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The personality characteristics of emergency nurses

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Declaration

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma at any university, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: 

Date: 15th August 2014

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Abstract

Background

The personality characteristics of an individual have been linked to occupational choice, stress, burnout and job satisfaction. Given the global shortage of nurses in the workforce is predicted to worsen in coming years, knowledge of the personality characteristics of the nursing workforce may have a role to play in the recruitment and retention of nursing staff to specialty areas of nursing practice.

There is a paucity of research on the topic of personality within clearly defined specialty areas of nursing. Existing research demonstrates some evidence of differing personality characteristics among nurses working in different fields of nursing. Relationships between the personality characteristics of an individual and levels of burnout, stress and job satisfaction have also been demonstrated in the literature.

Aims

The aim of this study was to establish the personality profile of a sample of emergency nurses, and to explore whether any relationship exists between their personality characteristics and time spent working within the emergency nursing profession.

Methods

An integrative literature review was performed to determine the status of current knowledge in this field of research and to inform the study research questions and design. A quantitative research method incorporating two questionnaires was used to explore the personality characteristics of a sample of emergency nurses and to test the relationship between personality characteristics and length of service within this specialty. The questionnaires were a purpose-designed demographic and workplace environment questionnaire and the NEO™-PI-3 personality assessment instrument. This instrument measures personality according to five broad domains and thirty associated facets, providing a comprehensive analysis of personality. Emergency nurses from a large metropolitan emergency department in Sydney, Australia were approached to participate in the study between July and October 2012.

Descriptive statistics were used to report the results from the demographic questionnaire and the personality characteristics of the sample of nurses obtained from the NEO™-PI-3. One-sample *t-test* was used to analyse data from this sample of emergency nurses compared with established population norms for NEO™-PI-3 results. A two-sided alpha level of .01 was determined to indicate statistical significance.

Results

Seventy-two emergency nurses participated in the study (representing a 76% response rate). Analysis of the NEO™-PI-3 responses demonstrated significant differences between this group of emergency nurses and population norms. Emergency nurses who participated in this study were more extraverted, open to experience and agreeable than the population norm. Agreeableness is an assessment of interpersonal characteristics; agreeable individuals are helpful and provide support and comfort to others. Analysis of the facets within each domain showed that these nurses differed from population norms on 12 of 30 facets of personality, including vulnerability, excitement seeking and competence. 68% of the nurses studied had been employed in the emergency setting for greater than, or equal to, three years. The personality characteristics of this sample of emergency nurses may therefore be reflective of nurses who remain employed within emergency nursing.

Conclusion

The personality profile of this sample of Australian emergency nurses is different from the established population norms. Australian emergency nurses scored higher on openness to experience, agreeableness and extraversion in their personality assessment. Assessment of personality and knowledge of its influence on specialty selection may assist in improving retention and recruitment in emergency nursing. The investment required to train nurses to function as a 'specialist' implies that a benefit exists in targeting individuals potentially suited to working within specialty nursing areas to optimise their retention within the specialty workforce. Further research is required to establish whether these study results are applicable to the emergency nurse workforce, and to establish any link with nursing specialty choice and retention.

Chapter 1: Introduction

‘There are plenty of people involved in emergency care, and no emergency department could function without all these people working as a team. But it is the emergency nurse who shoulders the weight of patient care..... This unique breed of men and women are the lock stitch in the fabric of our health care safety net. Their job is a physical, emotional and intellectual challenge..... Great strength of character is required for sustained work in our field. The emergency department is a loud, chaotic, and stressful environment.’¹(p. 197-198)

It is generally believed that the personality characteristics of an individual influence their behaviour in any given situation.² Anecdotally, it is often recognised within nursing that differences exist in the personality characteristics of nurses working in different specialty areas. As one area of specialty nursing practice, the emergency department is a loud, chaotic and demanding work environment. It might be expected that this kind of environment attract a particularly unique group of men and women.

The study of personality within nursing is not new. In the 1920s, a study identified that paediatric nurses scored different results on personality assessment from general nurses in the study sample.³ There is now a large body of research investigating personality in nursing, on topics such as the links between occupational stress and burnout⁴⁻⁹ and studies of student nurse attrition,^{10,11} yet there is limited research that explores the personality characteristics of nurses working within defined specialty areas.

Given the global shortage of nurses in the workforce is predicted to worsen in coming years,^{12,13} knowledge of the personality characteristics of the workforce may have a role to play in recruitment and retention of nursing staff to specialty areas of practice. The aim of this study was to establish the personality profile of a sample of emergency nurses, and explore whether any relationship exists between their personality characteristics and time spent working within the emergency nursing profession. This chapter provides an overview of the contextual background for this thesis. The chapter will also present an overview

of relevant personality theory and some of the challenges that are faced by the emergency and broader nursing workforce in the current health climate.

1.1 Personality

There are no two people in the world who are exactly the same. Unique differences between individuals help us to distinguish one from another. This will be the case regardless of the environment in which individuals grow up. However, there exist patterns in human behaviour, emotion and thought processes that are common, regardless of an individual's background. These similarities suggest that despite the obvious differences amongst individuals, all people possess certain characteristics that are common. So, while we possess characteristics that may be similar to others, at the same time, there are differences that make us our own unique person.^{14,15} It is the characteristics of an individual's personality that differentiates one individual from another and makes each individual unique; these characteristics are also recognised as the common features that are shared among individuals.^{15,16}

Personality, according to trait theory, can be defined as 'the system of enduring, inner characteristics of individuals that contributes to consistency in their thoughts, feelings and behaviour'¹⁵ (p. 3). A personality trait is the aspect of personality that is considered to remain stable over time and situations.¹⁵ Any change in a personality trait is gradual and generally seen as a result of maturation with age.¹⁷ Personality traits are associated with, and may predict, the way in which one will respond in a particular context or situation and how we as individuals interact with the environment around us.^{14,16,18-20} Personality theories have been developed to explore many aspects of day-to-day life: stress, coping, behaviour and work choice to name a few.²¹

There is a diverse range of thought on what influences and develops personality including the influence of genetics, environment and parenting styles and their influence on the development of personality.²² A large number of theorists believe that traits are a major influencing factor on personality. Changes in personality traits are considered to be gradual and are generally seen as a result

of maturation with age.¹⁷ For example an individual who is extraverted does not become introverted, but rather with age their levels of extraversion may change.

The study of personality has not been without controversy.² There are a number of trait theories that exist to explain personality and how it develops and changes.^{19,21} While all of the theories have some merit, many possess weaknesses in their explanations of personality.¹⁵ The large array of personality theories was aptly described by Funder¹⁹ as a 'chaotic plethora of personality constructs' (p. 200). While many of the personality theories developed over time hold different names and labels, they essentially measure the same group of personality constructs or domains. Research in the latter part of the last century led to the identification of five broad domains of personality, sometimes referred to as 'the big five': neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. These five broad domains provide a structure for the vast array of personality factors being measured, and enable many different terms used in the study of personality to be incorporated into one common language.^{19,23} It is agreed that these 'big five' personality domains do not measure everything there is to measure in regards to personality, but they do cover what are considered to be the main domains of personality.²³ Robert McCrae and Paul Costa have conducted extensive research within the field of personality over the last 30 years or more, leading to the development of the Five Factor Model (FFM) of personality,^{17,20} one of the 'big five' models or theories. This model uses the five broad personality domains (the five factors), and 30 associated facets, to provide a comprehensive description of normal personality.¹⁷ While there is some debate over the adequacy of the FFM in the measurement of personality, this model has gained generally wide acceptance among the field of personality psychology.²⁴

The decision to use the FFM as the underpinning theory for this research was made after extensive reading of personality literature, particularly in relation to behavioural, genetic and trait theories of personality, and in consultation with a practicing psychologist. The investigation confirmed the FFM as a common contemporary model of personality. The NEO™ questionnaires, that assess

personality according to the FFM, represent the most validated measures of the big five domains of personality in a questionnaire format.^{23,25}

Personality and Occupational Choice

The choice of vocation is considered to be an expression of an individual's personality,²⁶ and personality has frequently been linked to career choice in theories of career development.²⁷

The assessment of personality in career choice has held some negative connotations in the past, with some individuals associating it with the analysis of psychopathology. Personality research conducted during World War II in the United States, aimed at predicting performance levels and is reported to have led to the development of the first measure of normal personality.² While still controversial, personality testing has been reported to be used in up to 20% of companies in the United States during recruitment processes.²⁸

For many vocational theorists, personality is recognised as playing a role in vocational choice.^{27,29} Holland's theory is well known in this field,^{27,30} and proposes that occupational choice is an expression of an individual's personality.²⁶ Holland developed a classification system, grouping occupations into six categories based upon common psychological aspects of the occupation. Using this system, examination of an individual's personality characteristics and interests, using either the vocational preference inventory (VPI) or self-directed search (SDS), assists in the identification of occupations suitable to the individual.^{26,30} This is considered to result in an optimal person–environment 'fit', and thought to produce higher levels of job satisfaction and productivity.³⁰ While it is recognised that individuals will exhibit the characteristics of many personality types to varying degrees, those who undertake the VPI or SDS attain a code according to the three most dominant personality characteristics.^{26,29} In line with this theoretical perspective, registered nurses are classified by Holland²⁶ as social, investigative, realistic (SIR). That is, these were the three consistently highest scoring personality characteristics among nurses' on personality assessment when scores were ranked from highest to lowest. The SIR classification is related to individuals that like helping others, that possess

skills in problem solving, appreciate scientific enquiry, like the ability to be hands on and actively involved in activities.²⁶ While this classification may broadly describe the characteristics of a nurse, it also summarises characteristics that are associated with other professions. Therefore the SIR profile does not necessarily offer any further information on the more subtle differences that may potentially exist among nursing sub specialties.

A limited number of studies have demonstrated differences in the personality characteristics of nurses working within different specialty areas.^{31,32} This evidence, along with the suggested theoretical links between personality and occupational choice, would suggest that potentially, personality characteristics should be considered in recruitment. In Australia there currently are more nurses leaving than entering the profession. This imbalance is not only attributed to retirement, as a result of the aging workforce, but also to factors such as job dissatisfaction and the more diversified professional opportunities for registered nurses away from direct patient care roles.³³ Considering this, and the available evidence from previous personality research, it would be reasonable to hypothesise that attracting the right person for the right job will result in improved retention within the workplace, and assist in addressing some ongoing workforce issues within the health professions.

1.2 Nursing Workforce

Nursing workforce shortages are not new and have been well-documented over the past two decades or more worldwide.^{12,34-37} The nursing workforce is ageing, resulting in a global shortage of nurses and midwives.^{12,37,38} In Australia, nursing shortages are projected to reach 109,490 by 2025.³⁹ The average age of nurses and midwives in Australia is increasing and was 44.6 years in 2012. More than 39% of individuals working in the Australian nursing and midwifery workforce are aged 50 years or older.³⁸ The ageing of the workforce, along with many other workplace factors such as high nurse turnover, high workloads, low enrolment in preregistration courses and migration have all been cited as factors influencing the shortage of available nurses.^{33,40,41} At the same time, there are increasing demands within the healthcare system.¹² The general population is ageing with

increasing numbers of people with chronic and complex health needs requiring access to primary healthcare facilities and high consumer expectations for health services.^{39,42} The loss of nurses to retirement in coming years is going to further exacerbate the current nursing shortage.⁴¹ The financial burden of poor retention within nursing is also problematic, with the estimated costs of nurse replacement exceeding \$AU16,000 per nurse.⁴³

The loss of nurses from the profession is not purely a result of age. Nursing is recognised as a highly mobile profession⁴⁴ with large numbers of Australian nurses travelling to work overseas, while at the same time, large numbers of nurses are immigrating to Australia or coming on working holiday visas.³⁴ Earlier this century, government sources suggested that the inward and outward flow of nurses was fairly equitably balanced;⁴⁵ however, the variability in nurse migration is not predictable.³³ Kingma⁴⁴ estimates that between 5 and 10% of the current nursing workforce were educated overseas. It has also been documented that the vast majority of nurses emigrating overseas will return to their home country within five years.⁴⁴ Australia is reliant on overseas recruitment to meet workforce demands,³⁹ and these practices are not sustainable. Recruiting nurses from overseas will not meet the demands of the Australian health system. Overseas recruitment is a costly venture and nurses are a finite resource. Many who come from overseas are coming from areas that also have nursing workforce shortages affecting their populations.⁴⁵ Further, nursing qualifications are well-recognised and generally well-regarded. As such, nurses are increasingly transferring their skills to other professions and careers. The portability and flexibility of nursing qualifications further decreases the number of available qualified nurses to fill vacancies within the healthcare sector.³³ Currently, 49,934 (13.7%) of all registered nurses and midwives on the Australian register are not actively employed within the nursing and midwifery workforce.³⁸

The nursing workforce constitutes a range of specialty areas. While registered nursing skills are foundational to all specialties, each speciality has its own distinct set of specialist skills developed from experience within the specialist practice area and, therefore, not possessed by all nurses within nursing. It is

these unique skills that make it not always feasible to place any nurse within any particular specialty area. Current and projected nursing shortages make the ability to retain nursing staff within the health system and within specialty areas a priority for the future. Poor nurse retention has significant financial implications for the health service, along with negative impacts on staff and demonstrated negative impact on patient outcomes.^{43,46} It is therefore imperative that health organisations consider ways to enhance the retention of their current staff members, not only to meet workforce demands but also to ensure the best possible outcomes for the patients in their care.

1.3 Emergency Nursing

Emergency nursing is a relatively new specialty field and has evolved and changed considerably since the introduction of emergency departments in the early 1970s. While emergency departments began as a service that provided after-hours access to the hospital, advances in resuscitation and the development of new technologies have evolved emergency departments into highly specialised areas, requiring highly skilled nursing staff.

Emergency departments have the propensity to be areas with high patient demand and rapid turnover. In 2012, the New South Wales (NSW) state health department introduced National Emergency Access Target (NEAT), a strategy designed to improve the delivery of healthcare within public hospitals. It is recognised that prolonged stays in emergency departments, often attributed to factors such as overcrowding and bed block, is associated with poorer outcomes and higher patient mortality.^{47,48} The aim of NEAT is for patients to leave the emergency department, either for admission or discharge, within four hours. NEAT has been gradually introduced since 2012, increasing the benchmark each year, with the final target for 2015 being 90% of emergency presentations to depart the emergency department within four hours.⁴⁷ In 2012-13, 67% of patients presenting to emergency departments were admitted or discharged in four hours or less.⁴⁹ The introduction of NEAT has further increased the demands on emergency services as health services aim to meet the Department

of Health benchmarks for discharging patients from the emergency department within four hours, regardless of the type of presentation.

Emergency nurses require the ability to work in an (at times) extremely stressful environment, managing a diverse range of presentations.⁵⁰ The emergency department is also an area where the nature of work is unpredictable.

