Mean(SD)</th>
<th>HPI Category</th>
<th>Median/Mode</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ</td>
<td>39(24)</td>
<td>Average</td>
<td>39/49</td>
<td>3</td>
<td>84</td>
</tr>
<tr>
<td>AMB</td>
<td>36(27)</td>
<td>Average</td>
<td>33/64</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>SOC</td>
<td>35(27)</td>
<td>Low</td>
<td>31/31</td>
<td>1</td>
<td>89</td>
</tr>
<tr>
<td>PRU</td>
<td>57(30)</td>
<td>Average</td>
<td>67/88</td>
<td>9</td>
<td>100</td>
</tr>
<tr>
<td>IPS</td>
<td>49(34)</td>
<td>Average</td>
<td>39/83</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>INQ</td>
<td>31(20)</td>
<td>Low</td>
<td>30/46</td>
<td>1</td>
<td>83</td>
</tr>
<tr>
<td>LRN</td>
<td>58(27)</td>
<td>Average</td>
<td>65/69</td>
<td>2</td>
<td>95</td>
</tr>
</tbody>
</table>

ADJ=Adjustment, AMB=Ambition, SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, INQ=Inquisitive, LRN=Learning Approach
Findings from this study support Levin’s study (1998) which found that critical care RNs tend to be aggressive, task-oriented, and efficient (Levin, 1998); as measured by Catell’s 16PF. The findings from this study also support Kennedy et al. (2014) study which described emergency nurses as friendly individuals, who are modest and humble (Agreeableness), able to tolerate others (Openness to Experience), tend to lead fast paced lives, possess the ability to engage in conversation easily, and are comfortable in noisy environments (Extroversion).

Non-Critical Care RNs

In terms of non-critical care, there were 18 RNs who participated in this study. Overall, non-critical care RNs scored average (i.e. between 35th and 64th percentile) in six of seven HPI personality traits assessed. These nurses also scored low in Ambition and High in Prudence (Table 16). Findings suggest that non-critical care RNs are balanced and tend to remain calm under pressure (i.e. Adjustment). Nurses specializing in areas of non-critical care are also seen as friendly, good team players, and willing to listen to others (i.e., Sociability and Interpersonal Sensitivity). According to Hogan’s manual, these RNs tend to be orderly and dependable (i.e., Prudence) and may prefer to have tasks assigned to them (i.e., Ambition). Furthermore, analysis suggest that this group of non-critical care RNs were conceptual thinkers (i.e., Inquisitive); oftentimes encouraging others to stay up to date with the latest trends in the field.
Table 16. Descriptive Statistics for Personality Traits for Non-Critical Care RNs

<table>
<thead>
<tr>
<th>Non-Critical Care</th>
<th>Mean (SD)</th>
<th>HPI Category</th>
<th>Median/Mode</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ</td>
<td>43(28)</td>
<td>Average</td>
<td>37/60</td>
<td>3</td>
<td>94</td>
</tr>
<tr>
<td>AMB</td>
<td>30(18)</td>
<td>Low</td>
<td>31/47</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>SOC</td>
<td>40(32)</td>
<td>Average</td>
<td>41/7</td>
<td>2</td>
<td>98</td>
</tr>
<tr>
<td>PRU</td>
<td>60(27)</td>
<td>Average</td>
<td>63/27</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>IPS</td>
<td>45(29)</td>
<td>Average</td>
<td>41/26</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>INQ</td>
<td>42(25)</td>
<td>Average</td>
<td>36/69</td>
<td>5</td>
<td>79</td>
</tr>
<tr>
<td>LRN</td>
<td>56(30)</td>
<td>Average</td>
<td>58/58</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

ADJ=Adjustment, AMB=Ambition, SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, INQ=Inquisitive, LRN=Learning Approach
General Medical Unit (GMU) RNs

There were 11 GMU RNs who complete the HPI assessment. Table 17 displays descriptive statistics for personality traits assessed in General Medical Unit nurses. Overall, GMU RNs scored average in six of the seven personality traits assessed; suggesting that these nurses are balanced, team players, friendly, but not overly social, and can tolerate close supervision. As seen in the table, a majority of GMU RNs scored low in Adjustment and Ambition (n = 7; 64%), and Inquisitive (n = 6; 55%). According to Hogan (2007), individuals who score low in these traits tend to be vigilant, level-headed, work well in teams, and tolerate of repetitive tasks. Just under half of GMU RNs scored average in Sociability, Interpersonal Sensitivity, and Learning Approach; which suggest that these RNs tend to be approachable, cooperative, open to seeking new learning opportunities (Hogan, 2007). In terms of Prudence, most GMU nurses (n = 5; 45%) scored high, meaning these RNs may be seen as informed decision-makers (Hogan, 2007).

General Medical Unit nurses scored average in Sociability which reveals that while GMU nurses tend to be seen as friendly and congenial, they are neither extroverted nor introvert (Hogan, 2007). These results are congruent with findings from two studies which found that over half of the oncology RNs were introverts, sensing, feeling, and judging (Ben & Holcombe, 1993) while a study on cancer and palliative care nurses (Gambles, et al., 2003) found that palliative nurses were extraverted and feeling.
Table 17. Descriptive Statistics and Frequencies for Personality Traits for General Medical Unit RNs

<table>
<thead>
<tr>
<th>GMU RNs</th>
<th>Mean(SD)</th>
<th>Median/Mode</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ</td>
<td>36(27)</td>
<td>34/12</td>
<td>6</td>
<td>94</td>
</tr>
<tr>
<td>AMB</td>
<td>32(18)</td>
<td>33/28</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>SOC</td>
<td>47(32)</td>
<td>44/44</td>
<td>2</td>
<td>98</td>
</tr>
<tr>
<td>PRU</td>
<td>60(28)</td>
<td>58/27</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>IPS</td>
<td>51(30)</td>
<td>58/60</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>INQ</td>
<td>37(25)</td>
<td>32/12</td>
<td>5</td>
<td>76</td>
</tr>
<tr>
<td>LRN</td>
<td>54(31)</td>
<td>58/58</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

ADJ=Adjustment, AMB=Ambition, SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, INQ=Inquisitive, LRN=Learning Approach

Differences in Personality Traits

An independent t-test was conducted to determine whether personalities differ between critical versus non-critical care nurses. Test analysis found no statistically significant differences between critical and non-critical care RNs for the seven HPI traits assessed. An additional test was performed to investigate whether there were differences
in the proportion of critical versus non-critical care RNs represented in each HPI personality category. Personality trait scores were grouped into their respective categories, as specified in Hogan & Hogan (2008).

Table 1 displays the number of critical and non-critical care RNs whose personality scores were within the specified personality category. A Chi-square test was performed to test whether differences in proportions exist between critical and non-critical care RNs represented in each personality trait category. Analysis found a significant difference in the number of non-critical care RNs scoring high in Inquisitive $\chi^2 (1) = 9.332, p < .05$ compared to critical care nurses. Results suggest there were more non-critical care RNs who are considered as imaginative, resourceful, open-minded, and focused on the big picture than their counterparts. Special caution is warranted when interpreting these findings; as the number of nurses in the analysis was one in critical care compared to six in non-critical care.
Table 18. Frequencies in Personality Category for Critical and Non-Critical Care RNs

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Critical</th>
<th>Non-Critical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of RNs</td>
<td>% of RNs in personality category</td>
</tr>
<tr>
<td>ADJ High</td>
<td>7</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>29%</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>17</td>
<td>50%</td>
</tr>
<tr>
<td>AMB High</td>
<td>4</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>32%</td>
</tr>
<tr>
<td>SOC High</td>
<td>6</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>24%</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>19</td>
<td>56%</td>
</tr>
<tr>
<td>PRU High</td>
<td>18</td>
<td>53%</td>
</tr>
<tr>
<td>Average</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>Low</td>
<td>11</td>
<td>32%</td>
</tr>
<tr>
<td>IPS High</td>
<td>13</td>
<td>38%</td>
</tr>
<tr>
<td>Average</td>
<td>7</td>
<td>21%</td>
</tr>
<tr>
<td>Low</td>
<td>14</td>
<td>41%</td>
</tr>
<tr>
<td>INQ High</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Average</td>
<td>12</td>
<td>35%</td>
</tr>
<tr>
<td>Low</td>
<td>21</td>
<td>62%</td>
</tr>
<tr>
<td>LRN High</td>
<td>17</td>
<td>50%</td>
</tr>
<tr>
<td>Average</td>
<td>10</td>
<td>29%</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>21%</td>
</tr>
</tbody>
</table>
Age and Personality

As mentioned earlier, the average age of RNs was 38 (SD = 12) years. To explore whether a relationship exists between personality and age, a Pearson correlation coefficient was calculated. As seen in Table 19, a statistically significant relationship was found between Interpersonal Sensitivity and age for nurses in general. This moderate, positive correlation ($r = .315$, $p < .05$), suggest that older RNs may be more considerate, perceptive, friendly, foster teamwork, and more nurturing in relationships. Findings are similar to Kovach’s study (2010) involving certified nurse aides, which suggest that as the RNs get older, the degree to which they are perceived as observant, thoughtful, and socially sensitive increases.

Table 19. Correlation Analysis for Personality Traits and Age for RNs

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>SOC</th>
<th>PRU</th>
<th>IPS</th>
<th>ADJ</th>
<th>AMB</th>
<th>INQ</th>
<th>LRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.289</td>
<td>.186</td>
<td>.315*</td>
<td>-.158</td>
<td>-.032</td>
<td>.134</td>
<td></td>
</tr>
</tbody>
</table>

SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, ADJ=Adjustment, AMB=Ambition, INQ=Inquisitive, LRN=Learning Approach, *$p < .05$

Analysis also found a positive relationship between Prudence ($r = .186$) and RN age and a negative correlation with Sociability ($r = -.28$), although these relationships were non-significant. These findings partially support Kovach (2010) study, which found significant correlations between Prudence, Sociability and age for certified nurse aides.
Furthermore, these findings suggest that age and some personality traits may be similar whether an individual is registered nurse or certified nurse aide.

A linear regression model was constructed to predict personality based on age (Table 20). Age (Mean = 38.2, SD = 12.1) significantly predicted Interpersonal Sensitivity (Mean = 47.5, SD = 31.5) for RNs in general. It was found that age predicts a small percent (7.7%) of the variance in Interpersonal Sensitivity ($F(1,40) = 4.413, p < .05, \text{adjusted } R^2 = .077$).

Table 20. Regression Analysis Summary for Interpersonal Sensitivity and RN Age

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>$\beta$</th>
<th>Adj. $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPS</td>
<td>16.07</td>
<td>15.69</td>
<td>.315*</td>
<td>.077</td>
</tr>
<tr>
<td>Age</td>
<td>.823</td>
<td>.392</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. IPS=Interpersonal Sensitivity, $F(1,41) = 4.413, p < .05, \ast p < .05$, B= unstandardized coefficient, SEB= standardized error, $\beta$= standardized coefficient

In terms of critical care RNs, correlation analysis found a negative, significant relationship between Sociability and age ($r = -.385$); suggesting that younger critical care RNs may be seen as more approachable, entertaining, and outgoing (Table 21). These findings align with Kovach (2010) study, which also found a negative relationship between the two variables for certified nurse aides. Findings suggesting critical care RNs in this study may be very similar to CNA’s in terms of age’s influence on the degree to which they interact with others. Interpersonal Sensitivity and Prudence were positively
correlated with age for this group of nurses, partially supporting Kovach (2010) study, although not significant in this study.

Table 21. Correlation Analysis Summary for Age and Personality Traits for Critical Care RNs

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>SOC</th>
<th>PRU</th>
<th>IPS</th>
<th>ADJ</th>
<th>AMB</th>
<th>INQ</th>
<th>LRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical care</td>
<td>-.385*</td>
<td>.207</td>
<td>.283</td>
<td>.012</td>
<td>-.196</td>
<td>-.055</td>
<td>.187</td>
</tr>
</tbody>
</table>

SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, ADJ=Adjustment, AMB=Ambition, INQ=Inquisitive, LRN=Learning Approach, *p < .05

A regression model was constructed for Sociability and age for critical care RNs. As seen in Table 22, age (Mean = 38.6, SD = 12.4) significantly predicted Sociability (Mean = 33.6, SD = 25.8), $F(1, 29) = 5.03$, $p < .05$, adjusted $R^2 = .11$ for this group of nurses.

Table 22. Regression Analysis Summary for Age Predicting Sociability for Critical Care Nurses

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC</td>
<td>64.68</td>
<td>14.5</td>
<td>-.385*</td>
</tr>
<tr>
<td>Age</td>
<td>-.803</td>
<td>.38</td>
<td></td>
</tr>
</tbody>
</table>

SOC=Sociability, Adjusted $R^2 = .118$, $F(1,29) = 5.032$, $p < .05$, *p < .05, B= unstandardized coefficient, SEB= standardized error, β= standardized coefficient
Table 23 shows relationships between personality traits and age for non-critical and general medical unit nurses. Although analysis found moderate, positive correlations with Interpersonal Sensitivity, weak, positive correlations with Sociability, and weak relationships with Prudence, these relationships were not statistically significant for these groups of nurses in the study.

Table 23. Correlation Analysis Summary for Age and Personality Traits for Non-Critical Care and GMU RNs

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>ADJ</th>
<th>AMB</th>
<th>SOC</th>
<th>PRU</th>
<th>IPS</th>
<th>INQ</th>
<th>LRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-critical</td>
<td>.299</td>
<td>-.003</td>
<td>.023</td>
<td>.135</td>
<td>.437</td>
<td>.067</td>
<td>-.006</td>
</tr>
<tr>
<td>GMU</td>
<td>.018</td>
<td>-.034</td>
<td>.401</td>
<td>.531</td>
<td>.052</td>
<td>.268</td>
<td>-.031</td>
</tr>
</tbody>
</table>

ADJ=Adjustment, AMB=Ambition, SOC=Sociability, PRU=Prudence, IPS=Interpersonal Sensitivity, INQ=Inquisitive, LRN=Learning Approach

Time as RN and Personality Traits

Overall RNs reported working in the profession for at least five or more years. A study on personality traits and job related outcomes of certified nurse aides found a negative relationship between length of employment and personality traits Ambition and Sociability (Kovach, 2010). Findings from the study suggest as time of the job increases, CNAs prefer to have tasks assigned to them, are able to work in a team, but tend not to engage in small talk. A Pearson’s correlation coefficient was calculated for the aforementioned personality traits and length of employment for RNs in general, critical, non-critical care nurses, and GMU nurses in this study.
As seen in Table 24 correlation analysis revealed weak, negative relationships between these variables among RNs in general as well as critical and non-critical care RNs. Findings from this study support Kovach’s study (2010) and were similar in correlation direction and strength of relationship, although non-significant. In terms of GMU RNs, positive correlations were found, although they were not significant.

Table 24. Correlation Summary for Length of Employment and Personality Traits for Overall RNs, Critical Care, Non-Critical Care, and GMU Nurses

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>AMB</th>
<th>SOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time as RN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RNs overall</td>
<td>-.168</td>
<td>-.240</td>
</tr>
<tr>
<td>Critical Care</td>
<td>-.178</td>
<td>-.297</td>
</tr>
<tr>
<td>Non-critical Care</td>
<td>-.289</td>
<td>-.085</td>
</tr>
<tr>
<td>GMU</td>
<td>.155</td>
<td>.034</td>
</tr>
</tbody>
</table>

AMB=Ambition, SOC=Sociability, Length of employment (Likert scale 0-less than 1 year….4-being 10 or more years)
Objective 2: Personality Traits and Job Performance

The second objective of this study was to explore whether relationships exist between RNs’ job performance and personality traits. Registered nurses were first asked to indicate whether they had received any job performance award while employed at the study hospital. A total of 43 nurses responded to this question on the survey. Nurses were also asked to indicate the name of the performance award received. All of the RNs who received an award indicated receiving the DAISY Award. This merit-based award recognizes and honors nurses who go “above and beyond” in meeting the needs of patients and/or their families while providing care. Nurses at the study hospital can be nominated for the DAISY award by a patient, patient’s family, or staff member. At the time of the study, RNs were recognized with this award on a quarterly basis.

Table 25 displays the number of overall, critical, and non-critical care, and general medical RNs who received job performance award(s). As seen in the table, approximately one-third (n=15) of RNs indicated they received the DAISY award. There were 11 critical and 4 non-critical care RNs who reported receiving the award (i.e. 33% of respective populations). Three of seven GMU RNs reported receiving the DAISY award while employed at the study hospital.
Table 25. Job Performance Award Received by Registered Nurses

<table>
<thead>
<tr>
<th>Job performance award</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNs Overall</td>
<td>15</td>
<td>28</td>
<td>43</td>
</tr>
<tr>
<td>Critical</td>
<td>11</td>
<td>20</td>
<td>31</td>
</tr>
<tr>
<td>Non-critical</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>GMU</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>
Job Performance and HPI Personality Traits

As previously mentioned in Chapter 2, several studies and meta-analyses on personality and job performance found that three of the Five Factor Model (FFM) traits, Conscientiousness, Agreeableness, and Emotionality Stability, were positively related to job performance (Barrick & Mount, 1991; Mount et al, 1998; Hogan & Holland, 2003). Furthermore, a meta-analysis of performance criteria for the professional job family, including the medical field, also found Prudence as a significant predictor of job performance (Hogan, 2007).

Hogan’s Personality Inventory manual provides correlations between HPI and various personality assessments and inventories. As seen in the Table 26, the HPI traits correlated with FFM traits previously related to job performance are Prudence, Interpersonal Sensitivity, and Adjustment. These personality traits were used to explore relationships that may exist with job performance for nurses in general, critical and non-critical care, and GMU nurses in this study.

Table 26. Five Factor Model and Hogan Personality Inventory Personality Trait Correlations

<table>
<thead>
<tr>
<th>Five Factor Model (FFM)</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Emotionality Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hogan’s Personality Inventory (HPI)</td>
<td>Interpersonal Sensitivity (r = .50)</td>
<td>Prudence (r = .47)</td>
<td>Adjustment (r = .69)</td>
</tr>
</tbody>
</table>

Job Performance Personality Traits

To investigate whether a relationship exists between job performance and personality traits for registered nurses in general, RNs personality scores were first blocked into their respective HPI personality categories (i.e. high, average, and low). As stated earlier, there were 15 RNs overall who received a job performance award. As seen in Figure 3, a majority of RNs (n = 9) who received a job performance award scored high in Prudence (PRU). There were six RNs overall who scored high in Interpersonal Sensitivity (IPS) and average in Adjustment (ADJ). These findings suggest a majority RNs who received an award can likely be seen as dependable, orderly, balanced, and tend to remain calm under pressure. These RNs also promote teamwork and respect their peers.

Figure 3. Job Performance Personality Categories for RNs Receiving an Award
Critical Care RNs

As seen in Figure 4, eight of the 11 critical care RNs who received an award scored high in Prudence. There were six critical care RNs who scored high in Interpersonal Sensitivity (IPS) and four who scored high in Adjustment (ADJ). Similarly, there were four critical care RNs who had received a job performance award and scored average in Adjustment (ADJ). Findings suggest these RNs are dependable, organized, and tend to enjoy teamwork. Furthermore, these critical care nurses may be seen as balanced and exhibit resiliency under stressful times.

Figure 4. Job Performance Personality Categories of Critical Care RNs Receiving an Award
Non-Critical Care RNs

As seen in Figure 5, two of three non-critical care RNs who received the DAISY award scored *low* in Adjustment (ADJ) and two scored *average* Interpersonal Sensitivity (IPS). These non-critical care RNs are concerned about their work product and oftentimes use feedback as a way to improve performance. Scoring *average* in Interpersonal Sensitivity (IPS) suggest the two non-critical care RNs who received a job performance award are cooperative, friendly, and comfortable with challenging encounters.

![Figure 5. Job Performance Personality Categories for Non-Critical Care RNs Receiving an Award](image)

Figure 5. Job Performance Personality Categories for Non-Critical Care RNs Receiving an Award
General Medical Unit (GMU) RNs

As seen in Figure 6, all three GMU RNs who received a job performance award scored low in Adjustment. As seen in non-critical care RNs, these three GMU RNs are usually concerned with their work product; oftentimes use feedback as a way improve performance. There were two GMU nurses who scored average in Interpersonal Sensitivity (IPS) and two scored average in Prudence (PRU). The two general medical nurses who received the DAISY award and scored average in IPS are seen as friendly and cooperative, while the two RNs who scored average in PRU are seen responsible, able to tolerate close supervision, and oftentimes able to look beyond standard procedures to solve problems.

![Figure 6. Job Performance Personality Categories for General Medical Unit RNs Receiving an Award](image)

---

**Figure 6.** Job Performance Personality Categories for General Medical Unit RNs Receiving an Award
Relationship between Job Performance and HPI Traits

**RNs overall.** To determine the relationship between RNs’ personality traits and receipt of a job performance award, a Chi-square test of independence was performed. Test analysis found no statistically significant relationships between personality traits and receipt of job performance award for nurses in general.

**Critical care nurses.** To explore the relationship existing between receipt of job performance award and personality for critical and non-critical care RNs, similar Chi-square tests were performed. Analysis found a significant relationship between those who scored low in Adjustment and receipt of job performance award for critical care RNs ($\chi^2(1) = 4.29, p < .05$). Cramer’s V test suggest that critical care RNs who are less tense under pressure, less anxious, and less overly critical were more likely to have received a job performance award.

A relationship was also found between critical care RNs who scored high in Interpersonal Sensitivity and receipt of job performance award ($\chi^2(1) = 4.40, p < .05$). Findings suggest that critical care RNs who are seen as dependable, trustworthy, considerate, and a team player were more likely to have received a job performance award. These findings are similar to the studies and meta-analyses concerning job performance and personality traits. These studies found individuals who are more compassionate, cooperative, and remain calm pressure were usually high performers in their workplace.
Unique to this study, analysis uncovered a strong relationship between those who scored high in Learning Approach and job performance ($\chi^2 (1) = 8.10, p < .05$). Findings suggest that critical care RNs who are goal-oriented and up-to-date on the latest trends are more likely to have received a job performance award.

**Non-critical care and GMU nurses.** A Chi-square analysis was also used to explore relationships between HPI personality traits and receipt of a job performance award for non-critical care and general medical unit nurses. Test analysis did not find any statistically significant correlations between these two variables for either group of nurses.
Objective 3: Personality Traits and Job Satisfaction

The third objective of this study was to explore relationships existing between personality traits and job satisfaction for RNs in various specialties. Using Scarpello and Campbell’s global measure, RNs were asked the following question: “Overall, how satisfied are you with your job?” Responses were indicated using a 5-point Likert scale ranging from 1 = very dissatisfied to 5 = very satisfied. As seen in Figure 7, a majority of RNs (83%, n = 35) who responded were either “satisfied” or “very satisfied” with their current job. Less than 10% (n = 4) indicated they were “very dissatisfied” with their job.