Emergency nurses deal with patients from all age groups, with an unspecified number of disease processes, some diagnosed and some unknown.⁴² It is necessary for an individual working within this work environment to have the ability cope with this diverse, unpredictable and rapidly changing environment.⁵¹

The demands on emergency services are growing and this is not unique to Australia.^{40,52} Increased demands have been attributed to the ageing population, advances in the treatment of chronic health conditions, introduction of new procedures and technology, and limited access to primary healthcare in the community.⁵² In Australia there is evidence of rapid growth in the service demands of emergency departments, with an average rise in presentations of 2.9% per year between 2008-2009 and 2012-2013, a rate greater than population growth.^{49,53} The emergency department where this research was undertaken reflects these data, with an average 3.4% growth per year in emergency presentations between 2007 and 2012. In the United States there has also been substantial growth in emergency department visits reported, with a 23% annual increase over the ten years 1992 to 2002, while at the same time, their total number of emergency departments have decreased.⁴⁰ The most recent data from Australian hospitals reports that out of all patients presenting to Australian emergency departments, 65% are discharged home and 27% are admitted for ongoing management.⁵⁴

With increasing demand comes the need for greater numbers of emergency nurses. Emergency, like other critical care areas, experiences high levels of staff turnover and staff vacancies.^{42,45} The vacant nursing positions within critical care areas are harder to fill,^{52,55} and it takes a considerably long time to fill registered nurse vacancies in emergency departments. While the overall vacancy

rate for registered nurses in emergency departments is 11.7% in the United States,⁴⁰ this data is not available for Australian hospitals. The emergency environment is recognised as an area with high levels of stress and burnout,⁵⁰ and these factors in turn are associated with higher levels of staff turnover.^{43,56} An individual's ability to cope in a stressful workplace is not solely reliant on the environmental characteristics, but also upon individual characteristics, and the way in which they perceive and deal with the stressful environment.⁵⁷

Considering the aforementioned deficits in the nursing workforce, and the noted difficulties in recruiting nursing staff in specialty areas such as emergency and intensive care nursing, it is necessary for health services to consider ways to improve recruitment and retention strategies in an effort to meet workforce and health service demands.

1.3.1 Educational Requirements

Since the late 1980's all nurses in Australia have completed a Bachelor of Nursing or equivalent degree to qualify for nursing registration. Further, it is a requirement of the Australian Health Practitioner Regulation Authority (AHPRA) that registered nurses complete at least 20 hours of continuing professional development each year.

While it takes approximately two years of full-time work to gain sufficient experience to work in all areas of the emergency department, emergency nursing qualifications are not standardised across all health care facilities. Some emergency departments may require nursing staff to complete post-graduate study in emergency in order to be able to progress to the level of triaging patients or higher, whereas other facilities provide onsite training and education in order to fulfil such roles.

The College of Emergency Nursing Australasia (CENA) publishes practice standards for emergency nurse specialists⁵¹ covering domains such as clinical expertise, communication and professional development. These standards outline benchmarks for best practice and are designed to be an adjunct to the generic practice standards of the registered nurse published by AHPRA.⁵⁸ They

provide a benchmark for the expected standards of practice for the emergency nursing profession in Australia. This also provides a benchmark that enables research to be undertaken to examine practice and aims to develop and improve emergency nursing standards.

1.4 Recruitment and Retention

Recruitment and retention are not one and the same. An organisation or department may be able to successfully recruit staff, but may not be able to retain them for any period of time. It is well-recognised that efforts to improve recruitment and retention need to be multifaceted and no single initiative will achieve the desired or sustained results that are required.^{13,36}

A 2011 study in Victoria (Australia) found that 15% of 640 nurses who participated in the study intended to leave the nursing profession in the following 12 months.⁴¹ This is not a redistribution of nurses within the profession, but rather a loss from the workforce. This problem is not unique to Australia. For example, in the United States and the United Kingdom, nurses are reporting their intention to leave the profession not solely on the basis of retirement, but also influenced by dissatisfaction with the profession.^{35,55,59} Such turnover far exceeds what is deemed to be expected attrition rates within professions across the board.⁴¹ The loss of experienced nursing staff through either dissatisfaction with current work conditions or as a result of retirement further exacerbates the nursing shortage. This loss of experience, in addition to the loss of actual staffing numbers, has been recognised as placing even further strain and increased workload on those remaining in the workforce.^{43,60} Such pressure is likely to lead to even further reductions in workforce numbers. It is also important to note that high nursing turnover not only impacts upon the nursing workforce, but has also been implicated as a contributing factor to poorer patient outcomes.^{35,42,43,46}

Despite the established relationships between personality characteristics and factors such as stress, burnout and job satisfaction, and the recognition of the role of personality in vocational choice, there is little evidence to demonstrate whether personality may also play a role in recruitment or retention processes.

However, it would not be unreasonable to consider that differences in nurses' personality characteristics may influence occupational decisions, given the large variation in roles for nurses working in different specialty areas.

1.5 Identified Gaps in Knowledge

There has been a considerable amount of research on personality within nursing in general, but there is limited research that explores personality within defined specialty areas. Research has been carried over an expansive time period (1965–2010), using a wide variety of personality instruments, and not consistently measuring the same personality characteristics. Although this research is limited, findings have demonstrated some differences in the personality characteristics of nurses working within intensive care and medical/ surgical specialties,³¹ as well as between mental health nurses, medical and surgical nurses.³² Personality assessment enables the identification of individual personality characteristics, permitting a comparison of differences and similarities among and between people.⁶¹ Personality assessment can provide information on how an individual is likely to respond or cope when exposed to different situations.^{20,27} Emergency nurses are required to have the ability to assess and manage a diverse range of clinical presentations. This requires nurses to possess the ability to manage these presentations of varying clinical urgency, a skill that is not always required of nurses working within other specialty areas. The personality of the individual potentially influences the way these nurses manage in the emergency environment. Knowledge of the personality profile of emergency nurses not only has the potential to improve recruitment and retention, but also the ability to appropriately meet psychosocial needs addressing issues such as stress and burnout in the workplace. This study aims to begin to address these gaps in knowledge.

1.6 Study Aim

The aims of this study were to explore:

1. The personality profile of a sample of emergency nurses; and
2. Establish whether a relationship exists between an individual's personality profile and length of employment within emergency nursing.

These questions are explored further in the next section ('Thesis Overview').

1.7 Thesis Overview

Chapter 2 reports the results of an integrative literature review, conducted to establish what is known regarding the personality characteristics of nurses working within defined nursing specialty areas. The integrative review demonstrated where gaps in knowledge existed and informed the development of the research questions for this study.

Chapter 3 discusses the approach to exploring the research questions that were posed for this study:

1. What is the personality profile of a sample of emergency nurses?
2. Is there a relationship between personality characteristics and/or profile and length of employment within emergency nursing?

The research study used a quantitative research method, with two questionnaires used for data collection, the NEO™-PI-3 personality inventory and a demographic data questionnaire.

Chapter 4 presents the results of the study. Descriptive statistics of the demographic profile and personality characteristics of this sample of emergency nurses are presented. The NEO™-PI-3 personality assessment results were compared against population norms using a one-sample *t*-test.

The personality assessment results for this sample of emergency nurses are discussed in detail in Chapter 5. In this final chapter, the results are related to the emergency work environment and are considered in light of the demands of the

job role of emergency nurses. The limitations of this study are recognised, along with recommendations of how to expand upon and use the results of this study in further research.

1.8 Summary

Shortages within the nursing workforce are a global problem and specialty areas of nursing such as emergency, critical care and mental health have more difficulties in the recruitment and retention of staff than general wards. High levels of nursing turnover have effects on the nursing workforce that remain and the quality of patient care, and contribute significant economic costs to the health system. This chapter has provided background pertaining to this study, including detail regarding the current workforce challenges and a discussion of the possible link between personality and occupational choice.

The next chapter will present a review of the available literature exploring personality characteristics within defined nursing specialties. It will summarise what is currently known regarding the personality characteristics of nurses within clearly defined specialty groups.

Chapter 2:Literature Review

Emergency nursing involves exposure to a diverse patient population and a wide range of clinical situations. It requires the ability to apply nursing knowledge and experience in order to appropriately prioritise and manage care delivery. This practice environment requires skilled individuals, who can cope in a variety of clinical situations with variable levels of stress.

It is well-recognised that personality plays a part in career choice^{27,29,62,63} and that personality plays a role in determining how individuals cope in various situations.⁶⁴ As personality can influence an individual's choice of a particular career, it is reasonable to consider that personality may also influence the choice of specialty practice in nursing. This chapter outlines the aim and methods of an integrative literature review of research literature on the personality characteristics of nurses working within defined nursing specialties. An overview is then provided of the literature identified relevant to this topic and a summary of what is known about personality in distinct nursing specialty areas, along with areas for further research.

2.1 Aim of Literature Review

The aim of the literature review is to determine the current state of knowledge regarding the personality profiles of nurses working within different nursing specialties, with a focus on emergency nursing. In particular, it aims to explore whether previous personality-based research has identified any significant differences among specialty groups of nurses, and whether there exists research specifically related to the area of emergency nursing.

A secondary aim of the review was to identify the various tools used to measure personality in previous nursing personality research. This was both to enable informed decision making around the most appropriate tool to use for the current study, and also for possible future investigations of nursing personality in relation to specialty practice.

To achieve the aim of the literature review, a search was conducted to identify research literature exploring the personality characteristics of nurses working within defined nursing specialty areas.

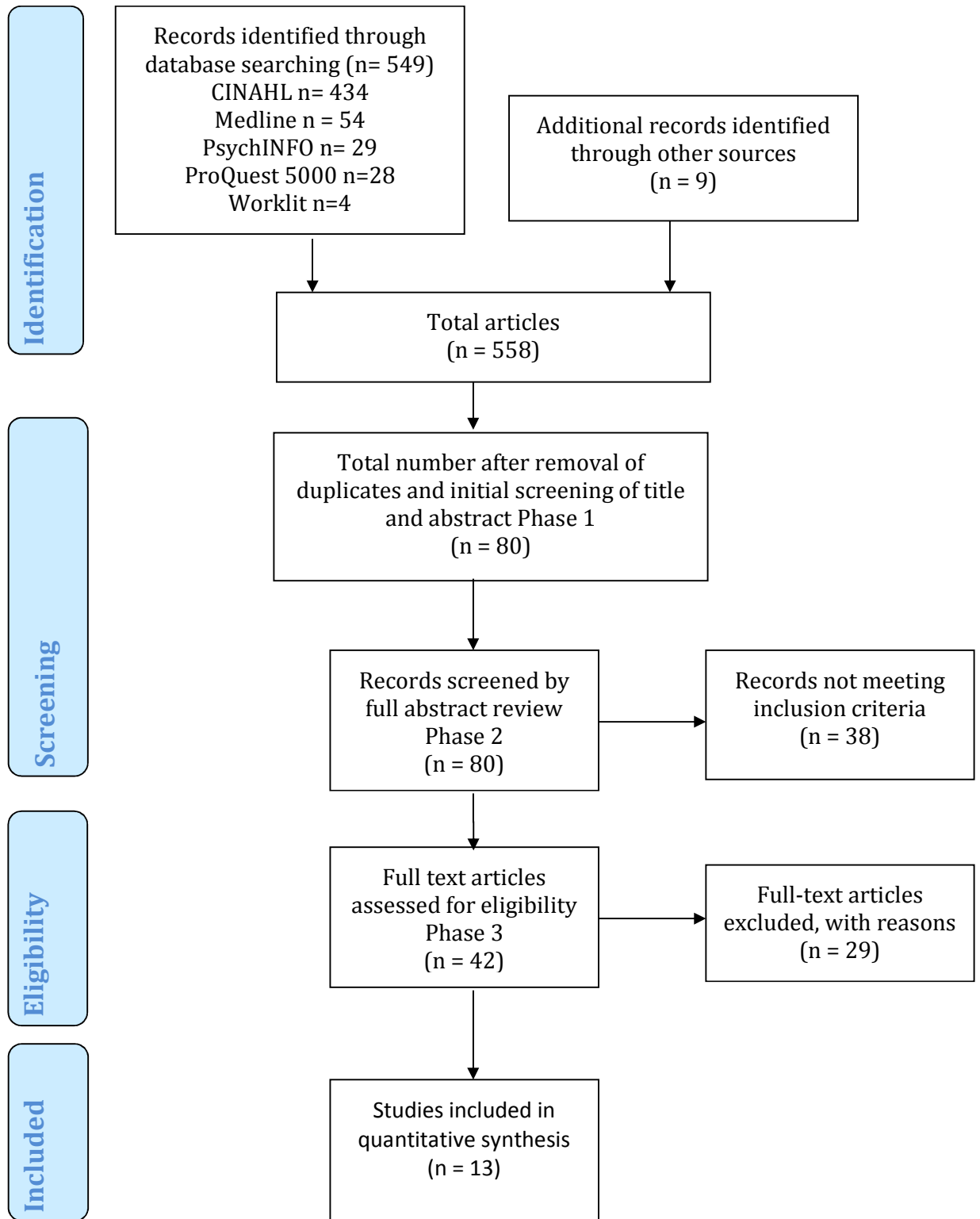
2.2 Search Strategy

An integrative literature review method allows for the inclusion of a broad range of research literature, specifically when the variability in hypotheses and research methods is such that results cannot be synthesised using meta-analysis or systematic review methodologies.⁶⁵ An integrative review method was chosen for this literature review given the identified literature incorporated varying methodologies and research aims, making other literature review methods inappropriate.

The search aim and strategy was clearly outlined prior to commencement. This included decisions on the databases to be searched, keywords, and study inclusion and exclusion criteria. The literature screening process was then completed. This required brief review of all potentially eligible papers according to the previously set inclusion and exclusion criteria, to decide upon papers that were potentially eligible to be included in the review, as detailed in Section 2.2.2. Eligible papers were reviewed to determine suitability for inclusion as described in Section 2.2.3. While each of the finally selected papers addressed the aims of the search and explored personality within a defined nursing speciality area, some of the papers explored additional themes. Individual themes were therefore identified within each study in order to separate and synthesise common findings directly related to personality within a defined nursing specialty area.

Each of the stages of the review are clearly outlined this chapter. The establishment of a clear aim and search strategy, along with a protocol for the evaluation of the available literature, aims to improve the quality of the integrative review.⁶⁵ The search strategy is summarised in Figure 2.1 using a modified version of the Prisma Flow diagram⁶⁶ below.

Figure 2-1 Modified Prisma Flow Diagram



2.2.1 Phase 1 – Database Search and Identification

The database search was completed in August 2010. Subject headings were used initially; however, this method yielded very few results. The search was performed using the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database with keywords as shown in Table 2.1 (below). The initial search combined personality keywords with emergency/critical care/ intensive care nurse (Table 2.1), identifying 24 papers that met the search criteria. In an attempt to obtain all relevant papers, the keywords ‘critical care’ and ‘intensive care’ were also used, as emergency nurses are often categorised as critical care nurses in the literature and in clinical practice. The term ‘critical care’ is also used synonymously with ‘intensive care’ in some countries. Given the small number of articles obtained, personality keywords were then combined with career/occupational choice keywords, resulting in an additional 18 papers. It was then deemed necessary to broaden the search: the term ‘nurs*’ was used and when combined with ‘personality type*’, resulted in 54 articles.

Table 2-1: Search results using CINAHL database

Keywords	Emergency Nurse* Critical Care Nurse* Intensive Care Nurse* (7052) ¹	Career* choice Occupation* choice (391) ¹	Nurs* (479 672) ¹
Personality * Personality style * Personality trait* Personality characteristic* Personality assessment* (9906) ¹	24	18	338 ²
Personality type* (147) ¹			54

¹total articles found within groups of keywords; ² following limitations placed on search.

The search was then expanded to use a range of keywords associated with personality, combined with 'nurs*', resulting in 1430 articles when the search was limited to English. The search was then narrowed to the major subject headings 'personality' and 'nurses', resulting in a total of 338 articles. The CINAHL database search resulted in a total of 434 papers.

Following advice from Sydney Nursing School librarians regarding other appropriate databases for the search, keywords were used to conduct searches in the Medline, PsycINFO, ProQuest 5000 and Worklit databases (Table 2.2). The generic term 'nurs*' was used in these additional databases rather than searching terms specific to nursing specialty areas. In addition to the search terms used in CINAHL, 'specialty' was used when performing searches in Medline. There were no limits placed on publication date in any of the databases searched, but results were limited to English language.

In Medline the combination of search terms (Table 2.2) resulted in 23 papers. An additional search in Medline was then performed, using the term 'specialty' rather than 'nurs*' combined with personality keywords, resulting in 31 articles. This strategy yielded 54 articles from the Medline database search. Further searches executed in the PsychINFO and Proquest 5000 databases using the search terms outlined in Table 2.2, resulted in 29 and 28 articles respectively. The search was performed in the Worklit database using only personality keywords and career choice/occupational choice, resulting in four papers. The addition of nurs* yielded no further results.

Table 2-2: Search results using Medline, PsychINFO and ProQuest 5000 databases

Database Keywords #	Medline	PsychINFO	ProQuest 5000
Personality OR Personality style OR Personality trait OR Personality type OR Personality characteristic OR Personality assessment	23	29	28
Career choice OR Occupational choice			
Nurs*			
Specialty	31	-	-

groups of keywords combined with 'AND' to achieve final search results

Given the relatively small number of articles obtained through additional searching, no further restrictions were applied to the searches in order to prevent removal of any possibly relevant articles. The combined database searches, of CINAHL, Medline, PsychINFO, ProQuest 5000 and Worklit, yielded 549 papers for screening.

Following the database searches, a further meeting was held with the librarians at Sydney Nursing School to go through the search strategies in order to ensure all appropriate measures had been taken to capture the relevant literature. Some further suggestions on possible search terms and techniques for searching were made, but no additional records were obtained as a result of following this advice. Review of the reference lists in potentially relevant papers provided an additional nine papers with possible relevance to the topic area. These papers, combined with the database searches, yielded 558 papers for screening. These papers were then screened for relevance to the subject, based on title and brief review of the abstract, in order to remove any articles not related to personality in nursing. After screening and removal of duplicates, the final number of papers identified through database searches and review of reference lists in available published papers resulted in a total of 80 papers (Figure 2.1).

2.2.2 Phase 2 – Screening and Eligibility

The 80 papers obtained from database and reference searches were then screened via review of available abstracts, in order to determine the relevance of the paper to the subject area according to the inclusion and exclusion criteria set out below (Table 2.3). Where an abstract was not available for a potentially relevant paper, a full-text copy was obtained in order to determine whether the paper met the inclusion criteria.

Table 2-3: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none">• Original research• Clear research design• Exploring personality• Registered nurses from clearly defined clinical nursing specialty areas	<ul style="list-style-type: none">• Reviews or secondary analyses• Only student nurses in sample

All papers that were not original research were removed. The remaining papers were independently peer-reviewed by two academics (research supervisors), according to the inclusion and exclusion criteria in Table 2.3. Where opinions differed or there was uncertainty regarding the eligibility of articles, a full-text copy of the article was reviewed and discussed by all three reviewers in order to come to a decision regarding inclusion or exclusion. Nine doctoral theses were considered to meet the inclusion criteria, but were placed into a separate grouping for consideration at a later stage as only two of the theses were available in full text (including one for purchase) and the remaining seven were unpublished. Extensive further database searching by topic and author failed to identify any papers subsequently published by the authors on their thesis topics. A decision was eventually made to exclude the PhD theses from the integrative review as it was beyond the resources of this study to obtain all the documents for review and of concern that their contents did not appear to be published in any other peer-reviewed form.

Following screening and peer review, 42 papers were identified as meeting the inclusion and exclusion criteria for the integrative review (Table 2.3 and Figure 2.1). All of these 42 articles were obtained in full text for a more detailed review and critical analysis of quality.

2.2.3 Phase 3 – Quality Screening and Inclusion

The full text review revealed the inclusion of papers relating to student nurses and attrition. As the purpose of the literature review was to ascertain what was known about the personality of qualified nurses within defined specialty areas, these papers were excluded from further analysis. From the review of full text, it was also possible to identify papers that focused either directly on the study of personality as a whole or on ‘personality hardiness’. Personality hardiness is a personality trait that is theorised to influence the way individuals deal and cope with stressful events.^{7,67} As the emergency environment is recognised as a stressful area, these papers were considered to be of direct relevance to the topic. Any papers not directly related to the measurement of personality or personality hardiness in registered nurses were excluded prior to critical appraisal.

A tool was developed to assist with more detailed screening of the remaining potentially relevant papers and to provide a critical appraisal of the quality of the remaining articles (Appendix 1). The quality appraisal tool was based on guidelines for the critique of quantitative research.⁶⁸ The quality appraisal process was undertaken on hard copies of the 42 full-text articles by the researcher.

If there was uncertainty regarding the quality or inclusion of any remaining articles following application of the quality appraisal tool (Appendix 1), the paper was peer-reviewed by two academics (research supervisors) before a final collective decision was made regarding suitability for inclusion.

After detailed screening of the full text of the 42 identified articles and appraisal of the quality of the research using the appraisal tool, 29 articles failed to meet inclusion criteria and were excluded. Examples of excluded studies were those involving mixed samples of qualified nurses from different sub-specialties or mixed samples of student and registered nurses, where results for defined specialty areas could not be extrapolated, or where there was insufficient detail in the report to enable critique of the quality of the study. The literature selection and screening process therefore resulted in thirteen 13 articles identified as relevant for inclusion in the integrative literature review (Figure 2.1). A summary of the findings of the articles included in the final literature review is found in Appendix 2.

2.3 Synthesis of Results

The systematic search and quality appraisal of published literature on what is currently known about the personality of qualified nurses within defined specialty areas resulted in the identification of 13 articles as relevant to the integrative literature review. The content of the 13 papers included in the review can be divided into four distinct themes:

1. Exploration of personality within a nursing specialty
2. Comparing personalities between different specialty areas within nursing
3. The role of personality in stress and burnout
4. Relationship between personality and job satisfaction

The papers were clearly identifiable within one or more of the above themes. The findings of the review are discussed within each of these themes below.

2.3.1 Exploration of Personality within a Nursing Specialty

A link has frequently been suggested between personality and occupational choice,^{62,69,70} and it is theorised that individuals will seek out a profession which satisfies their own personal needs.^{26,69} There were five papers identified for the integrative literature review that explored this theme. All of the papers reported personality profiles and/or personality type for the different groups of nurses studied, each using a different instrument to assess personality among the participants. While there was some similarity between the different groups, there were also some contrasts noted. The findings of the studies exploring personality in a nursing specialty will be discussed in the context of the personality assessment instruments used in the study.

Studies using the Personal Style Inventory (PSI) or Myers Briggs Type Indicator (MBTI)

Three studies were identified that used a version of the Personality Style Inventory (PSI) or Myers Briggs Type Indicator (MBTI) for the study of personality of nurses in different specialty areas. While some of the studies investigated the relationship between personality characteristics and variables such as stress, the personality assessment results for nurses from the clinical specialty were individually reported on. The Hogan Champagne Preference Survey (HCPS) was used with samples of nurses working in emergency departments,⁶⁹ the Personal Style Inventory (PSI) in a study of oncology nurses,⁶² and the Myers Briggs Type Indicator (MBTI) for renal nurses.⁵ The PSI is an updated version of the HCPS and the MBTI is a separate tool that assesses the same personality dimensions as the PSI.

All of these tools are based upon Carl Jung's theory of personality, which was first published in 1923.⁶⁹ The theory proposes four paired personality dimensions that explain the difference between individuals' perception of reality and how they interpret and judge those perceptions.⁷¹ Characteristics associated with the four dimensions of Carl Jung's theory of personality are outlined in Table 2.4. It is theorised that over time, an individual will develop a 'preference' for one personality type within each dimension. In most circumstances the

response to a particular situation or event will be a reflection of the dimension in which they attained the higher score, and therefore hold a 'preference'; however they have the ability to use the other dimension should the circumstance require.^{69,71} In some instances, individuals may achieve a balanced score in the dimension; that is, they display both characteristics of the paired dimension equally.⁷¹ Personality type is expressed as the combination of the four traits for which they scored highest in each paired dimension, for example, an individual whose scores indicate a 'preference' for *introversion, sensing, thinking* and *judgment* is abbreviated as ISTJ.⁶⁹

Table 2-4: Carl Jung Dimensions of Personality ^{62,69,71}

Sensing (S) Utilisation of five senses to generate awareness	Intuition (N) Perception of things not evident to five senses
Thinking (T) Objective and impersonal, skilled at organisation of facts and ideas	Feeling (F) Subjective and personal in approach, skilled in management of human relationships
Introversion (I) Prefers inner-world concept and ideas	Extraversion (E) Involvement in the outer world of actions, objects and people
Judgment (J) Perceive the world as ordered, following a defined set of rules	Perception (P) World perceived to take various forms and outcomes

These studies found that more than 60% of the 40 oncology and 46 emergency nurse's scores were consistent within the *introversion* dimension of the PSI-type instruments (HCPS and PSI) (Table 2.5), as were 55% of 49 renal nurses using the MBTI.^{5,62,69} The strengths demonstrated by those who score high on *introversion* are independence, task-orientated, diligent and attention to detail.^{62,69} While some of these traits can most certainly be seen to be beneficial in nursing, the desire to work independently may be considered a hindrance – not only to nurses within the field of emergency nursing, but also in some other specialties. Nursing is certainly a collaborative, team-orientated approach to care delivery, although at times there is the need to be able to act independently. Introverts prefer quiet and dislike interruptions, and at times, can act impulsively.^{62,69,71} Quiet is difficult to find in the hospital environment where there are constant interruptions, such as phone calls and enquires, and

necessary collaborations with other health professionals in the delivery of care. The results of this study do not provide sufficient detail to determine where on the introversion-extraversion scale these nurses' score. While some may score high on the introversion dimension, they potentially also have the ability to employ extraversion characteristics when the situation requires.

In the same studies (Table 2.5), a large proportion of the oncology (58%) and emergency nurses (61%) also scored higher on *sensing* for the Sensing-Intuition dimension of personality.^{62,69} Individuals who achieve high scores for the *sensing* dimension according to Jung's theory of personality are known to prefer clearly defined, structured, current situations. They cope better with routine and prefer to deal with specific facts; they may struggle in situations where there are multiple interrelated factors as this may require the use of new or varied skills.^{69,71} The scores of renal nurses completing the MBTI⁵ were more evenly divided between the *sensing* and *intuition* dimensions (Table 2.5).

The paired Thinking-Feeling dimension of personality is what determines the way an individual evaluates the information they receive. Those who score higher on the *thinking* dimension are objective and analytical in their approach, and will make decisions after consideration of the relevant evidence.^{5,62} Those who score higher for *feeling* tend to be 'empathetic, warm, sensitive and able to relate well to others'⁷¹(p. 381), and will make decisions taking into consideration the impact of the decision on others.⁵ Those with a strong *feeling* preference also have the potential to lack objectivity, be poorly organised and have difficulty with confrontational situations.^{62,69,71} It is acknowledged in both studies measuring personality with the PSI-type instruments (HCPS and PSI), that the characteristics of those within the *feeling* dimension are frequently associated with nurses in general.^{62,69} Table 2.5 shows that relatively high proportions of oncology and emergency nurses scores on the PSI-type instruments were clustered within the *feeling* dimension of personality. Among the 46 emergency nurses studied, 65% had higher scores within the *feeling* dimension.⁶⁹ In contrast to these results, a greater proportion (55%) of the 49 renal nurses were clustered in the *thinking* dimension. Nurses whose scores cluster within the *feeling* dimension would potentially have difficulty coping in the emergency

environment as aspects of the *thinking* dimension would be necessary to function effectively. For example, the management of a critically ill patient sometimes requires decisions to be made that may be difficult for family and friends to process. In dealing with these situations, nurses need to be able use the *thinking* dimension to rationalise their decisions to themselves and significant others. It is reported that the mean scores of emergency nurses on the HCPS reflected a balance between the Thinking-Feeling dimension⁶⁹ but actual values were not reported.

Table 2-5: Personality dimensions frequency for emergency, oncology and renal nurses

Personality measure	HCPS**	PSI	MBTI
Personality Dimension	Emergency Nurses (n= 46) ⁶⁹	Oncology Nurses (n= 40) ⁶²	Renal Nurses (n= 49) ⁵
	Frequency (%)		
Introvert/Extravert			
Introvert	29 (63)	26 (65)	27 (55)
Extravert	12 (26)	10 (25)	22 (45)
Balance	5 (10)	4 (10)	*
Sensing/Intuition			
Sensing	28 (61)	23 (57.5)	24 (49)
Intuition	13 (28)	10 (25)	25 (51)
Balance	5 (11)	7 (17.5)	*
Feeling/Thinking			
Feeling	30 (65)	22 (55)	22 (45)
Thinking	11 (24)	8 (20)	27 (55)
Balance	5 (11)	10 (25)	*
Perceiving/Judging			
Perceiving	17 (37)	8 (20)	17 (35)
Judging	28 (61)	20 (50)	32 (65)
Balance	1 (2)	12 (30)	*

*Balanced scores not reported in study of renal nurses.