Figure 7. Job Satisfaction for RNs overall, Critical, and Non-critical, and GMU RNs
Just over three-fourths of critical care RNs (n = 25) were either “satisfied” or “somewhat satisfied” with their current job. Four (13%) critical care RNs stated they were “neither satisfied nor dissatisfied” with their current job. In terms of non-critical care, a majority of the RNs were either “very satisfied” or “somewhat satisfied” with their current job. There was one critical care nurse who was “somewhat dissatisfied” with his/her job. All GMU nurses reported being “somewhat satisfied” or “very satisfied with their current job. These findings support Beurhaus’ (2005) study, which found that RNs were generally happy with their job.

To investigate whether critical and non-critical care RNs differ on job satisfaction, an independent t-test of proportions was computed. Analysis found no significant difference between the level of job satisfaction for these two groups of nurses (t (40) = -.028, p > .05). These results are contrary to Dear (1982) study, which found a higher level of job satisfaction for ICU RNs than non-critical care nurses.

**Job Satisfaction and HPI Traits**

Evidence from previous studies and meta-analysis found that four of the Five Factor Model (FFM) traits were predictive of high job satisfaction. These four personality traits were: Neuroticism, Conscientiousness, Agreeableness, and Extraversion. In fact, a study by (Ahmas & Razzach, 1983) found that low levels of Neuroticism were predictive of higher job satisfaction. In addition, another study found that high levels of Agreeableness were also associated with increased job satisfaction (Judge et al, 2000).
Table 27 summarizes the correlations between the Five Factor Model (FFM) and Hogan’s Personality Inventory (HPI) traits.

Table 27. Summary Correlations between HPI and FFM Personality Traits

<table>
<thead>
<tr>
<th>HPI</th>
<th>Adjustment (r = .69)</th>
<th>Ambition (r = .52)</th>
<th>Sociability (r = .58)</th>
<th>Interpersonal Sensitivity (r = .50)</th>
<th>Prudence (r = .47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFM Neuroticism</td>
<td>Extraversion</td>
<td>Agreeableness</td>
<td>Conscientiousness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


A summary of descriptive statistics for RNs response to overall job satisfaction and personality traits previously linked to job satisfaction can be seen in Table 28. As stated earlier, job satisfaction was coded into four dummy variables, with very satisfied serving as the reference category.
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
<th>Kurtosis Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSAT</td>
<td>42</td>
<td>1</td>
<td>5</td>
<td>3.33</td>
<td>1.000</td>
<td>-.645</td>
<td>.365</td>
<td>2.336</td>
<td>.717</td>
</tr>
<tr>
<td>ADJ</td>
<td>52</td>
<td>3</td>
<td>94</td>
<td>40.750</td>
<td>25.551</td>
<td>.276</td>
<td>.330</td>
<td>-.993</td>
<td>.650</td>
</tr>
<tr>
<td>AMB</td>
<td>52</td>
<td>1</td>
<td>100</td>
<td>34.019</td>
<td>24.289</td>
<td>.662</td>
<td>.330</td>
<td>.029</td>
<td>.650</td>
</tr>
<tr>
<td>SOC</td>
<td>52</td>
<td>1</td>
<td>98</td>
<td>36.576</td>
<td>28.926</td>
<td>.421</td>
<td>.330</td>
<td>-.960</td>
<td>.650</td>
</tr>
<tr>
<td>PRU</td>
<td>52</td>
<td>9</td>
<td>100</td>
<td>47.615</td>
<td>28.753</td>
<td>-.241</td>
<td>.330</td>
<td>-1.358</td>
<td>.650</td>
</tr>
<tr>
<td>IPS</td>
<td>52</td>
<td>4</td>
<td>100</td>
<td>58.134</td>
<td>32.328</td>
<td>.259</td>
<td>.330</td>
<td>-1.406</td>
<td>.650</td>
</tr>
</tbody>
</table>

JSAT = Job Satisfaction, ADJ = Adjustment, AMB = Ambition, SOC = Sociability, PRU = Prudence, IPS = Interpersonal Sensitivity
**Relationship between Job Satisfaction and HPI Traits**

**RNs overall.** To examine the relationship between overall job satisfaction and personality traits for RNs in general, scatter plots were visually inspected. The relationship between job satisfaction and HPI traits appears to follow a non-linear form, possibly logarithmic, cubic or quadratic in nature. A regression analysis was conducted between job satisfaction and personality traits for RNs overall. Partial plots and normality plots were requested. Review of these plots suggests a non-linear relationship between overall job satisfaction and most of the associated HPI personality traits.

To determine and estimate the proper functional form for the relationship between these variables, a curve fit estimation was performed. This method for analyzing the proper functional form is based on the concept that the estimate regression should be the best least unbiased estimator of the relationship between the variables. A curve fit estimation procedure in SPSS was performed using linear, logarithmic, quadratic, cubic, exponential, power, and growth models. Analysis suggested significant relationship exists between job satisfaction and two of the seven HPI traits (i.e. Sociability and Prudence) for RNs in general. A summary of the curve estimation procedure can be seen in Tables 29 and 32.

As seen in the Table 28, the cubic model appears to be the only statistically significant (p < .05) model. This model also has the highest $R^2$ value (.187) among the fit estimation models presented. Therefore, the cubic model was selected to describe the relationship between job satisfaction and Sociability for RNs in general.
Table 29. Curve Fitting Estimation for Overall Job Satisfaction and Sociability for RNs

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$F$</td>
</tr>
<tr>
<td>Linear</td>
<td>.017</td>
<td>.684</td>
</tr>
<tr>
<td>Logarithmic</td>
<td>.000</td>
<td>.007</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.046</td>
<td>.934</td>
</tr>
<tr>
<td>Cubic</td>
<td>.187</td>
<td>2.920</td>
</tr>
<tr>
<td>Power</td>
<td>.008</td>
<td>.337</td>
</tr>
<tr>
<td>Growth</td>
<td>.017</td>
<td>.684</td>
</tr>
<tr>
<td>Exponential</td>
<td>.000</td>
<td>.007</td>
</tr>
</tbody>
</table>

The independent variable is Sociability
A regression analysis was conducted between job satisfaction and Sociability. Table 30 provides a summary of the model results. As seen in the table, this model produced an adjusted $R^2$ of .123, indicating that 12.3% of the variance in job satisfaction is explained by Sociability for nurses in general. The ANOVA for this model indicates a statistically significant relationship exists between the two variables ($F = 2.290$, $p < .05$).

Table 30. Summary Model for Sociability and Job Satisfaction for RNs Overall

<table>
<thead>
<tr>
<th>Model Summary</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>.433</td>
<td>.187</td>
<td>.123</td>
</tr>
<tr>
<td>R Square</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Error of the Estimate</td>
<td>22.481</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 31. Analysis suggests that job satisfaction increases as Sociability increase for RNs overall. In other words, RNs who are more socially accepting, enjoy interacting with others, and talkative are more likely to be satisfied with their job. Findings from this study align with previous research linking FFM trait Extraversion (aka Sociability) to job satisfaction (Judge et al, 2000).
Table 3. Simple Regression Analysis Summary for Sociability and Job Satisfaction for RNs Overall

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC</td>
<td>2.537</td>
<td>.942</td>
<td>3.230**</td>
</tr>
<tr>
<td>SOC2</td>
<td>-.071</td>
<td>.026</td>
<td>-8.202**</td>
</tr>
<tr>
<td>SOC3</td>
<td>.000</td>
<td>.000</td>
<td>5.012*</td>
</tr>
<tr>
<td>Constant</td>
<td>35.182</td>
<td>7.887</td>
<td></td>
</tr>
</tbody>
</table>

Note. Adjusted $R^2 = .123$, $F(1, 40) = 2.290$, $p < .05$; Constant = Job Satisfaction (5 point Likert scale: 1 - very dissatisfied .... 5 - very satisfied), *$p < .05$** $p < .01$, $B =$ unstandardized coefficient, SEB = standardized error, $\beta =$ standardized coefficient.

The curve estimation procedure was conducted again between Prudence and job satisfaction for RNs overall. Summary results can be viewed in Table 32. As seen in the table, several significant models could possibly describe the relationship between these two variables (i.e., linear, logarithmic, quadratic, and power) for nurses in general. Upon inspection of the table, the quadratic model appears to have the highest $R^2$ value (.143). This model was compared to the linear model; producing a non-significant incremental $F$ statistic = 1.18 ($p > .05$). This suggests that the linear model is a better predictor of the relationship between job satisfaction and Prudence for RNs in general, although the linear model has a lower $R^2$ (.117). This linear model also has fewer terms than the quadratic model and was chosen to describe the relationship between the two variables.
Table 32. Curve Fitting Estimation for Overall Job Satisfaction and Prudence for RNs

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
<td>F</td>
</tr>
<tr>
<td>Linear</td>
<td>.117</td>
<td>5.286</td>
</tr>
<tr>
<td>Logarithmic</td>
<td>.141</td>
<td>6.541</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.143</td>
<td>3.251</td>
</tr>
<tr>
<td>Cubic</td>
<td>.162</td>
<td>2.448</td>
</tr>
<tr>
<td>Power</td>
<td>.134</td>
<td>6.191</td>
</tr>
<tr>
<td>Growth</td>
<td>.087</td>
<td>3.804</td>
</tr>
<tr>
<td>Exponential</td>
<td>.087</td>
<td>3.084</td>
</tr>
</tbody>
</table>

The independent variable is Prudence
A regression analysis was conducted between job satisfaction and Prudence.

Table 33 provides a summary of the results. As seen in the table, this model produced an adjusted $R^2$ of .095, indicating that Prudence explains 9.5% of the variance in job satisfaction for nurses in general. An ANOVA for this model indicates that this relationship is significant ($F = 5.286, p < .05$). A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 34.

### Table 33. Summary Model for Prudence and Job Satisfaction for RNs Overall

<table>
<thead>
<tr>
<th>Model Summary</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>.342</td>
<td>.117</td>
<td>.095</td>
<td>22.844</td>
</tr>
</tbody>
</table>

### Table 34. Simple Regression Analysis Summary for Prudence and Job Satisfaction for Nurses Overall

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRU</td>
<td>.293</td>
<td>.127</td>
<td>.342*</td>
</tr>
<tr>
<td>JSAT (Constant)</td>
<td>28.18</td>
<td>8.25</td>
<td></td>
</tr>
</tbody>
</table>

Note. Adjusted $R^2 = .095$ ($F(1,37) = 5.286, p < .05$); PRU = Prudence, JSAT = job satisfaction (5 point Likert scale: 1 - very dissatisfied …..5 -very satisfied); *$p < .05$, B = unstandardized coefficient, SEB = standardized error, $\beta$ = standardized coefficient
Findings suggest as the level or degree of conscientious increases (i.e. Prudence), job satisfaction also increases for RNs overall. These results partially support meta-analysis studying the link between these two variables (Judge, Heller, & Mount, 2002). The findings of this study also align with Kovach (2010) study on certified nurse aides as well as Meeusen (2010) research involving nurse anesthetists that also found a positive relationship between the two variables. In addition, the amount of variance in Prudence predicting job satisfaction was similar between findings from this study and Meeusen’s study (11%). Similar to results from Meeusen’s research, this study found a significant relationship between job satisfaction and Sociability for RNs overall. All together findings from these studies suggest that a certain level of conscientiousness is required for job satisfaction in nurses in general.

Further, a multiple regression analysis was conducted to determine the best linear combination of Sociability and Prudence for predicting job satisfaction for RNs overall. Assumptions of linearity, normally distributed errors, and uncorrelated errors were checked and met. Analysis found that both Sociability and Prudence significantly predicted job satisfaction, \( F(3,37) = 3.538, \ p < .05 \) for nurses in general. The adjusted \( R^2 \) (.198), indicates that approximately 19.8% of the variance in job satisfaction can be explained by the model (Table 35). This model demonstrates a slight improvement over the original regression models of the relationships between personality traits and job satisfaction separately. These models produced adjusted \( R^2 \) values of 12% and 10%.
respectively. Table 36 provides the regression summary model for Sociability and Prudence predicting job satisfaction for RNs overall.

**Table 35. Model Summary for Sociability, Prudence, and Job Satisfaction for RNs Overall**

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.526</td>
<td>.277</td>
<td>.198</td>
<td>21.49468</td>
</tr>
</tbody>
</table>

**Table 36. Multiple Regression Analysis Summary for Sociability and Prudence Predicting Job Satisfaction for RNs Overall**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRU</td>
<td>.281</td>
<td>.132</td>
<td>.329*</td>
</tr>
<tr>
<td>SOC</td>
<td>2.532</td>
<td>.900</td>
<td>3.223**</td>
</tr>
<tr>
<td>SOC²</td>
<td>-.066</td>
<td>.025</td>
<td>-7.612</td>
</tr>
<tr>
<td>SOC³</td>
<td>.000</td>
<td>.000</td>
<td>4.530*</td>
</tr>
<tr>
<td>Constant</td>
<td>14.884</td>
<td>12.127</td>
<td></td>
</tr>
</tbody>
</table>

Note: $R^2 = .198; F(3,37) = 3.538, \ p < .05, *p < .05; **p < .01; \ Constant = JSAT, B= unstandardized coefficient, SEB= standardized error, β= standardized coefficient
Critical care nurses. To examine relationships between overall job satisfaction and personality traits for critical care RNs, scatter plots were visually inspected. Upon inspection of the scatterplots, the relationship between job satisfaction and HPI traits appeared to follow a non-linear form. A regression analysis was performed between job satisfaction and personality traits for RNs overall. A review of these partial and normality plots suggested both linear and non-linear relationships between overall job satisfaction and most of the associated personality traits.

To determine and estimate the proper functional form for the relationship between these variables for critical care nurses, a curve fit estimation was performed in SPSS using linear, logarithmic, quadratic, cubic, exponential, power, and growth models.

Analysis revealed significant relationships between job satisfaction and two of the seven HPI personality traits (i.e. Sociability and Prudence) for RNs overall. A summary of the curve estimation procedure can be seen in Tables 37 and 40. As seen in the Table 37, the growth model appears to be the only statistically significant (p < .05) model. This model also has the highest $R^2$ value (.137) among the fit estimation models presented. Therefore, growth model was selected to describe the relationship between job satisfaction and Sociability for critical care RNs.
Table 37. Curve Fitting Estimation for Overall Job Satisfaction and Sociability for Critical Care RNs

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$F$</td>
</tr>
<tr>
<td>Linear</td>
<td>.065</td>
<td>1.940</td>
</tr>
<tr>
<td>Logarithmic</td>
<td>.006</td>
<td>.168</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.134</td>
<td>2.097</td>
</tr>
<tr>
<td>Cubic</td>
<td>.182</td>
<td>1.930</td>
</tr>
<tr>
<td>Power</td>
<td>.034</td>
<td>.983</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td>.137</td>
<td>4.428</td>
</tr>
<tr>
<td>Exponential</td>
<td>.137</td>
<td>4.428</td>
</tr>
</tbody>
</table>

The independent variable is Sociability
A regression analysis was conducted between job satisfaction and Sociability. Table 38 provides a summary of the results. As seen in the table, this model produced an adjusted $R^2$ of .106, indicating that Prudence explains 10.6% of the variance in job satisfaction for nurses in general. The ANOVA for this model indicates that this relationship is significant ($F = 5.108$, $p < .05$). A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 39. Analyses suggest that increased Sociability actually decreases job satisfaction for RNs in general.

Table 38. Summary Model for Sociability and Job Satisfaction for Critical Care RNs

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R$</td>
</tr>
<tr>
<td>.370</td>
</tr>
</tbody>
</table>

The independent variable is Sociability

Table 39. Simple Regression Analysis Summary for Sociability and Job Satisfaction for Critical Care RNs

<table>
<thead>
<tr>
<th>Sociability</th>
<th>SEB</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.015</td>
<td>.007</td>
<td>-.370*</td>
</tr>
</tbody>
</table>

(Constant) 4.712 .316

Note: $R^2 = .106$; $F (3,37) = 4.428$, $p < .05$, *$p < .05$; **$p < .01$; Constant = JSAT, B= unstandardized coefficient, SEB= standardized error, $\beta$= standardized coefficient
The curve estimation procedure was computed again between Prudence and job satisfaction for critical care RNs. A summary of results can be viewed in the Table 40. As seen in the table, several significant models could possibly describe the relationship between these two variables for critical care nurses. Upon inspection of the table, the quadratic model appears to have the highest, significant $R^2$ value (.215) and is statistically significant. In addition, the logarithmic and linear models are also significant and could possibly describe the relationship between Prudence and satisfaction. An incremental $F$-test was conducted to first determine if the quadratic model was a better predicator than the logarithmic model in explaining the relationship. The test produced a non-significant $F$ statistic = .091 ($p > .05$); suggesting that the logarithmic model may be a better fit.

The logarithmic model was compared to the linear model, producing a non-significant incremental $F = 1.39$ ($p > .05$). This suggests that the linear model is a better predicator of the relationship between Prudence and job satisfaction for this group of nurses. Although the linear model has a lower $R^2$ (.152) than the quadratic model, it also has fewer terms and therefore used to describe the relationship between the two variables.
Table 40. Curve Fitting Estimation for Prudence and Job Satisfaction for Critical Care RNs

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$F$</td>
</tr>
<tr>
<td>Linear</td>
<td>.152</td>
<td>5.002</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.215</td>
<td>3.704</td>
</tr>
<tr>
<td>Cubic</td>
<td>.238</td>
<td>2.711</td>
</tr>
<tr>
<td>Power</td>
<td>.177</td>
<td>6.038</td>
</tr>
<tr>
<td>Growth</td>
<td>.126</td>
<td>4.039</td>
</tr>
<tr>
<td>Exponential</td>
<td>.126</td>
<td>4.039</td>
</tr>
</tbody>
</table>

The independent variable is Prudence
A regression analysis was conducted between job satisfaction and Prudence for critical care RNs. Table 41 provides a summary of the results. As seen in the table, this model produced an adjusted $R^2$ of .121, indicating that Prudence explains 12.1% of the variance in job satisfaction for nurses in general. The ANOVA for this model indicates that this relationship is significant ($F = 5.002$, $p < .05$). A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 42.

Similar to RNs in general, as the degree of conscientious and dependable increases (i.e., Prudence), job satisfaction also increases for critical care RNs.

Table 41. Summary Model for Prudence and Job Satisfaction for Critical Care RNs

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R</strong></td>
</tr>
<tr>
<td>.389</td>
</tr>
</tbody>
</table>

The independent variable is Prudence

Table 42. Simple Regression Analysis Summary for Prudence and Job Satisfaction for Critical Care RNs

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>SEB</th>
<th>$ß$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prudence</td>
<td>.621</td>
<td>.278</td>
<td>.389*</td>
</tr>
<tr>
<td>(Constant)</td>
<td>55.234</td>
<td>18.222</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** $R^2 = .121$; $F(1,28) = 5.002$ $p < .05$; *$p < .05$; **$p < .01$; Constant = JSAT, $B$= unstandardized coefficient, SEB= standardized error, $ß$= standardized coefficient
**Non-critical care and GMU nurses.** To determine the relationship between overall job satisfaction and personality traits for non-critical care and general medical unit RNs, scatter plots were visually inspected for the possibility of relationships. A regression analysis was conducted between job satisfaction and personality traits for non-critical care and GMU RNs. Partial plots and normality plots were requested. Upon review of these plots suggested non-linear relationships between overall job satisfaction and most of the associated personality traits.

A curve fit estimation was performed to determine the proper form for the relationship between job satisfaction and HPI traits for non-critical and GMU nurses. Analysis found non-significant relationships exiting between job satisfaction and the seven personality traits for both non-critical care and GMU nurses. A Pearson correlation coefficients calculation confirmed a non-significant correlation between overall job satisfaction and personality traits for these groups of nurses.
Objective 4: Personality Traits and Retention

The fourth objective of the study was to explore relationships between personality traits and nurses’ retention. Data analysis performed in the pilot study revealed high multicollinearity between current and future retention. As a result, only one measure of retention was used in the final study analysis; measuring RNs current feelings about staying on the job. Similar to the pilot study, RNs were asked the following: “Which of the following statements most clearly reflects your current feelings about your current job?” Responses were measured on a 5-point Likert scale, ranging from “definitely will not leave” to “definitely will leave.” Retention was coded into dummy variables in order to perform correlation and regression analysis.

RNs Overall

Figure 8 displays nurses’ response to current plans to stay at the job. Over half of RNs (n=27) indicated that they would probably or definitely will not leave. There were 8 RNs (19%) who were uncertain, 6 (14.3%) reported that they will probably leave. One nurse stated he/she will definitely leave their current job.
Figure 8. Retention: RNs Overall

Critical and Non-Critical Care RNs

Figure 9 displays critical and non-critical care RNs’ responses to current feelings about staying on the job. As seen in the figure, there were 11 (35%) of critical care RNs who stated they definitely will not leave their current job. Just over half (55%) of non-critical and 10 (32%) of critical care RNs stated they probably will not leave their job. An equal number of critical care nurses stated they were either uncertain or probably will leave their current job. There was one individual who indicated they will definitely leave his/her current job.
Figure 9. Retention: Critical and Non-Critical Care RNs
General Medical Unit (GMU) RNs

Figure 10 displays general medical unit RNs’ response to current feelings concerning remaining at their current job. As seen in the figure, three of seven GMU RNs stated they “probably will not leave.” There were two nurses on the general medical unit reported being “uncertain” about plans to remain at the study hospital. Two GMU RNs reported they either plan or definitely will leave the study hospital in the near future.

Figure 10. Retention: General Medical Unit (GMU) RNs
Retention and HPI Traits

Meta-analysis on retention and personality traits found that individuals who intend to quit their job usually rate low on Emotional Stability (Zimmerman, 2008). In addition, it was found that an impulsive departure of the job may be experienced by individuals who are either low on Agreeableness or high on Openness (Zimmerman, 2008). As seen in Table 43, the HPI traits correlated with these FFM personality traits are: Adjustment, Interpersonal Sensitivity, Inquisitive, and Learning Approach.