** Older version of the Personality Style Inventory (PSI)

The final dimension of personality measured by the PSI and MBTI inventories is Judgement-Perception. Those who score highly on *judging* are likely to possess the ability to make decisions, plan, order, control and remain focussed on the task at hand.^{69,71} It is essential that these individuals also develop the *perceiving* aspect of their personality to a degree, otherwise they would have the potential to be inflexible and struggle to adapt to the changing environment, being

controlled by tasks or pre-defined plans.⁶⁹ Individuals will normally demonstrate dominance in one of the Judgement-Perception dimensions, but, depending on the circumstances, will alternate between the two using the method that will achieve the desired outcome. All three studies measuring this dimension found that 50%, or more, of scores for each sample of nurses were clustered within the *judging* dimension of personality (Table 2.5), indicating a possible importance of these personality characteristics in the role of the nurse. While the *judging* characteristics of personality are likely to be beneficial to working in the nursing profession, it would be ideal for emergency nurses to have the ability to also use their *perceiving* characteristics in the unpredictable work environment.

The results of these studies reported the most frequently occurring personality type was Introvert-Sensing-Feeling-Judging (ISFJ),^{62,69} for cancer (15%) and emergency (22%) nurses and for renal nurses (14.2%) Introvert-Intuition-Feeling- Judging (INFJ).⁵

Studies using Cattell's 16 Personality Factor (PF) Personality Inventory

The remaining two papers within this theme explored the personality of critical care nurses⁷⁰ and cancer nurses⁷² using Cattell's 16 Personality Factor (PF) personality inventory, a self-report questionnaire. While different versions of the tool were used, both studies reported all 16 primary factors of personality to fall largely within population norms. There were, however, some personality factors where the critical care and cancer nurses scores clustered towards the extreme or outside the normal range.^{70,72} Table 2.6 lists the 16 primary-order factors measured by the questionnaire. While the factors are the same, the terminology differs between versions, making direct comparison difficult. Factors tagged with asterisks in Table 2.6 denote the personality factors where the sample of nurses studied scored on the upper or lower limits of normal, or outside the normal range.

Table 2-6: Primary-order factors measured by Cattell's 16 PF

Cattell's 16 PF (Version A)	Cattell's 16 PF (Form C)
Cancer nurses (n = 178) ⁷²	Critical care nurses (n = 200) ⁷⁰
Warmth	A: Reserved / Warm-hearted
Intelligence	B: Less intelligent / More Intelligent
Emotional Stability	C: Affected by feeling / Emotionally stable
Dominance	E: Humble / Assertive*
Impulsivity*	F: Sober / Happy-go-lucky
Group conformity	G: Expedient / Conscientious*
Boldness	H: Shy / Venturesome
Emotional sensitivity**	I: Tough-minded/ Tender-minded
Suspiciousness*	L: Trusting / Suspicious
Imagination*	M: Practical / Imaginative
Shrewdness	N: Forthright / Shrewd
Gulf proneness	O: Unperturbed / Apprehensive
Rebelliousness*	Q1: Conservative / Experimenting
Self Sufficiency*	Q2: Group-orientated / Self-sufficient*
Self-Control	Q3: Undisciplined / Controlled*
Anxiety	Q4: Relaxed / Tense

*result within population norm, upper or lower limits of normal; **result outside population norm

A STEN (standard ten) score is used to report the results of each of the personality factors measured by Cattell's 16 PF personality inventory. This is a standardised score generated from the raw scores. STEN scores range from one to 10, with a mean of 5.5.⁷³

The critical care nurse sample (n = 200) demonstrated four personality factors where the group was ≥ 0.5 STEN score from the mean.⁷⁰ These were factors E: Humble / Assertive, G: Expedient / Conscientious, Q2: Group-orientated / Self-sufficient and Q3: Undisciplined / Controlled (Table 2.6). These results reflect a group of individuals who possess effective leadership styles, can be assertive and at times determined in their approach, are conscientious individuals who are

resourceful and prefer to make decisions and act independently, and who demonstrate confidence and composure.

In a study of 178 registered nurses enrolled in postgraduate study for cancer nursing Gambles, et al.⁷² reported that while overall scores for the sample largely fell within population norms, the factors of impulsivity, emotional sensitivity, suspiciousness, rebelliousness and self-sufficiency clustered to the upper and lower range of the norm. *Self-sufficiency* was the only factor measured by the 16PF that fell to the extreme low and high ends (but remained within the normal range for the population) that was common to both cancer and critical care nurses samples. Critical care nurses' scores on *self-sufficiency* were at the high end of population norms,⁷⁰ with higher scores generally indicative of individuals who prefer to be self-sufficient, resourceful, with a preference to make their own decisions independently. This is in contrast to the study of cancer nurses, who scored low on *self-sufficiency* compared to population norms.⁷² Individuals scoring lower on this score are more group-orientated, preferring to work with others rather than independently.⁷²

Cancer nurses scored higher than population norms for *emotional sensitivity*.⁷² This corresponds with individuals who are 'compassionate, sensitive, and attuned to their own vulnerabilities'⁷²(p. 101). For second-order factors measured by the 16 PF, *extraversion* scores were at the upper range of the population norm, while *tough poise* scores were low and just outside the population norm.⁷² An extravert possesses more interest in the outer world and their actions influence decisions, they are group-orientated and able to tolerate interruptions.^{62,69} These results are in contrast to the studies of emergency nurses⁶⁹ and cancer nurses⁶² reported above, who were found to be more introverted. The low scores on *tough poise* are generally associated with people-orientated professions and with compassion and emotional sensitivity.⁷²

Dominance was identified as a personality factor with one of the highest STEN scores in the study of critical care nurses.⁷⁰ Individuals who score highly on this score are considered to be more assertive, aggressive, authoritative, competitive

and headstrong. Higher scores on this factor in women have been related to characteristics of social poise, prominence and attention-seeking.⁷⁰

While differences between self-sufficiency, emotional sensitivity and dominance in these studies may be attributed to the two different nursing specialties being studied, it is difficult to make this conclusion with certainty due to the scarcity of other supporting literature on different speciality areas of nursing. It must also be considered that these two studies were carried out 15 years apart.

Summary of Personality Characteristics of Nurses from Defined Clinical Specialty Areas

Only a few authors have sought to explore the personality of nurses working within select speciality areas of the nursing profession. Of the total 13 papers identified by this review, only five explored this theme and only one reported a study undertaken in the last ten years. The remainder (n= 4) were studies carried out more than 15 years ago. With the changing job roles and expectations of nurses within various fields of nursing over the past 10 years, it would be reasonable to consider that the type of individual attracted to a particular specialty may also have changed over time. Duffield et al.⁷⁴ suggest that the variability between job roles may not only change between specialities, but also from organisation to organisation. Further, only one study that explored personality in a group of emergency nurses could be identified and this was undertaken more than 20 years ago when emergency nursing was a relatively new specialty within nursing.

Studies using instruments based on Jung's personality theory found that the most frequently occurring personality type for cancer and emergency nurses was Introvert-Sensing-Feeling-Judging (ISFJ),^{62,69} and for renal nurses Introvert-Intuition-Feeling-Judging (INFJ).⁵ It is impossible to make any conclusions from these results as all of the studies had relatively small sample sizes and with the removal of 'balanced scores' on each of the dimensions (where both pairs within the personality dimension are equally expressed), the samples become even smaller. The results for studies using the HCPS, PSI and MBTI were reported as frequency distributions within each of the four dimensions, with only two of the

studies reporting frequencies for balanced scores. The numerical results were not actually reported and constitute a major limitation of these studies. The broad classification of results fails to show variance among the scores and limits the ability to detect differences between the groups studied.

The range of personality assessment instruments used in the studies also makes it difficult to accurately compare results between studies. While two instruments may claim to measure the same personality dimension, such as extraversion, the definition of the term and the way in which it is measured may vary. Only one study reported their results against a normative sample of nurses from various specialties. While there were differences between the two samples, no analysis was undertaken between the two samples to determine if the difference reported was statistically significant.⁵ It is therefore not possible to determine from these studies whether the personality characteristics are truly unique to the samples (and specialties) of nurses studied, or simply represent a normal population expression.

Variations in sampling strategy may also have influenced the potential of these studies to collectively address the question of personality within nursing specialty. Gambles, et al.⁷² used a convenience sample of nurses enrolled in postgraduate study in cancer and palliative care. While Australian nursing workforce data related to postgraduate qualifications was not available, it is known that not all nurses will complete postgraduate qualifications and results cannot be generalised to all nurses. Levine, et al.⁷⁰ used a mail-out survey to members of the American Association of Critical Care Nurses (AACCN). While a larger study population, many in the sample held positions in management, education or other roles that are largely removed from direct clinical care and specialty nursing.

Individual research studies exploring personality within nursing specialties are limited by their use of incomparable personality measuring tools, and the hugely disparate time periods during which nursing specialties were examined. In summary, there is limited research within the discipline of nursing looking at personality within specialty groups.

2.3.2 Comparing Personalities between Speciality Areas of Nursing

While research has been undertaken to explore personality differences between different groups of nurses in defined clinical specialities,⁷⁵⁻⁷⁷ three studies identified for the integrative review actually explored personality differences among two or more defined nursing specialty areas.^{31,32,78} While the study by Stauffacher and Navran,⁷⁸ is dated and involved nursing students, it was retained in the review because it analysed the characteristics of these nurses at five years post registration and the results were reported according to defined clinical nursing specialty areas.

Lentz and Michaels³² explored personality differences between 134 medical and 250 surgical nurses, recognising that these two groups of nurses are often combined in research. This study was the third part of a larger study and involved the exploration of personality factors among a female sample of medical and surgical nurses. The Edwards Personal Preference Schedule (EPPS) was used to explore the personality variables of medical and surgical nurses. The EPPS is a personality tool designed to rate the individual according to psychological needs³² and is based on Henry Murray's concept of psychological needs.⁷⁹ The basis of Murray's theory is that behaviour is driven by the desire to achieve something; through psychoanalysis he identified what were classified as primary (basic human needs) and secondary needs (psychological needs). The personality of an individual is an expression of their attempt to satisfy individual psychological needs that operate at an unconscious level.^{80,81}

This study reported nurses scored significantly higher than population norms for the psychological needs of *order* and *endurance*, and scored lower for the need of *dominance*, when compared to Edward's female population norms. A large proportion of the sample consisted of nursing students, and removal of this subgroup from analysis accounted for the variance between this sample of nurses and the population norm.³² The study demonstrated statistically significant differences in a variety of psychological needs as measured by the EPPS between the medical and surgical nurse samples and a separate sample of

neuropsychiatric nurses.⁷⁶ Variability between medical and surgical nurses scores was evident on the EPPS; however, there is no analysis of the differences between the two nursing specialty groups reported. The analysis between the subgroups of nurses was undertaken with the inclusion of the student nurses, which were shown to influence the results when compared to the population norms, potentially influencing the results reported between nursing specialties. It is of note that this study was conducted almost 50 years ago.

In another study using the EPPS, Stauffacher and Navran⁷⁸ investigated whether personality characteristics could predict the area of professional engagement of 453 nursing students five years post qualification. The study found significant differences among nurses' pre-experience EPPS scores and at five years post qualification on the personality variables of *achievement*, *order* and *intraception* when the nurses studied were grouped according to area of preferred practice. There were no significant differences among specialty groups when participants were categorised according to area of greatest postgraduate experience. Given a large proportion of the study sample indicated they were not employed in their preferred clinical area, the results, according to preferred clinical area of practice, would seem to indicate that a difference may exist between nurses employed in defined specialty areas. This interpretation would be in line with the theory that individuals will seek a profession that will meet their own personal needs.²⁶

A study published in 1984 used the Myers-Briggs Type Indicator (MBTI) to explore the personality of 41 intensive care (ICU) nurses and 55 medical/surgical nurses to compare levels of anxiety.³¹ The MBTI is described above in Section 2.3.1. While it is evident from Table 2.7 that some similarity exists between the two groups, there are significant differences on the Thinking/Feeling dimension of the MBTI. Analysis of variance demonstrated that education and training accounted for some of the difference between the two groups, but not all. Table 2.7 shows that ICU nurses are more likely to score as *thinkers* than the medical/surgical nurse group. The *thinking* dimension of the MBTI is a reflection of the way one comes to a decision, and *thinkers* are known to take a more logical and objective approach in decision making, not allowing

emotions to influence the process.^{31,69} This study demonstrated a significant relationship with only one of the personality dimension and anxiety. There was a significant result ($p < 0.02$) between the extraversion-introversion dimension and anxiety levels for ICU nurses, in that ICU nurses who were introverted had higher levels of anxiety. There was no relationship for medical/surgical nurses even though similar proportions of the study samples were introverted.³¹

The grouping of medical and surgical nurses together as one sample is a potential limitation of this study since, as demonstrated by Lentz and Michaels³², personality differences may exist between these two separate groups.

Table 2-7: Personality dimensions of intensive care and medical/ surgical nurses measured by MBTI³¹

Personality Dimension	Intensive Care nurses (n = 41)	Medical/ Surgical nurses (n =55)
	Frequency (%)	
Introvert/Extravert		
Introvert	30 (73.2)	29 (70.9)
Extravert	11 (26.8)	16 (29.1)
Sensing/Intuition		
Sensing	27 (65.9)	34 (61.8)
Intuition	14 (34.1)	21 (38.2)
Feeling/Thinking		
Feeling	14 (34.1)	32 (58.2)
Thinking	27 (65.9)	23 (41.8)
Perceiving/Judging		
Perceiving	22 (53.7)	22 (40)
Judging	19 (46.3)	33 (60)

Summary of Comparison of Personality Characteristics of Nursing Specialty Groups

Similar to single studies of personality within defined nursing specialties, the studies exploring personality differences between two or more specialty areas are dated and have used different measurement tools. These studies are limited in their relevance to current nursing practice and in their suitability for comparison.