Table 43. Hogan Personality Inventory and Five Factor Model Personality Traits Correlations

<table>
<thead>
<tr>
<th>Five Factor Model (FFM)</th>
<th>Hogan’s Personality Inventory (HPI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreeableness</td>
<td>Interpersonal Sensitivity</td>
</tr>
<tr>
<td></td>
<td>(r = .50)</td>
</tr>
<tr>
<td>Emotional Stability/Neuroticism</td>
<td>Adjustement</td>
</tr>
<tr>
<td></td>
<td>(r = .69)</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>Inquisitive</td>
</tr>
<tr>
<td></td>
<td>(r = .53)</td>
</tr>
<tr>
<td></td>
<td>Learning Approach</td>
</tr>
<tr>
<td></td>
<td>(r = .30)</td>
</tr>
</tbody>
</table>

A summary of descriptive statistics for RNs retention and HPI personality traits previously associated with retention can be seen in Table 44. Retention was coded into dummy variables, with “definitely will not leave” serving as the reference category.
Table 44. Descriptive Summary for HPI Personality Traits and Retention for RNs Overall

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
<th>Kurtosis Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>RET</td>
<td>42</td>
<td>1.00</td>
<td>4.00</td>
<td>2.714</td>
<td>1.088</td>
<td>-.584</td>
<td>.365</td>
<td>-.449</td>
<td>.717</td>
</tr>
<tr>
<td>ADJ</td>
<td>52</td>
<td>3.00</td>
<td>94.00</td>
<td>40.750</td>
<td>25.551</td>
<td>.276</td>
<td>.330</td>
<td>-.993</td>
<td>.650</td>
</tr>
<tr>
<td>INQ</td>
<td>52</td>
<td>1.00</td>
<td>83.00</td>
<td>34.442</td>
<td>22.125</td>
<td>.484</td>
<td>.330</td>
<td>-.562</td>
<td>.650</td>
</tr>
<tr>
<td>IPS</td>
<td>52</td>
<td>4.00</td>
<td>100.00</td>
<td>47.615</td>
<td>32.328</td>
<td>.259</td>
<td>.330</td>
<td>-1.406</td>
<td>.650</td>
</tr>
<tr>
<td>LRN</td>
<td>52</td>
<td>2.00</td>
<td>100.00</td>
<td>57.461</td>
<td>28.076</td>
<td>-.393</td>
<td>.330</td>
<td>-.828</td>
<td>.650</td>
</tr>
<tr>
<td>PRU</td>
<td>52</td>
<td>9.00</td>
<td>100.00</td>
<td>58.134</td>
<td>28.753</td>
<td>-.241</td>
<td>.330</td>
<td>-1.358</td>
<td>.650</td>
</tr>
</tbody>
</table>
**Relationship between Retention and HPI Traits**

**RNs overall.** To examine the relationship between retention and personality traits for RNs in general, scatter plots were visually inspected. The relationship between job satisfaction and the associated HPI traits appear to follow models that may be linear, logarithmic, cubic or quadratic in nature. To determine and estimate the proper functional form for the relationship between these variables, a curve fit estimation was performed in SPSS using the previously mentioned models and included exponential, power, and growth models as well. Analysis suggests statistically significant relationship existing between retention and two of the seven HPI personality traits (i.e., Adjustment and Prudence) for RNs in general. A summary of the curve estimation procedure can be found in Tables 45 and 48.

As seen in Table 45, a few models can possibly describe the relationship between retention and Adjustment for RNs in general. These models include linear, logarithmic, and quadratic. The quadratic model had the highest $R^2 (.161)$ and was compared to the logarithmic model ($R^2 = .154$). The incremental F-test performed between these models produced a non-significant F statistic = .325 ($p > .05$), suggesting the logarithmic models may better describe the relationship between Adjustment and retention. The logarithmic model was then compared to the linear model ($R^2 = .127$). An incremental F-test conducted between the two model produced a non-significant incremental F statistic = 1.28 ($p > .05$). Although the linear model has a lower $R^2 (.127)$ than the quadratic model,
it also has fewer terms and therefore was selected to describe the relationship between the two variables for nurses overall.
<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
<td>F</td>
</tr>
<tr>
<td><strong>Linear</strong></td>
<td>.127</td>
<td>5.794</td>
</tr>
<tr>
<td>Logarithmic</td>
<td>.154</td>
<td>7.304</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.161</td>
<td>3.740</td>
</tr>
<tr>
<td>Cubic</td>
<td>.169</td>
<td>2.572</td>
</tr>
<tr>
<td>Power</td>
<td>.123</td>
<td>5.605</td>
</tr>
<tr>
<td>Growth</td>
<td>.109</td>
<td>4.888</td>
</tr>
<tr>
<td>Exponential</td>
<td>.109</td>
<td>4.888</td>
</tr>
</tbody>
</table>

The independent variable is Adjustment
A regression analysis was conducted between retention and Adjustment for RNs in general. Table 46 provides a summary of the results. As seen in the table, this model produced an adjusted $R^2$ of .105, indicating that Prudence explains 10.5% of the variance in retention for nurses in general. The ANOVA indicated a statistically significant relationship for this model, $F (1,40) = 5.794, p < .05)$. A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 47.

Table 46. Summary Model for Retention and Adjustment for RNs Overall

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>.356</td>
</tr>
</tbody>
</table>

The independent variable is Adjustment

Table 47. Simple Regression Analysis Summary for Adjustment and Retention RNs Overall

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment</td>
<td>.015</td>
<td>.006</td>
<td>.356*</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.087</td>
<td>.305</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Adjusted $R^2 = .105; F (1,40) = 5.794, p < .05; *p < .05; Constant = Retention, B = unstandardized coefficient, SEB = standardized error, $\beta$ = standardized coefficient*
Findings suggest that as the level of Adjustment increases, so does intentions to remain on the job. In other words, RNs who stay calm under pressure, avoid overreacting, and show resiliency under stressful time, are more likelihood to remain at their job. Results of this study were similar to findings from the meta-analysis which found individuals with low Emotional Stability (i.e. low Adjustment) are more likely to leave their current job (Zimmerman, 2008).

Unique to this study, there appeared to be a significant relationship between these two variables. Such that, the curve estimation procedure was performed again between Prudence and retention. Summary of model results can be viewed in the Table 48. As seen in the table, several significant models could possibly describe the relationship including linear, logarithmic, and quadratic for nurses in general. Upon inspection of the table, the quadratic and cubic models had the highest $R^2$ value (.145).

The quadratic model was compared to the linear model which produced a non-significant incremental $F = .365 (p > .05)$. This suggests that the linear model may be a better predicator of the relationship between retention and Adjustment for RNs in general. Although the linear model has a lower $R^2$ value (.137), it also has fewer terms than the quadratic model and was used to described the relationship between the two variables.
Table 48. Curve Fitting Estimation for Retention and Prudence for RNs Overall

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
<td>F</td>
</tr>
<tr>
<td>Linear</td>
<td>.137</td>
<td>6.337</td>
</tr>
<tr>
<td>Logarithmic</td>
<td>.115</td>
<td>5.218</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.145</td>
<td>3.304</td>
</tr>
<tr>
<td>Cubic</td>
<td>.145</td>
<td>2.148</td>
</tr>
<tr>
<td>Power</td>
<td>.074</td>
<td>3.195</td>
</tr>
<tr>
<td>Growth</td>
<td>.094</td>
<td>4.169</td>
</tr>
<tr>
<td>Exponential</td>
<td>.094</td>
<td>4.169</td>
</tr>
</tbody>
</table>

The independent variable is Prudence
A regression analysis was conducted between retention and Prudence for RNs in general. Table 49 provides a summary of the results. As seen in the table, this model produced an adjusted R\(^2\) of .115, indicating that Prudence explains approximately 12\% of the variance in retention for nurses in general.

Table 49. Summary Model for Prudence and Retention for RNs Overall

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>.370</td>
</tr>
</tbody>
</table>

The independent variable is Prudence

The ANOVA for this model indicates that this relationship is significant (F = 6.337, p < .05). A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 50. Results of the regression analysis suggest that as the level of Prudence increases, so does retention levels. In other words, as RNs’ level of conscientious, sense of dependability and conformance increases, so does the likelihood to remain on the job.
Critical care nurses. To determine the relationship between personality traits and retention for critical care nurses, descriptive statistics and scatterplots were inspected. A summary of descriptive statistics can be viewed in Table 51.

Table 51. Descriptive Summary for Associated HPI traits and Retention

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Skewness Statistic</th>
<th>Skewness Std. Error</th>
<th>Kurtosis Statistic</th>
<th>Kurtosis Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>RET</td>
<td>30</td>
<td>3.933</td>
<td>1.048</td>
<td>1.00</td>
<td>5.00</td>
<td>-.629</td>
<td>.427</td>
<td>-.741</td>
<td>.833</td>
</tr>
<tr>
<td>ADJ</td>
<td>34</td>
<td>39.470</td>
<td>24.405</td>
<td>3.00</td>
<td>84.00</td>
<td>.274</td>
<td>.403</td>
<td>-1.039</td>
<td>.788</td>
</tr>
<tr>
<td>IPS</td>
<td>34</td>
<td>49.00</td>
<td>34.291</td>
<td>4.00</td>
<td>100.00</td>
<td>.109</td>
<td>.403</td>
<td>-1.655</td>
<td>.788</td>
</tr>
<tr>
<td>INQ</td>
<td>34</td>
<td>30.705</td>
<td>19.865</td>
<td>1.00</td>
<td>83.00</td>
<td>.429</td>
<td>.403</td>
<td>-.165</td>
<td>.788</td>
</tr>
<tr>
<td>LRN</td>
<td>34</td>
<td>58.205</td>
<td>27.452</td>
<td>2.00</td>
<td>95.00</td>
<td>-.557</td>
<td>.403</td>
<td>-.645</td>
<td>.788</td>
</tr>
<tr>
<td>PRU</td>
<td>34</td>
<td>57.382</td>
<td>30.023</td>
<td>9.00</td>
<td>100.00</td>
<td>-.264</td>
<td>.403</td>
<td>-1.448</td>
<td>.788</td>
</tr>
</tbody>
</table>

RET = Retention, ADJ = Adjustment, IPS = Interpersonal Sensitivity, INQ = Inquisitive, LRN = Learning Approach, PRU = Prudence
Upon inspection of the scatter and partial plots reveal both linear and non-linear relationships between the variables for critical care nurses in this study. To determine the proper functional form for the relationship, a curve fit estimation was performed. In SPSS using linear, logarithmic, quadratic, cubic, exponential, power, and growth models. Analysis suggests statistically significant relationship existing between retention and two of the seven HPI personality traits (i.e., Adjustment and Prudence) for this group of nurses. A summary of the curve estimation procedure can be seen in Tables 52 and 55.

As seen in Table 52, several models can possibly describe the relationship between retention and Adjustment. The quadratic model had the highest $R^2$ (.245) and was compared to the logarithmic model ($R^2 = .218$). Analysis revealed a non-significant $F$ statistic = .967 ($p > .05$) which suggest that the logarithmic model could possibly be a better model fit for the relationship between the two variables. As seen in the table, the relationship between Adjustment and retention could also be linear ($p < .05$). Therefore, the logarithmic model was also compared to the linear model. Analysis produced a non-significant incremental $F$ statistic = 1.075 ($p > .05$); suggesting that the linear model may be a better fit for the relationship between retention and Adjustment. Although the linear model has a lower $R^2$ (.188), it also has fewer terms than the logarithmic model.
Table 52. Curve Fitting Estimation for Adjustment and Retention for Critical Care RNs

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R²</td>
<td>F</td>
</tr>
<tr>
<td>Linear</td>
<td>.188</td>
<td>6.466</td>
</tr>
<tr>
<td>Logarithmic</td>
<td>.218</td>
<td>7.793</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.245</td>
<td>4.374</td>
</tr>
<tr>
<td>Cubic</td>
<td>.251</td>
<td>2.904</td>
</tr>
<tr>
<td>Power</td>
<td>.202</td>
<td>7.083</td>
</tr>
<tr>
<td>Growth</td>
<td>.178</td>
<td>6.068</td>
</tr>
<tr>
<td>Exponential</td>
<td>.178</td>
<td>6.068</td>
</tr>
</tbody>
</table>

The independent variable is Adjustment
A regression analysis was conducted between retention and Adjustment for critical care RNs. Table 53 provides a summary of the results. As seen in the table, this model produced an adjusted $R^2$ of .159, indicating that Adjustment explains approximately 16% of the variance in retention for this group of nurses. An ANOVA for this model indicates that this relationship is significant, $F (1, 28) = 5.978, p < .05$.

Table 53. Summary Model for Adjustment and Retention for Critical Care RNs

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R</strong></td>
</tr>
<tr>
<td>.433</td>
</tr>
</tbody>
</table>

The independent variable is Adjustment

A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 54. Findings suggest that as Adjustment increases, retention also increases. Similar to RNs in general, critical care RNs who are better at staying calm under pressure and stressful times and avoid overreacting are also likely to remain on their job.
Table 5. Simple Regression Analysis Summary for Adjustment and Retention for Critical Care RNs

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>ß</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ</td>
<td>.018</td>
<td>.007</td>
<td>.433*</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.202</td>
<td>.337</td>
<td></td>
</tr>
</tbody>
</table>

Note: R² = .159; F(1,28) = 6.466, p < .05; *p < .05; Constant = Retention, B = unstandardized coefficient, SEB = standardized error, ß = standardized coefficient

The curve estimation procedure was performed again between Prudence and retention. Summary results can be viewed in the Table 5. As seen in the table, several significant models could possibly describe the relationship between these two variables for critical care nurses. Upon inspection of the table, the cubic model appears to have the highest, significant R² value (.282). This model was first compared to the quadratic model (R² = .277, p < .05. The incremental F test produced a non-significant test statistic = .181, p > .05; suggesting that the quadratic model may be a better fit to describe the relationship between the Prudence and retention for critical care RNs. The logarithmic model also showed promise of being able to describe the relationship between the two variables. As a result, a comparison was conducted between the quadratic and logarithmic models. The incremental F-test analysis produced a non-significant statistic (F = .326, p > .05) which suggest that the logarithmic model may better explain the relationship than the quadratic model. Lastly, curve estimation procedures also uncovered a significant linear relationship may exist between Prudence and retention for this group of nurses.
Table 55. Curve Fitting Estimation for Retention and Prudence for Critical Care RNs

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$F$</td>
</tr>
<tr>
<td><strong>Linear</strong></td>
<td>.261</td>
<td>9.871</td>
</tr>
<tr>
<td><strong>Logarithmic</strong></td>
<td>.268</td>
<td>10.271</td>
</tr>
<tr>
<td><strong>Quadratic</strong></td>
<td>.277</td>
<td>5.185</td>
</tr>
<tr>
<td><strong>Cubic</strong></td>
<td>.282</td>
<td>3.409</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>.247</td>
<td>9.205</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td>.244</td>
<td>9.034</td>
</tr>
<tr>
<td><strong>Exponential</strong></td>
<td>.244</td>
<td>9.034</td>
</tr>
</tbody>
</table>

The independent variable is Prudence.
An incremental F-test was conducted to determine if the linear model was a better predicator of the relationship between the two variables. This test produced a non-significant F-test statistic = 3.13 (p > .05); suggesting that the linear model is a better predicator of the relationship between job satisfaction and Prudence for critical care RNs. Although the linear model has a lower $R^2$ value (.261) model, it also has fewer terms than the quadratic model and therefore chosen to describe the relationship between the two variables.

A regression analysis was conducted for Prudence and retention for critical care nurses. Table 56 provides a summary of the results. As seen in the table, this model produced an adjusted $R^2$ of .234, indicating that Prudence explains approximately 23.4% of the variance in retention for critical care nurses. An ANOVA for this model indicates that this relationship is significant ($F = 9.871, p < .01$). A summary of the regression coefficients, F-tests, and Standardized Beta coefficients can be viewed in Table 57.

Table 56. Summary Model for Retention and Prudence for Critical Care RNs

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.511</td>
<td>.261</td>
<td>.234</td>
<td>.917</td>
</tr>
</tbody>
</table>

The independent variable is Prudence
Table 5.7. Simple Regression Analysis Summary for Prudence and Retention for Critical Care RNs

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prudence</td>
<td>.018</td>
<td>.006</td>
<td>.511*</td>
</tr>
<tr>
<td>(Constant)</td>
<td>2.854</td>
<td>.382</td>
<td></td>
</tr>
</tbody>
</table>

Note: $R^2 = .234$; $F(1,28) = 9.871$, $p < .05$; *$p < .05$; Constant = Retention, B = unstandardized coefficient, SEB = standardized error, β = standardized coefficient

Analysis suggests that, similar to RNs in general, critical care nurses, as conformance and self-acceptance increases, so is the likelihood of these RNs to remain on the job. These study findings from this study suggest that nurses in general and critical care RNs may be similar to other populations (Zimmerman, 2008) in terms level of conformance and intent to stay.

**Non-critical care and GMU nurses.** Curve estimation procedures performed for non-critical care and GMU nurses revealed that none of the models were able to predict the relationship between retention and HPI personality traits.

**Summary of Nurses’ Personality Traits**

Table 58 provides a summary of personality traits exhibited by nurses in general, critical, non-critical, and general medical unit nurses. Registered nurses, in general, possess traits of being balanced, practical, friendly, cooperation, responsible, and task-oriented. Critical care nurses are good team players, remain calm under pressure, pay attention to detail, and can tolerate repetitive behavior. Non-critical nurses are resourceful, problem solvers, open minded, and focused on the big picture. These nurses
are very imaginative thinkers and willing to listen to others. Although no statistically
differences were found between critical and non-critical care RNs in terms of average
personality scores, analysis did reveal that more non-critical care nurses scored high in
Inquisitive than critical care nurses. These findings contradict Kennedy’s study (2014)
which found that critical care RNs scored higher than non-critical care RNs concerning
this personality trait.

Overall, GMU nurses are balanced, stable, and prefer to have tasks assigned to
them. These nurses may also be seen as friendly and approachable. Findings from this
study support research on personality traits of palliative and oncology nurses conducted
Table 58. Summary of Personality Traits for Registered Nurses in General, Critical, Non-critical, and GMU RNs

<table>
<thead>
<tr>
<th>Personality Traits</th>
<th>Mean (Personality Category)</th>
<th>RNs Overall</th>
<th>Critical Care RNs</th>
<th>Non-critical Care RNs</th>
<th>GMU RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Critical Care RNs</td>
<td>Non-critical Care RNs</td>
<td>GMU RNs</td>
</tr>
<tr>
<td>Adjustment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BN 41 (Average)</td>
<td>39 (Average)</td>
<td>43 (Average)</td>
<td>36 (Average)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambition</td>
<td>34 (Low)</td>
<td>36 (Average)</td>
<td>30 (Low)</td>
<td>32 (Low)</td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>37 (Average)</td>
<td>35 (Average)</td>
<td>40 (Average)</td>
<td>47 (Average)</td>
<td></td>
</tr>
<tr>
<td>Prudence</td>
<td>58 (Average)</td>
<td>57 (Average)</td>
<td>60 (Average)</td>
<td>60 (Average)</td>
<td></td>
</tr>
<tr>
<td>Interpersonal</td>
<td>48 (Average)</td>
<td>49 (Average)</td>
<td>45 (Average)</td>
<td>51 (Average)</td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inquisitive</td>
<td>34 (Low)</td>
<td>31 (Low)*</td>
<td>42 (Average)*</td>
<td>37 (Average)</td>
<td></td>
</tr>
<tr>
<td>Learning Approach</td>
<td>57 (Average)</td>
<td>58 (Average)</td>
<td>56 (Average)</td>
<td>54 (Average)</td>
<td></td>
</tr>
</tbody>
</table>

*significant difference in proportions, p < .05
Table 59 provides a summary of significant relationships found between HPI traits and job-related outcomes for RNs in the study (i.e. Objectives 2 through 4). The table also displays previous studies that were supported by findings from this research. As seen in the table, critical care nurses who received a job performance award were considered goal-oriented; often using feedback to make improvements (i.e. low Adjustment). These findings support Ahmas and Razzach’s meta-analysis (1983), which focused on personality traits and job performance. These RNs are also socially sensitive, trustworthy, nurturing, considerate, and good team players (i.e. high Interpersonal Sensitivity). Study findings support Barrick and Mounts’ meta-analyses (1991) linking personality traits to job performance.

Registered nurses in general and critical care nurses who are satisfied with their job are also orderly, dependable, organized, responsible, and conforming (i.e. Sociability). Study findings support research conducted by Judge et al (2000) and Kovach (2010, which positive relationships between the two variables. Analysis also found that Sociability accounts for approximately 11% of variance in job satisfaction for RNs in general and for 12% of variance for critical care nurses. These findings were very similar to Meeusen et al.’s study, which found Sociability explaining 12% of variance in job satisfaction (2010). Unique to this study, it was found that critical care RNs who received a job performance award also tend to holding high standards of themselves and of others and up-to date on the latest trends in the field (i.e. high Learning Approach).
Critical care and nurses in general who are calm, accepting and show resiliency during stressful situations (i.e. Adjustment) are more likely to remain at job. These results support Zimmerman’s meta-analysis, which focused on generating a path analysis model to explaining the impact of personality on the rate of retention (2008). Unique to this study, curve estimation and regression analysis revealed a significant, positive relationship between Prudence and retention for both nurses in general and critical care RNs.
Table 59. Summary of Significant Relationships between HPI Traits and Job-related Outcomes and Support of Previous Literature for RNs

<table>
<thead>
<tr>
<th>Objective 2</th>
<th>Personality and Performance</th>
<th>RNS Overall</th>
<th>Critical Care RNs</th>
<th>Study Findings Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>High Learning Approach</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective 3</th>
<th>Personality and Satisfaction</th>
<th>RNS Overall</th>
<th>Critical Care RNs</th>
<th>Study Findings Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relationship Variance</td>
<td>Sociability (Cubic)</td>
<td>Sociability (Growth)</td>
<td>Judge et al, 2000; Kovach, 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.3%</td>
<td>10.6%</td>
<td>11% (Meeusen et al., 2010) Judge, Heller, &amp; Mount, 2002</td>
</tr>
<tr>
<td></td>
<td>Relationship</td>
<td>Prudence (Linear)</td>
<td>Prudence (Linear)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective 4</th>
<th>Personality and Retention</th>
<th>RNS Overall</th>
<th>Critical Care RNs</th>
<th>Study Findings Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjustment</td>
<td>Adjustment (Linear)</td>
<td>Adjustment (Linear)</td>
<td>Zimmerman, 2008</td>
</tr>
<tr>
<td></td>
<td>*Prudence</td>
<td>*Prudence (Linear)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*unique to the study
Objective 5: Model for Person-Job Fit

The last objective of this study was to propose a model to evaluate job-fit for registered nurses based on personality traits. Person-job (P-J) fit is best described as when individual skills meet the demands of a specific job (demands–abilities fit) or when the job meets the needs of the individual (needs–supplies fit) (Brkich et al., 2002). On the subjectively side, P-J fit refers to how employees feel about their match to the job or how well they will perform based on their subjective fit (Brkich et al., 2002). Objectively speaking, this phenomenon refers to how well an individual’s characteristics and preference are linked to their job (Brkich et al., 2002). Person-job fit has been well researched in psychology, individual and organizational behavioral science (Murray, 1938; Pervin, 1968; Schneider, 1987) as well as linked to various job-related outcomes across many fields of study.