2.3.3 Hardiness as a Personality Trait

Hardiness is a personality trait that has been theorised to function as a moderator, assisting individuals to deal with stressful events and buffering the negative health effects of stress.^{7,82} Hardiness is composed of three personality dimensions: *challenge*, referring to the ability to view stressful life events as non-threatening and as a challenge; *commitment* is the degree to which individual's dedicate themselves to their work and other events that confront them with a sense of purpose; and *control* is related to autonomy and the degree to which an individual believes they can influence the outcome of stressful events.^{7,82} 'Hardy' individuals are more likely to implement effective coping mechanisms when exposed to stressful life events and to deal effectively with stressors, which in turn decreases their psychological stress and improves general wellbeing.^{8,82}

The concept of sense of coherence (SOC) describes how an individual sees the world and has been related to hardiness.⁵ Individuals with a strong sense of coherence view life as 'ordered, predictable and manageable'⁵(p. 327). Those with higher scores on SOC theoretically experience lower levels of stress and burnout, similar to those with high levels of hardiness. SOC is measured using a 29-item self-report questionnaire and measures the personality characteristics that promote stress resistance. A high score on the SOC reflects strong coherence. It was reported in the previously described study of renal nurses that SOC is a stronger predictor than hardiness for stress and illness.⁵

While there are a number of studies that explore hardiness and burnout among nurses,^{4,6-9,83} these generally combine nurses from a range of specialties, rather than test within specific specialty areas. However, three studies were identified for this review that explored hardiness and burnout among critical care/intensive care nurses,^{8,67,83} and one that explored the relationship between sense of coherence, personality characteristics and stress among renal nurses.⁵ Lewis, et al.⁵ found a statistically significant negative correlation between SOC and work stress, and SOC and personal stress among their sample of 49 renal nurses. In other words, higher SOC scores were correlated with lower stress in

this group. *Intuitive-feeling (NF)* personality types, as measured by MBTI, had the highest SOC scores, but the results were not statistically significant.

In the two studies that measured hardiness, each of the three personality dimensions of hardiness was measured separately, using four different instruments.^{8,67} Hardiness is measured such that a lower score corresponds with higher levels of hardiness, and therefore composite scores are often calculated to reverse the scores. Both studies demonstrated a significant relationship between hardiness, composite scores and burnout.^{8,67} Separate examination of the hardiness dimensions identified a significant relationship between all three dimension of hardiness in one study,⁶⁷ and significance for only one dimension, *commitment*, in the other study.⁸ Both studies identified other factors correlated with higher levels of burnout such as occupational stress and social supports.^{8,67}

2.3.4 Personality in Stress and Burnout

Stress and burnout are well-recognised in the health workforce as having a negative impact upon workers and resulting in increased staff turnover and sick leave. They also negatively impact upon the work environment of staff members who remain within the workforce.⁸⁴

Stress can affect the individual both physically and mentally. Physical stress may result in chronic or acute health problems, while mental stress may cause low self-esteem and a lack of confidence – presenting as signs of anxiety, depression or fatigue. The physical and psychological effects of stress can impair ability to function effectively and efficiently in the workplace.^{82,84}

Burnout is a syndrome that is predominantly described within the health professions.^{6,7} Burnout has three dimensions: *emotional exhaustion* is the primary component of burnout and is predominantly associated with work-related stress; *depersonalisation* is associated with the development of a negative attitude towards clients; and *lack of personal accomplishment* is the personal belief that one is not effective in their job.^{4,85} Burnout is recognised as a debilitating condition and stress is considered to be a major contributing factor.⁷

It is well-recognised that personality has an influence on the way an individual interacts and deals with the outside world, and in turn, influences their ability to cope and deal with stressful situations.⁸² Personality characteristics have the potential to provide an explanation as to why some individuals manage to deal with stressful situations and continue to function effectively, while for others, the same situation may cause major disruption to their physical and mental wellbeing.⁸²

Nursing is a profession with high levels of stress⁸⁴ and there are a number of potential contributing factors, including exposure to the sick and dying and caring for long term chronically ill patients as well as indirect patient stressors such as high workload, high patient turnover and acuity, staffing demands and professional roles and expectations.^{5,84} Of relevance to this integrative review are a number of studies that explored the relationship between personality and anxiety,³¹ personality and stress,^{5,31,84} and personality and stress and/or burnout,^{8,67,83,86} among particular specialty areas of nursing.

Stress and Burnout

Four studies included in the review explored the relationship between personality and stress,^{5,31,84} and stress and/or burnout,⁸⁶ among nurses working within selected specialty areas. All of these studies demonstrated a significant relationship between identified personality characteristics and levels of stress and burnout among the groups of nurses studied.

A variety of tools (shown in Table 2.8) were used to examine selected personality characteristics in a study of 119 intensive care nurses in Germany. A number of these personality characteristics were found to be statistically significant predictors of the dimensions of burnout.⁸⁶ There were statistically significant correlations between six identified personality variables (fatalistic external locus of control, job distance inability, existential frustration, neuroticism, extraversion and ability to love) and one or more of the burnout variables (emotional exhaustion, personal accomplishment and depersonalisation) as measured by the Malasch Burnout Inventory (MBI).⁸⁶ The

MBI is a 22-item self-report questionnaire that assesses the three dimensions of burnout.⁸

Table 2-8: Personality tools and characteristics measured in a study of German intensive care nurses⁸⁶

Personality tool	Characteristics measured
Eysenck Personality Inventory	Emotional exhaustion Depersonalisation
Inventory of Aggressivity	Reactive aggressivity Self-aggression
Scales of Control	Appreciation need Exactness Job-distance inability
Trier Personality Questionnaire	Personal satisfaction Self-esteem Ability to love
Locus of Control	Generalised assessment of own ability Internal locus of control Social external locus of control Fatalistic external locus of control
LOGO test	Existential frustration

The personality characteristic *fatalistic external locus of control* was identified to have statistically significant correlations with two of the dimensions of burnout, emotional exhaustion and depersonalisation, among the intensive care nurses.⁸⁶ External locus of control relates to an individual's feeling of control that they perceive they have over their environment and course of events.⁷ This study demonstrated that those nurses who felt they had no control, scored higher on emotional exhaustion and depersonalisation. The study also found that *job distance, existential frustration, neuroticism* and *extraversion* were highly significant predictors of the emotional exhaustion dimension of burnout among these intensive care nurses. These results are in contrast to the study by Topf⁸ discussed above, where there was no significant correlation identified between external locus of control (measured in the *control* dimension of hardiness) and burnout among critical care nurses from a variety of critical care units. Topf⁸ did, however, identify a significant correlation between external locus of control and

the level of occupational stress experienced by the critical care nurses in their study. It should be noted that there is variance between the two studies in terms of the age and years experience of the study groups and that two different personality measurement tools have been used in the measure of locus of control.

In another study of 46 intensive care (ICU) nurses in the United Kingdom, there was no evidence of a correlation between personality and workplace stress.⁸⁴ In this study, personality was measured using the NEO™ Personality Inventory (NEO-PI-R™). This tool measures five domains of personality as identified in the Five Factor Model of personality. The NEO-PI-R™ is designed for use in the measurement of normal adult personality.⁸⁷ Stress was measured using the Nursing Stress Index (NSI), a self-report questionnaire designed to measure perceptions of workplace stress among senior nurses.⁸⁴ While there was no evidence of a relationship between personality and workplace stress in this study, those who scored highly on *extraversion* reported less stress when dealing with patients and relatives.⁸⁴ These results are in contrast to the study by Buhler and Land,⁸⁶ where *extraversion* was identified as a significant predictor for two dimensions of burnout: emotional exhaustion and depersonalisation. It was proposed by the researchers that the contrast in these results might be a reflection of the different work environments between the United Kingdom and Germany, with lower nurse-to-patient ratios in intensive care in Germany,⁸⁴ but again, different tools are used to measure the personality variables and the UK sample is small.

Burgess⁸⁴ also found in their UK study of ICU nurses that conscientiousness had a more significant negative correlation with workplace stress than any of the other personality characteristics. Conscientiousness refers to will and is reflective of an individual's level of motivation to succeed in goal-directed tasks.⁸⁷ The authors suggest that high levels of conscientiousness have the potential to buffer workplace stress⁸⁴ as nurses with high levels of conscientiousness reported less time and management pressure, and less perceived lack of confidence and competence. Two of these papers studied intensive care nurses, an area where there is the potential for high levels of

stress due to the case mix and exposure to the critically ill and dying in the younger population and the high pace and demanding workload.⁸⁴

In addition to the measure of sense of coherence (SOC), Lewis, et al.⁵ also investigated personality, stress and burnout in their study. They found no statistically significant differences between different personality types, using MBTI, and levels of personal stress, using the Perceived Stress Scale, among the renal nurses studied.⁵ When examining work-related stress using the Nursing Stress Scale, however, *sensing* personality types reported significantly less overall work stress than *intuitive* types, and *feeling* types experienced more conflict than *thinking* individuals. This paper also examined individuals' coping resources by measuring their ability to deal with stressful events using the Coping Stress Inventory. *Intuitive-feeling* types had higher total coping scores than any of the other personality domains, although the results were not statistically significant. *Introverts* scored significantly higher on the social coping resources subscale of the Coping Resources Inventory than *extraverts*, suggesting they may have better established social networks to provide support during times of stress. As more than 20% of the 49 respondents in this study had been employed in the field of dialysis nursing for less than one year, there is potential that results may vary for those with more experience in the field.

Finally, an Australian study explored the relationship between the personality types of intensive care and medical/surgical nurses and their levels of anxiety.³¹ While this study reports the results of a mixed group of specialist nurses, these are compared to a single clinical specialty, intensive care, and were therefore included in the review. Anxiety can be an outward psychological expression of experiencing levels of stress.⁸⁴ Personality was measured with the MBTI, previously outlined in section 2.3.1, and anxiety was measured using the 50-item Taylor Manifest Anxiety Scale.³¹ There was a significant relationship between personality type and level of anxiety for the whole group but this effect did not hold for individual samples. This study identified a significant positive relationship between introversion and anxiety for the group of ICU nurses studied; while a positive relationship existed for medical/surgical nurses the result was not significant.³¹ This finding is consistent with study by Burgess et

al.⁸⁴ discussed above, who found that intensive care nurses who experienced lower stress dealing with patients and relatives scored higher on *extraversion*, although the relationship was not significant in the study.

Summary of the Relationship of Personality Characteristics to Stress and Burnout

There is insufficient evidence to support the notion that hardiness as a personality trait can act as a buffer against the effects of burnout. The studies included in this review did, however, demonstrate that some aspects of personality do correlate with increased levels of stress and burnout among the groups of nurses studied.

The database searching did not identify any studies that explored the relationship between personality and stress or burnout for nurses working specifically within the emergency setting. Emergency nurses as a group are at high risk of burnout as studies have identified higher levels of emotional exhaustion among emergency nurses than nurses working in other clinical areas.⁵⁰ Environmental factors have largely been attributed to the high levels of emotional exhaustion among nursing staff. While the literature has considered a link between personality characteristics and burnout,⁵⁰ no studies could be identified through the search that explored these concepts in emergency nursing. Only two studies examining stress and burnout were undertaken within the last ten years.^{84,86} With changes to nursing and healthcare services, as well as daily life, it is likely that personal and work stressors have changed considerably in this time. Further, the studies are largely cross-sectional and use small, variously defined samples.

The studies within this theme demonstrate a possible relationship between aspects of personality and levels of workplace stress and anxiety. Personality is known to play a role in how an individual perceives and deals with stressful situations. However, there is currently no evidence to confirm exactly which aspects of personality play the most significant role.

2.3.5 Personality and Job Satisfaction

The systematic search of literature identified one paper that explored the relationship between personality and job satisfaction within a defined nursing specialty. Studying a large group of 923 Dutch nurse anaesthetists, Meeusen et al.⁸⁸ concluded that job satisfaction plays an important role in staff retention. The level of job satisfaction among nurses will ultimately influence retention of staff, with lower levels of job satisfaction influencing the individual's decision to seek and consider alternative job opportunities.⁸⁸ Job satisfaction is not only of importance to nurse staffing and nurse retention, but also impacts upon the experience of those being cared for. It has been suggested that when staff are satisfied with their job, this is recognised by the patient and leads to greater satisfaction with care.⁸⁹

Meeusen et al.⁸⁸ measured personality using a modified version of the Myers-Briggs Type Indicator (MBTI) previously discussed in section 2.3.1. Factor analysis was carried out to confirm modifications to the structure of the MBTI, which included all four personality types but measured only 56 of the original 95 items. Analysis of the personality results was undertaken, identifying four underlying personality dimensions that do not correspond directly to the MBTI.⁸⁸ The underlying dimensions identified were *easy going*, *orderly*, *compassionate* and *receptive*. The authors proposed these new dimensions to be comparable to four of the dimensions of personality as identified with the big five models of personality: extraversion, conscientiousness, agreeableness and openness to experience.⁸⁸ Job satisfaction was measured with a three-item global scale.

Two personality dimensions were identified to have a significant positive correlation with job satisfaction. These were the *easy going* ($r = 0.18$) and *orderly* ($r = 0.11$) dimensions.⁸⁸ If the authors' proposed alignment with the big five model of personality is accurate, the results would suggest that *extraversion* and *conscientiousness* may be positively correlated to job satisfaction among anaesthetic nurses. It is of interest that both of these personality variables have

previously been found to have significant negative relationships with stress, that is, the more *extraverted* or *conscientious* the lower levels of stress.^{31,84}

The statistical analyses of this study resulted in the identification of four new personality dimensions. While this makes it difficult to compare study results with previous research using the MBTI, the results did report two personality dimensions that had statistically significant correlations with job satisfaction. The results of this study raise the possibility that the personality of the individual has the potential to influence their level of job satisfaction.

2.4 Literature Search Update

The search terms and process outlined in section 2.2.1 were re-executed in June 2014 prior to completion of the thesis. The repeat search was limited from 1 July 2010 to present. Since the original searches were undertaken, the ProQuest 5000 database has incorporated a larger range of databases and no longer exists in the previous format. On advice from the librarian, a repeat search using the search terms in Table 2.2 was executed in ProQuest Nursing & Allied Health Source and the subsequent search yielded a substantially larger number of results. Due to the larger number of results, the search was limited to research conducted with adults from 19 to 65 years, and by the subject headings 'personality' and 'nurse'. No further studies related to the topic were found with the additional database searches and using these search limits.

2.6 Conclusion

The aim of this review was to determine what is known about the personality profiles of nurses working within different nursing specialties, with a focus on emergency nursing. A secondary aim of the review was to identify the various tools used to measure personality in previous nursing personality research. After conducting a broad but systematic search of the international literature, it can be concluded that the only study exploring the personality of emergency nurses⁶⁹ was undertaken more than 20 years ago and likely holds little relevance for the contemporary emergency nursing workforce. While the studies of personality within specialty areas of nursing do report some differences in the personality

characteristics of the samples studied, it would be inappropriate to draw conclusions that relate to specialty groups as variations in the study protocol and tools used to measure personality in the various nurse samples largely prohibit the possibility of comparing across studies.

Research included in the review was conducted over a broad timeframe, much of it over 25 years ago. The time elapsed between many of the studies prevents accurate comparison of results. The reviewed research used a variety of different tools not only to measure personality, but also to measure related personality variables such as hardiness, stress and burnout. Therefore, it was not possible to identify any specific or superior personality tool for the current study.

This integrative literature review has demonstrated that there are potential differences between groups of nurses working within different specialty areas and links have been identified between personality characteristics and stress, burnout and job satisfaction for nurses. There is a very small body of largely out-dated research exploring these relationships within defined nursing specialty areas. While the evidence is limited, the findings from the review clearly demonstrate that it is an area of nursing that warrants further investigation. Personality theory suggests that the choice of a particular profession or specialty in part can be determined by the personality of the individual.^{26,29} Holland²⁶ suggests that registered nurses fit a *social, investigative, realistic* (SIR) personality profile,²⁶ a very broad description of personality that does not provide adequate depth to the description. As this review suggests differences may exist between groups of specialist nurses and not all nurses will necessarily exhibit the same personality characteristics.

The research identifying differing personality characteristics among nursing specialty areas is also limited. While some variance in the personality characteristics of ICU, emergency, renal and oncology nurses has been demonstrated, the evidence is not sufficient to say that working in a particular specialty area is likely to predict the personality characteristics of the individual (or vice versa), or enable comparison. There is lack of current, comparable evidence from existing research to allow for accurate analysis and comparisons

of the difference in personality between specialty groups. Further research is required with larger populations in defined speciality areas in order for any valid comparison and conclusions to be made. This field of research is essential as it has the potential to identify the personality characteristics of individuals who will enjoy their work and likely be retained within defined nursing specialty areas. This information may assist in informing targeted recruitment strategies, in ensuring appropriate mechanisms are in place to assist with the management of stress and burnout in the workplace, and in avoiding the loss of experienced specialty clinicians.

Chapter 3:Method

3.1 Introduction

The integrative literature review in Chapter 2 revealed limited recent, good quality research on the personality characteristics of nurses working within nursing specialty areas. This chapter will outline the methods for data collection and analysis of an exploratory study of the personality of emergency nurses working in a single emergency department in Sydney, Australia. The basis of this exploratory study is to test the research questions related to the aims of this study within a local Australian context and to obtain pilot data for a larger multisite study of the personality characteristics of specialty nurses in Australia.

3.2 Aim

The aim of this study was to develop a personality profile of emergency nurses, in order to explore whether a relationship exists between their personality profile and their decision to work in the emergency setting.

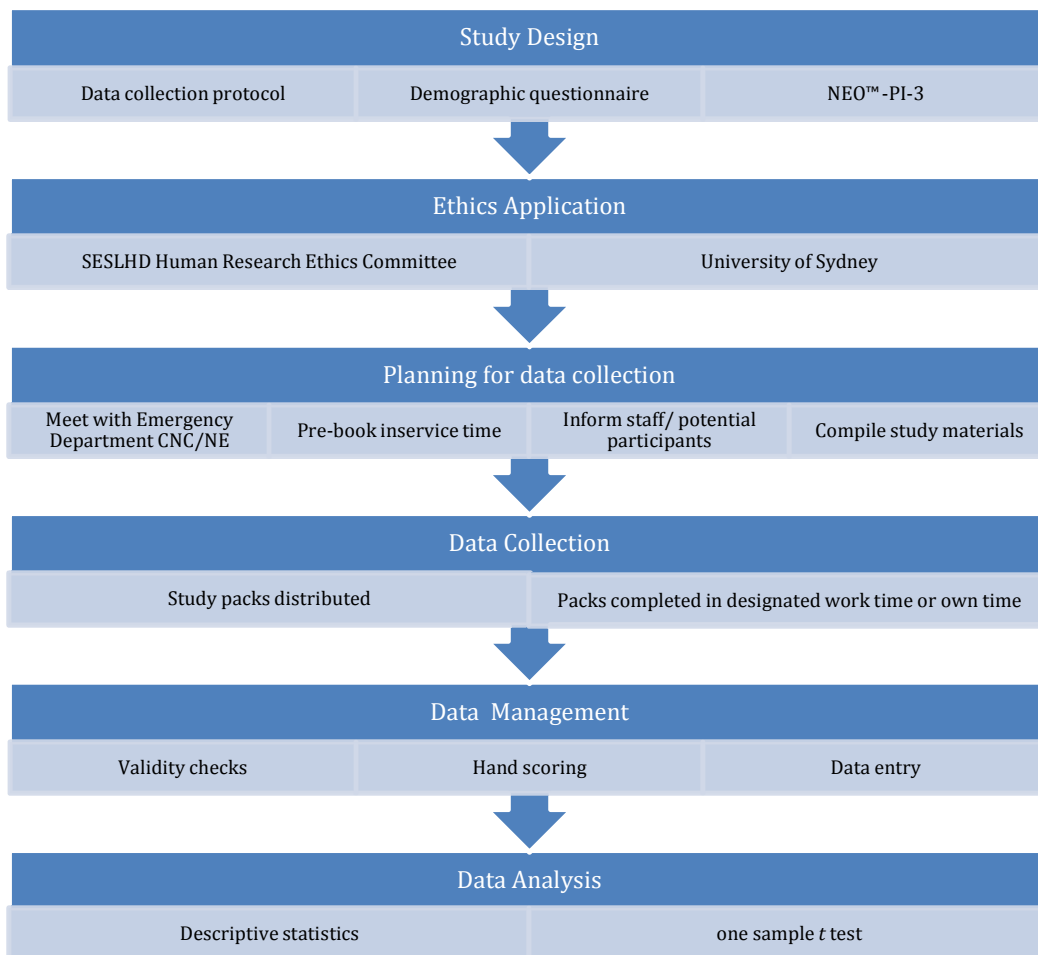
The research questions specifically were:

1. What is the personality profile of a sample of Australian emergency nurses?
2. Is there a relationship between personality characteristics and/or profile and length of employment within emergency nursing?

3.3 Method

The research study uses a quantitative research and a self-complete questionnaire method. A protocol was developed to guide the conduct of the study and for the ethics application (Appendix 3). Figure 3.1 gives an overview of the study method as process stages. The first stage was to develop and select questionnaires to develop a personality profile of a convenience sample of emergency nurses and to identify factors that may influence nurses to remain within the workforce. A demographic and workplace environment questionnaire was designed specifically for use in this study and the NEO™-PI-3 personality inventory was selected to measure personality characteristics.

Figure 3-1: Flow chart for study method



3.3.1 Sample and Setting

The St George Public Hospital (SGH) Emergency Department was the sole site for data collection. SGH is a tertiary referral hospital providing services to approximately 250,000 residents in the south east of Sydney, New South Wales, Australia. SGH is a level 1 trauma centre, providing a wide range of clinical specialties, including emergency and trauma care, maternity, paediatric, cancer care, medical/surgical and rehabilitation services. In addition to the health services provided to the local community, SGH is the referral hospital for the South Eastern Sydney Local Health District and the broader catchment area of Illawarra/Shoalhaven and Murrumbidgee Local Health Networks. In 2012 the emergency department managed 66,507 emergency presentations, both adult and paediatric. Approximately 20% of emergency presentations are paediatric patients.

The primary investigator met with emergency department management prior to submitting an ethics application to seek permission to undertake the proposed research within the department. The management team was supportive of the study. At the time of data collection the emergency department employed 105 registered nurses with varying levels of experience on a full- or part-time basis. This number included ten registered nurse staff who were employed on rotation in the emergency department in either a new graduate or critical care program. These nurses were excluded from the sample as they were not employed on a permanent basis, as were any nurses on extended leave from the department, for example through long service or maternity leave, due to the likely difficulties of enrolling them in the study. This resulted in 95 emergency nurses who were eligible to participate in the study. There were no enrolled nurses in the study as none are permanently employed in the emergency department where the study was conducted.

3.3.2 Data Collection Tools

Two instruments were used to collect data to explore the research questions outlined above – a validated personality inventory and a purpose-designed demographic questionnaire. The NEO™ Personality Inventory is a validated instrument that measures five broad personality domains, and associated facets, in order to provide a comprehensive assessment of personality.^{17,23,25} A demographic questionnaire was specifically designed to collect information from the emergency nurses participating in the study, as well as information on factors that may explain their choice of specialty or influence their decision to remain within the field of emergency nursing when considered with results of the personality inventory.

Psychologist consultation

As information gathered during the literature review phase did little to assist with the choice of instrument for measurement of personality characteristics, a psychologist affiliated with the University of Sydney was consulted. The psychologist recommended that the NEO™-PI-3 would be appropriate for this study given that the theoretical basis for this tool is the Five Factor Model (FFM)

of personality. More recently, available information indicated that the FFM was well-supported by research within other professions and would therefore be an appropriate model of personality on which to base the research.^{17,23,25}

The NEO™ Inventories

A large body of research undertaken by Paul Costa and Robert McCrae beginning in the mid-1970s resulted in the development of the NEO™ Inventories.⁹⁰ The first NEO™ Inventory, developed in 1978, measured three domains of personality – neuroticism, extraversion and openness to experience – along with their 18 associated facet scales.¹⁷ Further research and development of the tool over the next three decades has led to the addition of two more domains – agreeableness and conscientiousness – this constitutes what is the current version of the NEO™ Inventories known as the NEO™-PI-3.⁹⁰

The NEO is a hierarchical instrument, with six specific facets to measure each of the five broad domains, making it a comprehensive, detailed assessment, detecting individual difference within the personality domain.^{17,87,90} The full-item NEO is most useful when time is not limited and the research question calls for a more comprehensive assessment of personality.⁸⁷ In this study a comprehensive assessment was necessary as there was potential to be common results among nurses working across different specialty areas. This study sought to look solely at emergency nurses and generate an accurate profile of the personality characteristics of the emergency nurse.

The NEO™-PI-3 Form S (self report) was selected and used for this study. This version was released in 2010, in the United States of America. It is published and distributed by PAR Incorporated, Florida.

The NEO™-PI-3

The NEO™-PI-3 Form S consists of 240 items that are answered by participants on a five-point Likert-type scale ranging from ‘strongly disagree’ to ‘strongly agree’. Responses are weighted from 0 to 4, depending on which domain or facet is being measured. The answer sheet is designed in a way that participants are blinded to the weighting applied to their response for each item. Table 3.1 gives an example of the type of statements participants are required to respond to in the questionnaire. The instrument can be administered in a group setting under supervision or individually.¹⁷ In this study the instrument was administered predominantly in a group setting during in-service education sessions to registered nurses working in the SGH emergency department.

Table 3-1: Sample of statements from the NEO-PI-3 Item Booklet Form S⁹¹

I’m pretty slick when it comes to dealing with people
I enjoy working on ‘mind-twister’-type puzzles
I don’t mind a little clutter in my room
I believe that the laws and social policies should change to reflect the needs of the changing world

Table 3.2 summarises the five personality domains and the 30 associated facets of the NEO™-PI-3. Appendix 4 outlines these in greater detail. Each is shown against the abbreviated notation used on the NEO™-PI-3 score sheets and frequently quoted in published literature that has used the tool. Due to the fact the NEO™-PI-3 is protected by copyright, no copy of the item booklet or score sheets is provided.

Table 3-2: Personality domains and facets of the NEO-PI-3 according to five factor model of personality¹⁷

Personality domain	Facets	
N: Neuroticism	N1: Anxiety N2: Angry Hostility N3: Depression	N4: Self-consciousness N5: Impulsiveness N6: Vulnerability
E: Extraversion	E1: Warmth E2: Gregariousness E3: Assertiveness	E4: Activity E5: Excitement-seeking E6: Positive emotions
O: Openness to Experience	O1: Fantasy O2: Aesthetics O3: Feelings	O4: Actions O5: Ideas O6: Values
A: Agreeableness	A1: Trust A2: Straightforwardness A3: Altruism	A4: Compliance A5: Modesty A6: Tender-mindedness
C: Conscientiousness	C1: Competence C2: Order C3: Dutifulness	C4: Achievement striving C5: Self-discipline C6: Deliberation

As the NEO™-PI-3 is a self-report instrument, it does not require any formal qualification in psychology or related fields to administer and score.¹⁷ This was important given the primary investigator for this study does not hold psychology qualifications. Weiner and Green⁶¹ have demonstrated that like any self-report instrument, participants can distort their response on the NEO™-PI in either a favourable or unfavourable way. This appears to occur less frequently in adults as there is little incentive for doing so and the likely incidence is even less frequent when the instrument is completed anonymously. In this study, all questionnaires were de identified and there were no associated personal or professional losses or gains for the emergency nurses completing the NEO™-PI-3. There were no obvious, or known, external motivators for participants to distort their responses in this study. While there is no time limit for completion of the NEO™-PI-3, 30-40 minutes has been shown to be a generally adequate time.¹⁷

Validity and Reliability

The NEO™ questionnaires represent the most validated measures of the big five domains of personality in a questionnaire format.^{23,25} The NEO™-PI-3 incorporated changes to 37 items of the NEO-PI-R™ to improve internal consistency and readability.¹⁷ The developers amended some of the statements to use language that was more appropriate to current day and which could be better understood by adolescents so that the form could be used from 12 years of age.⁶¹

Large volumes of research related to testing the validity of the instrument have been published for the NEO-PI-R™. Correlations between the NEO-PI-R™ and NEO™-PI-3 during the development and validation of the NEO™-PI-3 demonstrated equivalence between the two tools in both adolescent and adult samples. Correlation coefficient alphas for the five personality domains ranged from .98–.99 and .86–.99 for the 37 items, which had been altered in the NEO-PI-3 for an adult sample.⁹² Given the minor changes made to the NEO-PI-R™ to develop the NEO™-PI-3, and the high correlations between the tools, these two instruments are considered to be comparable and, therefore, validation results from NEO-PI-R™ are also considered to be applicable to the NEO™-PI-3.¹⁷

Additionally, previous research has also led to the development of validity scales that enable those administering the test to detect both subtle and more obvious falsification,^{17,90} using a scale outlined in section 3.7.1 (Validity Checks).

The NEO™-PI-3 demonstrates good internal consistency. For the NEO™-PI-3 Form S the coefficient alphas for the five domains range from .89 to .93 and from .54 to .83 for each of the facets (median = .76).⁹² There is no test-retest reliability data available for the NEO-PI-3; however, a study undertaken with the NEO-PI-R™ administered twice over a one-week period achieved a retest coefficient of .91 to .93 for the personality domains, and from .70 to .91 for the facet scales. Given that the two instruments are considered equivalent, this reliability and validity data is considered applicable to the NEO™-PI-3.^{17,92}

Population Norms

Adult population norms for the NEO™-PI-3 were generated during the second phase of the instrument development and validation process. The NEO-PI-R™ and trial items developed for the NEO™-PI-3 were administered to an adult sample of 279 males and 356 females, aged 21 to 91 years of age, residing in the United States of America. The majority of participants were white and had more than high school education. The validation study used paired responses, in that participants completed a self-report and then an observer rating of either their own partner or of a person unknown to them.¹⁷

Cross-Cultural Use

The NEO™ inventories are available with translations for more than 50 different languages.¹⁷ Studies on translated versions of the NEO-PI-R™ have generated evidence of good construct validity and equivalent results between cultures.⁹³ The wide availability and applicability of this tool provides many options for research across cultures and permits cross-cultural comparison of results.