As seen in Figure 10, a study (Cadwell and O’Reilly, 1990) using the Q-sort technique found that person-job (P-J) fit was strongly correlated with various job outcomes including job performance and satisfaction. In terms of retention and career commitment, Saks and Ashforth (2002) found person-job (P-J) fit to be related to certain job and organizational attitudes as well as served as a mediator for the relationship between P-J fit and individual career planning. Furthermore, a meta-analysis of P-J fit and outcomes uncovered a strongly relationship with job satisfaction and intent to quit (Edwards, 1991; Kristof-Brown, et. al, 2005). Kristoff-Brown study also found a moderate relationship between P-J fit and job performance (2005).
Figure 11. Proposed Model for Person-Job (P-J) for Registered Nurses
Various studies have also examined P-J fit concerning its relationship with personality traits. As previously discussed in the literature review, Holland’s theory of personality and job fit (1959; 1985) asserts individuals have six personality types that explain choices of an occupation. Various other studies examining these variables found a significant interaction between P-J fit and personality (Ehrhart, 2006, Kristof-Brown, 2000 Lounsbury et. al, 2008; Erdogan & Bauer, 2005). Previously discussed in the literature evidence that supports assessing personality traits as they also can be useful in explaining and predicting attitudes, performance, behaviors, and certain other outcomes in various organizational settings (Connolly & Viswesvaran, 2000; Hurtz & Donovan, 2000; Hough & Ones, 2001; Ones et al, 2007).

To expand on the current literature on nurses’ personality traits, job-fit, and personnel selection, this study assessed personality traits and job outcomes of registered nurses using Hogan Personality Inventory. Beyond describing personality traits exhibited by RNs, this study was able to find relationships between certain personality traits and job performance for critical care RNs. Further, the study found that Prudence predicted job satisfaction as well retention for nurses overall and those specializing in critical care. Adjustment significantly predicted job retention for critical care RNs. Based on this previous literature and findings from this study, Figure 11 provides a visually representation of a proposed model to explore person-job (P-J) fit for registered nurses based on relationships between personality traits, job satisfaction, performance, and current retention.
CHAPTER V

CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

Conclusions

The final chapter provides a summary of findings and conclusions as related to the five research objectives presented in Chapter 1. This chapter also describes limitations and provides recommendations for further research. Results of this study generated personality descriptions for 52 critical and non-critical care RNs. A demographics survey was created to capture personal information and job-related outcomes for nurses. The average age of RNs participating in the study was 38 years old. A majority of RNs spent at least 10 years in the nursing profession, were very satisfied with their job, and plan to remain. Analyses were performed to explore relationships between personality traits and job-related outcomes for RNs in the study.

The main objective of this research study explored personality traits of registered nurses in various nursing specialties. It was found there are personality traits unique to critical and non-critical care nurses as well as RNs in general.

- Registered nurses, in general, possess traits of being balanced, practical, friendly, cooperation, responsible, and task-oriented.

- Critical care nurses are good team players, remain calm under pressure, pay attention to detail, and can tolerate repetitive behavior.
• Non-critical nurses are resourceful, problem solvers, open minded, and focused on the big picture. These nurses are very imaginative thinkers and willing to listen to others.

The second through fourth objectives explored the relationships between personality traits and job performance, satisfaction, and retention for RNs. Nurses in general and those specializing in critical care possess personality traits distinctively associated with these job-related outcomes.

• Critical care nurses who received a job performance award are goal-oriented; often using feedback to make improvements. These RNs are also socially sensitive, trustworthy, nurturing, considerate, good team players, and up-to date on the latest trends in the field.

• Critical care RNs who are satisfied with their job are also orderly, dependable, organized, responsible, and conforming. These nurses tend to holding high standards of themselves and of others.

• Nurses in general and critical care RNs who plan to remain at their current job demonstrated traits are calm, accepting and show resiliency during stressful situations.

The last objective focused on proposing a model to evaluate nurses’ person-job (P-J) fit. The connections found between personality traits and job-related outcomes assessed can be used to evaluate person-job (P-J) fit for nurses in general and for critical care nurses. The proposed framework (see Figure 11) objectively assesses personality
traits similar to the interviewing guidelines set forth in the Handbook of Personnel Selection and Performance Evaluation in Healthcare (1988). This Handbook provides ways to assess four personality categories of successful individuals and organizations in healthcare, known as the Quan-Com System Analysis (1988).

A brief comparison of successful trait categories outline in the Handbook and HPI traits can be viewed in Table 60. As seen in the table, the Handbook describes Adaptability as the "proven ability of an organization or individual to perform well under changing circumstances and to maintain a high standard of work under stress (pp.33)." This personality category contextually corresponds to HPI’s trait Adjustment. According to Hogan & Hogan, Adjustment is the degree to which an individual appears self-accepting within their environment (2007). Managerial Aptitude is defined as the ability to employ all resources available in the interest of providing high quality healthcare services (1988). This personality category aligns with Hogan & Hogan’s personality trait Ambition. This trait measures the degree to which an individual appears to possess leader-like qualities (2007).
Table 60. Summary Comparison of Handbook and HPI Personality Traits

<table>
<thead>
<tr>
<th>Handbook of Personnel Selection and Performance Evaluation in Healthcare</th>
<th>Hogan’s Personality Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability</td>
<td>Adjustment</td>
</tr>
<tr>
<td>Managerial Aptitude</td>
<td>Ambition</td>
</tr>
<tr>
<td>People Skills</td>
<td>Interpersonal Sensitivity</td>
</tr>
<tr>
<td>Creativity</td>
<td>Inquisitive</td>
</tr>
<tr>
<td>Team Orientation</td>
<td>Learning Approach, Prudence, and Sociability</td>
</tr>
</tbody>
</table>

People skills refer to the interpersonal dynamics relevant to effectively perform various work roles within the organization (Handbook, 1988). This personality category aligns with HPI’s personality trait Interpersonal Sensitivity (i.e., the degree in which individuals are seen as socially sensitive). Lastly, there are three HPI traits that align with the Handbook’s description of Team Orientation. These personality traits are: Sociability, Prudence, and Learning Approach and are associated with being a team player; being cooperative, loyal, and possessing technical expertise. Guidelines to assess these personality categories in healthcare workers, set forth in the Handbook, and personality assessment using HPI may provide a more inclusive picture of the personality traits best suited for selecting and hiring new nurses as well as retain current nursing staff.

Furthermore, the Joint Committee on Standards for Educational Evaluation: The Personnel Evaluation Standards (2009) provides 27 standards for developing, assessing, and implementing personnel evaluation systems. The Committee provides a user-friendly
framework by which these standards are most application to common situations in personnel evaluation. Aligned with the objectives of this study, the author reviewed standards applicable for developing a personnel evaluation system, evaluation results for staff development, and evaluating individuals from diverse backgrounds. Table 61 provides a summary of how findings from this research inform seven standards common across these three applications of personnel evaluation.
Table 61. Applicability of Current and Existing Research to Personnel Evaluation Standards

<table>
<thead>
<tr>
<th>Personnel Evaluation Category</th>
<th>Personnel Evaluation Standard</th>
<th>Applicability of Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Propriety</strong></td>
<td><em>P1</em>: Service Orientation (Evaluation should promote fulfillment of mission and effective performance of job)</td>
<td>Findings from this study linked personality traits to job performance for RNs in general as well as for critical care nurses.</td>
</tr>
<tr>
<td></td>
<td><em>P5</em>: Comprehensive Evaluation (Evaluation should provide feedback to management on how to select individuals based on existing staff as well as promote fair and balanced evaluations)</td>
<td>The Handbook of Personnel Selection and Performance Evaluation in Healthcare provide <em>subjective measures</em> of personality traits to assess existing and new healthcare personnel. In addition, Hogan’s Personality Inventory provides a framework in which to <em>objectively</em> assess similar traits. A combination of these assessments may provide a comprehensive view for assessing personality traits exhibit by RNs in various specialties.</td>
</tr>
<tr>
<td>Personnel Evaluation Category</td>
<td>Personnel Evaluation Standard</td>
<td>Applicability to Research</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Utility</strong></td>
<td><em>U4</em>: Explicit Criteria (Evaluation should have clear, specific criteria directly related required job expectations)</td>
<td>The purpose of assessing personality traits of registered nurses, critical care in particular, is explore relationship with job-related outcomes such as satisfaction, retention, and ultimately job fit. Previous research also supports the relationships existing between personality and job outcomes.</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td><em>A1</em>: Valid Judgment (Evaluation should promote valid about performance)</td>
<td>Hogan’s Personality Inventory has been validated across various populations including healthcare. In addition to the seven scales of personality, this inventory also has a built-in validity key. In addition, the guidelines set forth in the Handbook of Personnel Selection and Performance Evaluation in Healthcare have practical use in over 200 leading healthcare organization, is recommend by the American College of Healthcare Executives, and endorsed by Harvard University and the American Association of Homes for the Aging.</td>
</tr>
</tbody>
</table>
Table 61. – continued

<table>
<thead>
<tr>
<th>Personnel Evaluation Category</th>
<th>Personnel Evaluation Standard</th>
<th>Applicability of Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy</strong></td>
<td><strong>A5 &amp; A6</strong>: Defensible and Reliable Information (Information collected should be defensible and produce reliable results)</td>
<td>According to Hogan’s manual, the HPI is intended for the adult population and has been used widely for the purposes of personnel selection and professional development (Hogan &amp; Hogan, 2007). HPI has also been correlated with various other personality assessments tools such as the Myers Briggs Type Indicator Test, Cattell’s 16PF, and the Five Factor Model to name a few.</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td><strong>A8</strong>: Bias Identification and Management (Evaluation should provide safeguards against bias)</td>
<td>Title VII of the Civil Rights Act of 1964 does not prohibit employers from using personality or integrity tests in the workplace. Overall samples for HPI represent the US workforce in terms of both occupation and demographics. In addition, Hogan’s Assessment Systems complies with the ADA requirements to accommodate individuals with special needs. Furthermore, the company offers an alternative testing solution (i.e. pencil-paper).</td>
</tr>
</tbody>
</table>
As seen in the table, Propriety (P1 and P5) focuses on Service Orientation and Comprehensiveness of the evaluation. Hogan’s Personality Inventory provides a framework to *objectively* assess similar traits, while the Handbook provides *subjective* measures of personality traits to assess existing and new healthcare personnel. Combining these assessments provide a comprehensive view for assessing personality traits exhibit by RNs in various specialties.

Accuracy (A1) of the personnel evaluation standards focuses on valid judgment. Hogan’s Personality Inventory has been validated across various populations including healthcare. In addition to the seven scales of personality, this inventory also has a built-in validity key. Guidelines set forth in the Handbook have been used in over 200 leading healthcare organization. These guidelines are recommended by healthcare executives and endorsed by universities and associations for the aging.

Accuracy (A8) states that the personnel evaluation system should identify, manage, and provide safeguards against bias. Overall representative samples in HPI include all US workforces in terms of both occupation and demographics (Hogan & Hogan, 2007). Hogan’s Assessment Systems (HAS) complies with the American Disability Act requirements to accommodate individuals with special needs (Hogan & Hogan, 2007). Furthermore, Title VII of the Civil Rights Act of 1964 does not prohibit employers from using personality or integrity tests in the workplace. Using Hogan’s Personality Inventory along with personality guidelines in healthcare and the personnel evaluation standards offer a comprehensive tool for assessing personality traits in order to evaluate person-job (P-J) fit for RNs in various specialties.
Limitations

This research study was delimited by the following:

- The overall sample size for this study was considerably small (N = 52) and even fewer nurses completed the demographics survey (n = 42). Despite numerous attempts to enroll including visits on unit and presentations at nursing meetings, follow-up emails and finally offering incentives, these RNs could not be reached. Although there were no significant differences between the sample size in this study and previous studies, this study found several instances were relationships were not close, but not significant. This may be attributed to the small sample size of RNs participating in this study. Furthermore, this small sample size to make statements of generalizations about the nursing population.