NEO™-PI-3 Answer Sheets and Scoring

There are manual and electronic scoring options available for the NEO™-PI-3. Hand-scorable answer sheets were used in this study as the costs of electronic marking were beyond the resources of the study. The hand-scorable answer sheet requires participants to circle their corresponding answer to each statement on a hardcopy of the inventory.

Demographic Questionnaire

A questionnaire was specifically designed for this study to provide a detailed educational profile of the study participants and to collect demographic information for interpretation of the NEO™-PI-3 (Appendix 5). The minimum recommended demographic details required for the interpretation of scores on the NEO™-PI-3 are age and sex,¹⁷ and hence these were included in the questionnaire. The questionnaire was designed to collect minimum nursing educational levels, as well any area of qualification for postgraduate study in nursing or other areas. The questionnaire also outlined a list of work or personal

reasons that have been shown in the literature to potentially influence choice to remain in nursing. These work-related items were derived from the Principles of Magnet Hospitals, where implementation of the principles of transformational leadership, structural empowerment, knowledge and innovation, exemplary professional practice and monitoring of outcomes (both clinical and professional) in the workplace have demonstrated improved job satisfaction and retention among American nurses.^{94,95} The Magnet Hospital Principles have been endorsed by the Australian Nursing Federation.⁹⁶

The development of items on the questionnaire was also informed by the identified factors such as management support, work practices, professional development and workplace culture as influencing levels of job satisfaction and hence intention to remain in current job role.^{42,43,97} The literature reporting personally related items that influence retention is not consistent, and therefore only items considered to influence retention, such as salary and flexible rostering,^{43,97} were included. Participants were required to select any items on the list that they felt influenced their choice to remain in their current position. An option to insert free text to describe other reasons was also available.

These standard demographic questions were intended to inform the analysis of the personality profile, including any association with occupational choice and retention. The demographic instrument was developed solely for the purpose of this study. There is no validity or reliability data available for this instrument.

3.4 Ethics Submission

As the research design of the project included collection of general demographic data and completion of the NEO™-PI-3 personality inventory through a voluntary sample with all data de-identified, a low to negligible risk application to the ethics committee was deemed appropriate. The ethics application for the research project was commenced in October 2011 by creating an account with Australian Online Forms for Research (www.ethicsform.org), for completion of the ethical and scientific review of low and negligible risk research application form for submission to the ethics committee.

The completed ethics application with copies of all required supporting documentation – Data Collection Protocol (Appendix 3); Demographic Data Questionnaire (Appendix 5); and Participant Information Sheet (Appendix 6) – were submitted to the South East Sydney Local Health District (SESLHD) Human Research Ethics Committee (HREC) at the beginning of November 2011. It was not necessary for participants to sign a consent form as verbal agreement and the act of completing and returning the questionnaires was considered to indicate consent. The ethics application was considered on 8 November 2011, when the committee for further consideration requested copies of the NEO™-PI-3 item booklet and answer sheet. The application was again considered on 20 December 2011, after requested documents had been provided, and feedback (Appendix 7) was received that some modification to the demographic questionnaire was required. The HREC also requested removal of text requesting personal identifiers on the NEO™-PI-3 answer sheet and further information addressing data security. Feedback was provided to the committee, addressing all of the necessary points on 22 December 2011 (Appendix 7). Any information on the item booklet or the answer sheet requesting personal identifiers was blacked out with permanent marker, and a unique study number was placed on each answer sheet and corresponding demographic questionnaire for data linkage. Following submission of the above information and supporting documentation to the SESLHD Human Research Ethics Committee, ethics approval was granted for the project at St George Hospital on 23 December 2011 (Appendix 7), with authorisation from the Chief Executive or delegate for St George/Sutherland Hospitals and Health Services (SGSHHS) pending. Final authorisation for the project was received on 3 February 2012 (Appendix 7).

As a student of the University of Sydney, it was also necessary to gain ethics approval from the University prior to commencing data collection. The ethics application was lodged to the University of Sydney HREC in July 2012. Acknowledgement was received from the Executive of the University of Sydney HREC on 23 July 2012 (Appendix 7), with acknowledgement of the right to proceed as per ethics approval from SESLHD ethics committee.

3.5 Participant Identification

The study used a convenience sample of emergency nurses employed at St George Hospital (SGH), the study site. All permanently employed registered nurses were invited to participate in the study on a voluntary basis according to the inclusion/exclusion criteria set out below.

3.5.1 Participant Inclusion/Exclusion Criteria

All registered nurses employed in the emergency department on a permanent basis, full-time or part time, were invited to participate in the study.

Any registered nurses employed in the emergency department on a temporary or rotational basis were excluded from the study. It was felt that including this group would potentially skew the results and not necessarily provide an accurate reflection of the emergency nurse personality profile, considering staff employed on a temporary or rotational basis are allocated to the area of specialty and do not necessarily choose the emergency department as their preferred place of work.

3.5.2 Engagement with the ED

The primary investigator met with both the Emergency Clinical Nurse Consultant (CNC) and Nurse Educator (NE) in December 2011 to explain the study and propose the timeframe for commencement to ensure the study would be conducted at a suitable time for the department. As these positions manage the education program and staff allocation to in-service education sessions, both offered their services as a point of contact for staff who wished to participate during the in-service meeting time.

The educational in-service meeting consists of a 45-minute time slot each day from 1400 to 1445 hours, Monday to Friday, allocated for education sessions as well as staff meetings and other departmental activities, as staffing levels permit. The emergency department management and education staff were supportive of the research project and agreed to allocate time within their in-service calendar for those who wished to participate in the study to complete the questionnaires

during working hours. Four in-service time slots were booked between July and September 2012 to facilitate staff participation in the study.

3.5.3 Study Recruitment

Potential study participants were contacted via email and in-service sessions within the emergency department by the primary investigator one month prior to the planned commencement of data collection. The email provided information about the study and invited nursing staff to participate. A participant information sheet was attached to the email and explained that consent would be implied by return of the completed questionnaires. The study was discussed and remained on the agenda of the fortnightly nursing practice meeting, chaired by the Emergency CNC, as a part of informing staff about current research being undertaken in the department. If staff expressed an interest they were provided with a participant information sheet, if they did not already have one, either in person or electronically via email. Interested staff members were directed to contact the primary investigator with questions regarding the study, either via email or in person. Participants were informed that they could either complete the two instruments in work time or if they preferred, a study pack could be provided for them to complete at their convenience in their own time.

Study packs consisted of envelopes containing instructions for completion of the questionnaires, a participant information sheet, the demographic data questionnaire, the NEO™-PI-3 Item Booklet Form S and the NEO™-PI-3 answer sheet Form S. Study packs were distributed to staff who indicated an interest to participate but who wished to do so in their own time. An unmarked envelope, with only a study number on the outside, was provided with instructions for return of the completed questionnaires and NEO™-PI-3 Item Booklet.

The NEO™-PI-3 can be completed either in the presence of an investigator or in the privacy of the participants home if necessary, but in order to maintain test integrity it is necessary to ensure all test materials are returned.¹⁷ On completion of the questionnaires, NEO™-PI-3 Item booklets along with the answer sheets were returned in the unmarked study envelope to either the primary

investigator or the Emergency Department Educator's office for placement in the study box. All materials used in this study were returned as requested during the period of data collection.

3.6 Data Collection

Recruitment to the study commenced at the end of July 2012, after ethics approval was received, and concluded in October 2012. Two further in-service sessions were booked over the three-month data collection period in addition to the four pre-booked in-service time slots to ensure maximum recruitment.

Participation in the study was voluntary. At no time was any coercion or pressure placed on staff to complete the questionnaires and consent was implied upon return of the completed questionnaires. The use of in-service time to complete the questionnaires was supported by emergency department management and was essential to the conduct of the study; both from a resource perspective and in an effort to improve response rate to ensure the sample was representative.

Examining organisational survey response rates across a large number of studies, Baruch and Holtom⁹⁸ found an average response rate of 48.3% among individuals, with a mean response rate for those in the health care sector of 53.8%. The study found no difference in overall response rate between those who were offered an incentive for completion versus those offered no incentive, and the response rate was higher when surveys were completed in person.⁹⁸ A large proportion of non-response to surveys can be classified as passive non-response, for example, the survey was either forgotten or not received.⁹⁹

For this study, providing time during work for those who expressed an interest to participate was essential to achieving a satisfactory response rate and a representative sample to establish the personality profile of this group of emergency nurses. Emergency CNCs and NEs assisted by allowing staff to contact them if they wished to participate in the study. Staffing and departmental activity permitting, educators allowed those who had expressed an interest to participate in the study to attend an in-service session. Over the period of data collection there were between six and 12 participants at each in-service session.

The primary investigator attended each emergency department in-service personally to maintain consistency in questionnaire delivery and to prevent the discussion of responses between participants.

The majority of participants completed the questionnaires during work time (n=70). Those who chose to complete the questionnaires in their own time (n=6) returned the study pack along with the NEO™-PI-3 Item Booklet to the study collection box in the educator's office. The NE also provided some individuals the opportunity to complete the questionnaires during work time on days when there was no scheduled time allocated for data collection. This was deemed acceptable given that it was appropriate to allow the test to be taken home.

3.6.1 Completing the Questionnaires

Once staff had assembled in the emergency department tutorial room, each participant was provided with a study envelope by the primary investigator, containing a participant information sheet, demographic questionnaire, and a copy of NEO™-PI-3 item booklet (Form S) and NEO™-PI-3 answer sheet (Form S). Those who had not already read the participant information sheet were requested to do so prior to commencing. Verbal instructions were given to the group on how to complete the questionnaires, with the instructions also written on a white board within the room for participants to refer to if necessary. These instructions reiterated directions on the front sheet of the NEO™-PI-3 booklet, as well as instructions related to the content of study packs and processes for return of completed questionnaires. The same written instructions were provided to those who chose to complete the study in their own time (Appendix 8). Time was provided for any questions before commencing and participants were requested not to discuss their responses with others. Explaining the process and answering questions was an important part of engaging the participants. As noted by McCrae and Costa,¹⁷ if participants are appropriately engaged in the activity, it will likely reduce the incidence of random responding or response sets to the statements. Random response sets refer to when participants provide the same response across a number of consecutive items in the questionnaire.

The primary investigator remained with the participants' during questionnaire completion and was available to answer questions where necessary. The primary investigator's assistance with the understanding of terms in the statements was limited to the glossary of terms provided in the NEO™ Inventories Professional Manual. If there was no reference to a particular term in the manual, and participants were uncertain about that meaning or were unsure how to respond, they were instructed to choose a *neutral* response as per instructions in the professional manual.¹⁷

On completion of both questionnaires, participants were asked to double-check that they had answered all questions prior to sealing the demographic and NEO™-PI-3 questionnaire in the envelope. All participants placed their completed study envelopes and item booklets in the middle of the table for the investigator to collect at the end of the session. The majority completed the questionnaires within the allocated 45-minute session, but some took slightly longer and others chose to complete the study questionnaires in their own time or at a later in-service session. These participants kept their own study pack until completed.

3.7 Data Management

A unique numerical identifier was allocated to the demographic and NEO™-PI-3 inventory within each study pack to enable linkage of the data. Neither instruments contained any personal details that would enable the identification of participants. All instructions on the standard printed NEO™-PI-3 item booklet for the recording of personal details and the section for personal details on the answer sheet had been blacked out with permanent marker by the primary investigator prior to the assembly of study packs.

A total of 76 envelopes were returned to either the educator's office and study box as instructed or directly to the primary investigator. At intervals throughout the data collection period, the primary investigator removed questionnaires from the sealed envelopes, checking to ensure the study number was the same on both the demographic questionnaire and NEO-PI-3 answer sheet. All 76 study envelopes handed out during the data collection were accounted for on

completion of the study, one was returned with a note stating, 'sorry, I don't think I can do this now' and another was incomplete. Therefore, a total of 74 potentially useable records were returned.

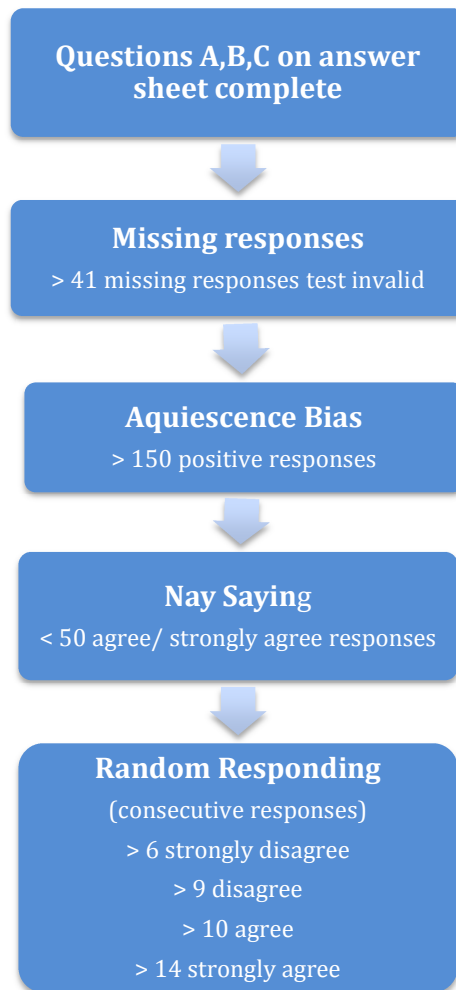
An Excel spread sheet was created for the demographic data to be recorded. Personal, work and educational details were entered in text. Where one or more options could be selected on the demographic questionnaire (for example, selecting options that influenced choice to remain in emergency nursing) the selected item was entered as one and as zero if not selected.

Hand-scoring of the NEO™-PI-3 answer sheets was completed by the primary investigator prior to data entry. This enabled calculation of a raw score for each facet, and then subsequently scores for each domain. A process of validity checking was completed prior to hand-scoring (below). After removal of the carbon front sheet, all NEO™-PI-3 answer sheets along with the corresponding demographic questionnaire were scanned to create an electronic copy of the record for back-up. This was stored on a password-protected computer only accessible by the primary investigator. Hard copies were then kept in a locked filing cabinet in a key locked office.

3.7.1 Validity Checking

The NEO™-PI-3 manual recommends validity checking of the answer sheets to ensure valid scoring of the NEO™-PI-3 facet and domain raw scores. This process is outlined in Figure 3.2.