- Due to the HSIRB protocol and limited availability of resources, the author was unable to obtain actual RN job performance assessments used by the healthcare facility where the study was conducted. As a result, a crude measurement of overall job performance was used for this study (i.e., asking whether or not received an award).

- In terms of job satisfaction, this study used an overall measurement by asking “overall how satisfied are you with your current job.” While this is universally accepted, the literature points out that job satisfaction may vary depending on the various facets for which it can be assessed (i.e., intrinsically and extrinsically).

- Person-job (P-J) fit was not directly measured for registered nurses in this study.
Further Research

Based on the findings of this study, recommendations for future research are briefly described.

Findings provided evidence to support that HPI is valid in measuring personality traits of registered nurses in various nursing specialties. Due to the inherited difficulties in analyzing various types of personality instruments used across studies, it is recommended that further studies are needed in measuring personality traits of RNs using Hogan’s Personality Inventory. It would be advantageous to include a larger sample of nurses. In order to obtain a more complete personality profile of today’s nursing staff, it’s critical to expand this research to RNs represented in the various other nursing specialties mentioned in the Pareto analysis.

As mentioned in the Limitations, this study elicited a very simplistic form of measuring job performance for registered nurses. Therefore, it is recommended that additional research is needed to explore various other measures of job performance, especially among registered nurses. For example, actually job performance; as measured by the healthcare facility can be used to expand the research in this area. Further search of the literature may uncover various instruments to which job performance can be assessed within the nursing population.

Findings suggest that overall job satisfaction did not vary between the nursing groups. It may be valuable to examine the literature focusing on intrinsic and extrinsic measures of job satisfaction as related to personality traits. For example, several authors have used McCloskey Mueller Satisfaction Scale (MSS) to measure eight specific facets
of job satisfaction for RNs, including extrinsic rewards, scheduling, balance of family and work, interactions with co-workers, other interaction opportunities, professional opportunities, praise and recognition, and control and responsibility (Mueller & McCloskey, 1990; Tourangeau et. al., 2006). Measuring these aspects captures job satisfaction at the micro-level and may uncover differences in nurses.

In terms of retention and personality traits, the author did not uncover a wealth of research on this phenomenon. Therefore, further research is needed in this area. In this time of nursing shortages, alternative ways of assessing and increasing retention should be considered. Overall this research provides evidence of unique HPI personality traits of RNs in critical and non-critical care. It also uncovered relationship between these traits and job-related outcomes (satisfaction, retention, and performance). Various frameworks representing the link between aforementioned variables were used to conceptualize a model for predicting job-fit for registered nurses. Since the research did not directly measure person-job fit, further research is recommended to examine the subjective and/or objective measures of P-J fit for registered nurse. This research can begin with reviewing personality guidelines set forth in the Handbook of Personnel Selection and Performance Evaluation in Healthcare as well as a creating a more detailed job analysis for RNs in general and critical care nurses.
O’NET, a website sponsored by the U.S. Department of Labor that provides a summary of knowledge, skills, abilities, and other characteristics (KASOs) essential to perform work in various occupations, including critical care nursing. Categories such as interest, work styles, and work values may provide insight into personality traits of need to thrive in the nursing field (O*NET, 2016a&b). In addition, job and work analysis as described by Brannick and colleagues (2007) and various other authors may be useful in creating personality-based person-job (P-J) profiles for registered nurses.

Furthermore, just over half of nursing students who hold a bachelor degree find employment as a professional registered nurse (HRSA, 2013). Numerous authors found differences in personality traits of nursing students versus other student populations (Healy, 1952; Muhlenkamp & Parsons, 1972; Rezler & Buckley, 1977; Boykin, 1981; Land, 1993; Bush, 1993; Kim & Kim, 2005). Current exploration into this phenomenon is recommended. Further exploration may reveal nursing student possess personality traits similar to those of professional, registered nurses. This endeavor may also uncover relationships existing between personality traits and satisfaction, performance, and retention for the nursing student population. As healthcare officials, administrators, and policymakers search for ways to combat the increasing shortage of nurses, this study as well as future research could serve as a positive step to increase job-fit for registered nurses. In other words, getting the right nurse in the right place.
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Appendix A

Description of Hogan Personality Inventory Traits
<table>
<thead>
<tr>
<th>HPI Trait</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adjustment</strong></td>
<td>Measures the degree to which a person appears calm and self-accepting or conversely, self-critical and tense</td>
</tr>
<tr>
<td><strong>Ambition</strong></td>
<td>Measures the degree to which a person appears socially self-confident, leader-like, competitive, and energetic</td>
</tr>
<tr>
<td><strong>Sociability</strong></td>
<td>Measures the degree to which a person seems to need and/or enjoy interacting with others</td>
</tr>
<tr>
<td><strong>Interpersonal Sensitivity</strong></td>
<td>Measures the degree to which a person is seen as perception, tactful, and socially sensitive</td>
</tr>
<tr>
<td><strong>Prudence</strong></td>
<td>Measures the degree to which a person seems conscientious, conforming, and dependable</td>
</tr>
<tr>
<td><strong>Learning Approach</strong></td>
<td>Measures the degree to which a person seems to enjoy academic activities and to value educational achievement</td>
</tr>
</tbody>
</table>

Appendix B

Saaty’s Scale of Importance
<table>
<thead>
<tr>
<th>Intensity of Importance</th>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Equal importance</td>
<td>Two elements contribute equally to the property</td>
</tr>
<tr>
<td>3</td>
<td>Moderate importance of one over the other</td>
<td>Experience and judgment slightly favor one element over another</td>
</tr>
<tr>
<td>5</td>
<td>Strong or essential importance</td>
<td>Experience and judgment strongly favor one element over the other</td>
</tr>
<tr>
<td>7</td>
<td>Very strong importance</td>
<td>An element is strongly favored and its dominance is demonstrated in practice</td>
</tr>
<tr>
<td>9</td>
<td>Extreme importance</td>
<td>The evidence favoring one element over another is of the highest possible order of affirmation</td>
</tr>
<tr>
<td>2, 4, 6, 8</td>
<td>Intermediate values between the two adjacent judgments</td>
<td>Compromise is needed between the two judgments</td>
</tr>
</tbody>
</table>

**Reciprocals**

When activities I is compared to J is assigned one of the above numbers, then actively J compared to I is assigned its reciprocal

**Rationales**

Ratios arising from forcing consistency of judgments

Appendix C

Nursing Specialties at Study Hospital
<table>
<thead>
<tr>
<th>Nursing Specialty Area</th>
<th>Number of RNs employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Medical</td>
<td>47</td>
</tr>
<tr>
<td>*Cardiology</td>
<td>38</td>
</tr>
<tr>
<td>Catherization Lab</td>
<td>8</td>
</tr>
<tr>
<td>Clinical Bed Coordinator</td>
<td>12</td>
</tr>
<tr>
<td>CSU/PACU</td>
<td>13</td>
</tr>
<tr>
<td>Educational Services</td>
<td>26</td>
</tr>
<tr>
<td>Emergency Room</td>
<td>70</td>
</tr>
<tr>
<td>*General Medical</td>
<td>44</td>
</tr>
<tr>
<td>General Surgical</td>
<td>53</td>
</tr>
<tr>
<td>IP/OP (In-Patient/Out-Patient)</td>
<td>105</td>
</tr>
<tr>
<td>Labor &amp; Delivery</td>
<td>58</td>
</tr>
<tr>
<td>*Medical Intensive Care</td>
<td>30</td>
</tr>
<tr>
<td>Mother/Baby/Ante-partum</td>
<td>59</td>
</tr>
<tr>
<td>*Neonatal Intensive Care</td>
<td>103</td>
</tr>
<tr>
<td>*Neurovascular</td>
<td>25</td>
</tr>
<tr>
<td>Ortho Surgical</td>
<td>34</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>67</td>
</tr>
<tr>
<td>Professional Practices</td>
<td>11</td>
</tr>
<tr>
<td>Radiology/Endoscopy</td>
<td>70</td>
</tr>
<tr>
<td>*Surgical/Trauma</td>
<td>48</td>
</tr>
</tbody>
</table>

*Nursing specializations represented at the study hospital (number of RNs currently working)*
Appendix D

Human Subject Institutional Review Board (HSIRB)
Date: March 4, 2011

To: Tycho Fredericks, Principal Investigator
   Stephanie Means, Student Investigator for dissertation
   Steven Butt, Student Investigator

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 11-03-05

This letter will serve as confirmation that your research project titled "Investigating Personality Difference Among Nursing Specialties" has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 4, 2012
Date: September 19, 2012

To: Tycho Fredericks, Principal Investigator
    Stephanie Means, Student Investigator for dissertation
    Steven Butt, Student Investigator

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 11-03-05

This letter will serve as confirmation that the change to your research project titled “Investigating Personality Difference among Nursing Specialties” requested in your memo received September 18, 2012 (to modify demographics survey and add $5 gift certificate incentive) has been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 4, 2013
Appendix E

Demographics Survey
Demographic Questionnaire

The purpose of this questionnaire is to obtain demographic information about participants of the study. It is also being used to explore your feelings about job satisfaction and retention within your department. Please respond to the following questions by placing a check mark (√) in front of the appropriate response. Some questions may require you to fill in the most appropriate response. The information you provide will be grouped with your unit/department and WILL NOT be used to identify you.

1. Age:
   ( ) Less than 25
   ( ) 25-29
   ( ) 30-34
   ( ) 35-39
   ( ) 40-49
   ( ) 50-59
   ( ) 60 or older

2. Gender:
   ( ) Male
   ( ) Female

3. What is the total length of time that you have worked as a registered nurse?
   ( ) less than 1 year
   ( ) between 1-3 years
   ( ) between 3-5 years
   ( ) between 5-10 years
   ( ) over 10 years

4. What is the name of the nursing unit (department) you currently work on?

5. What is your current job title?

6. What is the total length of time that you have worked on the nursing unit on which you are now working?
   ( ) less than 1 year
   ( ) between 1-3 years
   ( ) between 3-5 years
   ( ) between 5-10 years
   ( ) over 10 years
7. What shift do you work most often on your current unit?
   ( ) Day: 7am-7pm
   ( ) Night: 7pm-7am
   ( ) Other (please specify time__)

8. Have you received any formal job-performance related award(s) while working on current unit?
   ( ) Yes
   If “yes,” to Question #8, please list award(s)
   ( ) No

9. Which of the following statements most clearly reflects your feelings about your future on the unit you current work on?
   ( ) Definitely will not leave
   ( ) Probably will not leave
   ( ) Uncertain
   ( ) Probably will leave
   ( ) Definitely will leave

10. Do you expect to leave the unit you currently work on in the near future?
    ( ) Will definitely leave in the near future
    ( ) The chances are quite good that I will leave
    ( ) The situation is uncertain
    ( ) The changes are very slight that I will leave
    ( ) Definitely will not leave in the near future

11. Have you worked in any other unit (department) at this hospital? Yes   No
    If answered “Yes,” please complete below:

    | Name of Unit (Department) | Number of Years in Department | Formal job-performance related award(s) | Reason for Leaving |
    |---------------------------|-------------------------------|----------------------------------------|-------------------|
    |                           |                               |                                        |                   |

12. Overall, how satisfied are you with your current job?
    ( ) Very satisfied
    ( ) Somewhat satisfied
    ( ) Neither satisfied or dissatisfied
    ( ) Somewhat dissatisfied
    ( ) Very dissatisfied