Figure 3-2: NEO™-PI-3 answer sheet validity checks



As shown in Figure 3.3, answer sheets are visually scanned to ensure that the three statements at the bottom of the answer sheet had been completed. These ask the participant if he/she had (A) answered all the questions accurately and honestly, (B) responded to all the statements, and (C) entered the responses in the correct areas. If participants had selected 'disagree' or 'strongly disagree' for point A or answered 'no' to point B or C, the answer sheets were considered invalid and had to be excluded from further analysis as per instructions in the professional manual.¹⁷ There was one answer sheet returned for this study for which *strongly disagree* had been selected on point A. Despite the fact this response passed all other validity checks and most likely the response was selected in error, this answer sheet was excluded from the study. Another questionnaire was excluded as a result of a *disagree* response on point A, examination of the answer sheet also revealed random answering.

Missing Responses

Individual answer sheets also had to be checked for missing responses. There were five answer sheets that had one or two answers missing. As there were less than 41 missing responses (Figure 3.2) the blank items were scored as a *neutral* response as instructed by the NEO™ Inventories Professional Manual.¹⁷ There was no more than one response missing from any individual facet, but McCrae and Costa¹⁷ recommend using caution in interpretation if there are three or more responses missing from the same facet.

Acquiescence Bias

Acquiescence bias exists when an individual tends to agree with all questions of a survey. All answer sheets were checked for acquiescence by counting all *agree* and *strongly agree* responses. If there are more than 150 positive responses, then the potential for acquiescence bias exists.¹⁷ There were no participants excluded from this study on the basis of acquiescence bias evident in their response.

Nay Saying

Answer sheets were then analysed for ‘nay-saying’, in other words, overly negative, pessimistic or non-committal responses to questions. This is indicated by a lack of *agree* and *strongly agree* responses. It is reported in the NEO Inventories Professional Manual that in a previous study, ‘approximately 99% of a large volunteer sample agreed with more than 50 items’.¹⁷ Therefore, less than 50 *agree* and *strongly agree* responses should be interpreted with caution.¹⁷ In this sample of 72 responses, no questionnaires had fewer than 50 *agree* and *strongly agree* responses selected. No participant was excluded from the study on the basis of nay saying.

Random Responses

Random responding refers to random or careless response selection. According to McCrae and Costa,¹⁷ this is more likely to occur in a setting where the test is administered to a group. Simple visual inspection may reveal random responding, and guidelines based upon response patterns of a volunteer sample are provided in the NEO™ Inventories Professional Manual.¹⁷ Only one questionnaire in this study fell into this category, and it had already been removed with the initial validity checks.

In summary, validity checks resulted in the exclusion of two participant questionnaires from further analysis, with a total of 72 completed and valid demographic and NEO™-PI-3 questionnaires in the final sample.

3.7.2 Scoring NEO™-PI-3

Hand-scoring of the NEO™-PI-3 answer sheets first required each of the six facets within each domain to be calculated. This was achieved by adding up the responses for the eight statements associated with each facet scored from 0 to 4, resulting in a minimum score of zero and maximum score 32. Once each of the facets had been calculated, the results from the six facets were added together to achieve the domain raw score.

While the first ten answer sheets were hand-scored, an Excel spread sheet was created to assist with the scoring of the remaining NEO™-PI-3 questionnaires.

The score for the eight statements (0-4) for each of the facets were entered into the spread sheet and the facet score results were computed using the Excel formula function, with subsequent calculation of the domain raw scores. Any missing or unclear responses were scored as 2 or *neutral* as per the instruction manual.¹⁷ In situations where this was necessary, the questionnaire was again checked for validity as per the processes described in the previous section.

3.7.3 Data cleaning and preparation

On completion of data entry, the Excel spread sheet was checked for any missing data or obviously erroneous results, and where necessary the original answer sheet was checked to confirm results.

Data were then imported into SPSS v. 21.¹⁰⁰ All data entered as yes/no into the Excel spread sheet was recoded: yes=1, no=0. Frequencies were performed for age; gender; full-time/part-time work; postgraduate qualifications; ED experience; as well as all the personality domains and facets. Frequency plots were examined to ensure that there were no missing data. Initial frequencies detected two participant's results with missing 'age' in the data set. Checking the original questionnaires revealed that age had not been recorded on one of the questionnaires so this field remained blank. Any edits and corrections were made to the data set at this time.

Frequency analyses were also undertaken after any re-coding of data to ensure there were no errors in re-coding leading to omissions of data. Some initial normality testing highlighted errors where missing data had been entered as zero when the data were imported into SPSS from Excel. The SPSS data were all rechecked to remove zero from any fields where there had been missing responses.

3.7.4 Variable Creation

As one of the aims of the study was to explore the characteristics of emergency nurses that remained in the specialty, a period of three years of experience was chosen to represent a commitment to the specialty. This period was chosen after consultation with six expert emergency nurse clinicians with leadership roles in emergency departments in the Australian states of NSW and Victoria. The experienced clinicians indicated that they considered two years as the time taken to fully train an emergency nurse with three years considered a stage at which the nurse would be fully trained and sufficiently experienced to work in all areas of the emergency department, some departments required staff to have postgraduate qualification in the field to be able to progress to work in areas such as triage.

For each of the personality factors and domains, results were re-coded into low, average and high score ranges as described by the NEO™ Personality Inventory-3 Adult combined norms self-report profile form.¹⁰¹ The very low and low ranges were combined (low) as were the high and very high (high) score ranges to enable more meaningful analysis of data. With 72 participants, the dataset was not large enough to analyse the data for each of the personality domains and facets across all five categories separately.

3.8 Statistical Analysis

A Statistical Analysis Plan (SAP) was developed in consultation with a statistician from the University of Sydney and research supervisors (Appendix 9). The Kolmogorov-Smirnov test for normality testing was undertaken using SPSS v. 21¹⁰⁰ to look at the distribution of the data for both demographic variables (age, registered nurses years and years employed in emergency nursing) and the personality domains and facets before deciding on the most appropriate statistical test for analysis of the data. An alpha level of $p < .05$ was considered to indicate distributions statistically different from normality.

The results for the demographic variables all demonstrated normally distributed data. The results of the normality testing of the personality domains and facets (Appendix 10) show that distributions of the domains and a number of the facets had $p < .05$. After discussion with the statistician, it was felt that the results were impacted by the sample size, given that in all the results the skew was relatively small. For all the domains and facets, the skew was less than two times the standard error of skewness, which is indicative of normal distribution of the data.¹⁰² The facets of warmth, compliance and achievement striving were all slightly greater than two times the standard error of skewness, but examination of the Q-Q plots (Appendix 11) demonstrated no serious departures from normality. For these reasons, the data was considered normally distributed and the statistician advised that parametric tests were appropriate for analysis.

3.8.1 Data Analysis

Descriptive Statistics

Descriptive statistics were used to summarise participant demographics such as age, gender, years since registering as a nurse, years in emergency nursing and educational qualifications for this sample of 72 emergency nurses. Descriptive statistics were used to summarise the factors identified by emergency nurses, influencing their choice to remain in emergency nursing. Once all the personality domains and facets were recoded as described in section 3.7.4 (variable creation), descriptive statistics were used to evaluate the distribution of NEO™-PI-3 scores of the sample across the low, average and high score ranges.

Educational qualifications and nursing specialty were divided into levels of postgraduate qualification (graduate certificate, graduate diploma, masters) and nursing specialty (emergency nursing, critical care, midwifery, management). Both questions provided the option of free text if qualification level or specialty option was not provided. For the purposes of analysis, any free text was classified as *other* for the descriptive statistics.

Parametric Tests

A one-sample *t*-test was used to compare emergency nurse NEO™-PI-3 mean scores with the NEO™-PI-3 combined population norms. While it is recognised that multiple one-sample *t*-tests, as conducted in this study, can result in an increase in Type 1 error (false positive) there are a number of methods that can adjust for multiple testing. Given the number of tests conducted in this study, it was felt that this correction would be too conservative. Therefore a two-sided alpha level of .01 was determined to indicate statistical significance. All planned one-sample *t*-tests were clearly stipulated in the SAP prior to commencing the analysis of the data. A one-sample *t*-test was undertaken with the NEO-PI-3 results, on participant mean scores, on all of the personality domains and facets with the NEO™-PI-3 combined population norms. The sample was then divided and the analysis repeated for the sample of nurses with greater than or equal to three years experience in emergency nursing compared to the NEO™-PI-3 combined population norms.

3.9 Feedback to Participants

Feedback on the results of the study was provided to emergency nursing staff with a presentation during an in-service session. A summary of results was also provided in an email to the Emergency Senior Nurse Manager and the Emergency Clinical Nurse Consultant for distribution to nursing staff via email and as appropriate at ward staff meetings. A publication of the study results was also provided to the emergency department nursing staff via email. Feedback of personality assessment to individuals was not provided, all data were de identified at time of collection and therefore individual feedback was not possible.

3.10 Summary

This chapter has outlined the research aims and methods for an exploratory study of the personality of emergency nurses. Information related to the study site and the processes involved to gain ethics and departmental approval to enable the study to proceed have been described. The recruitment of

participants and data collection methods were clearly outlined, along with the subsequent processes for checking and scoring of data. The plan for statistical analysis of the data was also described. The results of this study are presented in the next chapter.

Chapter 4:Results

4.1 Introduction

This chapter seeks to compile a personality profile for a sample of Australian emergency nurses working at a large emergency department in Sydney using the methods detailed in the previous chapter. A demographic profile of the study participants is also presented and is tabulated against Australian nursing workforce statistics.

Personality domains and facets are presented using the common abbreviations used for reporting results of the NEO™-PI-3. The results for the five personality domains measured by the NEO™-PI-3 are presented for the emergency nurses who participated, as are the six associated facet results within each of the personality domains. Participant results are then compared with established combined population norms as described in section 3.3.2. Analysis was also undertaken on the sub-group of emergency nurses who had three or more years of experience, generating a personality profile for experienced emergency nurses in this sample. The reasons given by participants for staying within their current employment in emergency are presented.

The NEO™-PI-3 scores in this study are reported as raw scores to enable comparison with population norms. The NEO™-PI-3 self report profile form for raw score conversion to T scores provided five scoring ranges for NEO™-PI-3 raw score results (low, very low, average, high, very high).¹⁰¹ Given the relatively small number of participants in this study, dividing scores across these five ranges produced small individual group sizes of inadequate size for statistical comparison. As the purpose of this study was to establish the personality profile of a group of emergency nurses rather than test individual personalities, raw score results were categorised into three score ranges as described in Chapter 3 (Section 3.7.4). Results for the NEO™-PI-3 personality domains and facets are therefore reported as being low, average or high.

4.2 Emergency Nurse Participants Demographic Profile

Seventy-two emergency nurses completed both the NEO™-PI-3 and the demographic questionnaire; 49 of these participants had worked in emergency nursing for three or more years and are identified and analysed in the results below as an experienced sub-group of emergency nurses. All were registered nurses employed on a permanent basis, either full-time (77.8%) or part-time (22.2%), within the study site emergency department (Table 4.1). There were 95 emergency nurses who were eligible to participate, equating to a participation rate of 76%.

The mean age of nurse participants was 32.4 years (SD 9.0), with an age range of 20 –58 years. There were a larger proportion of females (80.6%) than males (19.4%), consistent with the general nursing workforce profile. The participants in this study were younger and had a larger proportion of males than the average reported for the whole Australian nursing and midwifery workforce, but the younger age and higher proportion of males in this sample are also characteristic of the emergency nurse population statistics reported by the Australian Institute of Health and Welfare Nursing Workforce Survey³⁸ as shown in Table 4.1. The table shows that this sample of emergency nurses were younger at 32.4 years compared to the average of 39.4 years and had a larger proportion of males, 19.4% compared to 15.6%, when compared with the Australian emergency nurse workforce statistics.³⁸ The Australian workforce data classifies nurses as working in ‘emergency care’, this is self-selected by nurses completing the workforce survey at time of registration with the Australian Health Practitioner Registration Agency (AHPRA) and they nominate ‘emergency care’ as their primary area of employment.

The nurses in the study sample had a mean of 10 years (SD 8.6) experience as registered nurses, and a mean of 6.9 years (SD 6.3) in emergency nursing. More than half the group (68.1%) had worked in emergency nursing for longer than three years (table 4.1). The majority (77.8%) of the 72 emergency nurses who participated in the study worked full-time. Australian nurse workforce statistics demonstrate that with increasing age, the number of registered nurses working full-time decreases.¹⁰³

The majority (87.5%) of participants held a three-year Bachelor of Nursing degree and just over half (51.4%) held some form of postgraduate qualification (Table 4.1). Of those with a postgraduate qualification, 73% had a graduate certificate, 13.5% a graduate diploma and 21.6 % a masters level qualification. Of those with a postgraduate qualification, 30 (81.1%) held a specialty qualification in emergency nursing. Other postgraduate specialty qualifications were in critical care (13.5%), midwifery (8.1%) and management (5.4%). Four participants held postgraduate qualifications in other areas (e.g. gynaecology diploma) and two failed to identify their area of postgraduate qualification.

Table 4-1: Demographic Characteristics of registered nurse respondents compared to Australian workforce statistics 2012

Demographics	ED nurse participants (Study sample)	Emergency care ³⁸	Registered nurses ³⁸ (All specialties)
Number participants	72	15 174	238 520
Age (years)			
Mean (+/- SD)	32.4 (9.0)	39.4	44.3
Gender (%)			
Male	14 (19.4)	15.6%	10.4%
Female	58 (80.6)	84.4%	89.6%
Work Status (n/%)		*	*
Full-time	56 (77.8)		
Part-time	16 (22.2)		
RN years		*	*
Mean (+/- SD)	10 (8.6)		
ED years			
Mean (+/- SD)	6.9 (6.3)		
≥3 years emergency	49 (68.1)		
ED years: Mean (+/- SD)	9.4 (6.1)		
Education		*	*
Bachelor of Nursing	63 (87.5)		
Postgraduate	37 (51.4)		
Specialty qualification	30 (81.1)		

* The AIHW either does not report the remaining data, or it is reported in a way that does not allow comparison with the group of nurses in the study.

4.3 Emergency Nurse NEO™-PI-3 Results

As outlined in the previous chapter, the NEO™-PI-3 is the most recent version of the NEO™ Personality Inventories. The instrument measures five broad personality domains (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and their six associated facets, summarised again in table 4.2 for easy reference. The NEO™-PI-3 Form S consists of 240 items answered by participants on a five point Likert-type scale from *strongly disagree* to *strongly agree*. Responses are weighted 0 to 4, depending on what is being measured, with respondents blinded to the weighting applied to each response. Results for each of the fundamental personality domains and facets were calculated according to the instructions in the professional manual.¹⁷ The decision was made to use the combined population norms available with the NEO™-PI-3 for the analysis, given the inability to compare results between genders due to relatively small numbers of males in this study.

The NEO™-PI-3 is intended to be a measure of normal personality. While high scores may be associated with pathological conditions, the instrument was not specifically designed for the purpose of the diagnosis of psychopathology.¹⁷ The NEO™-PI-3 has been widely used in research and also has some application for clinical settings.¹⁷

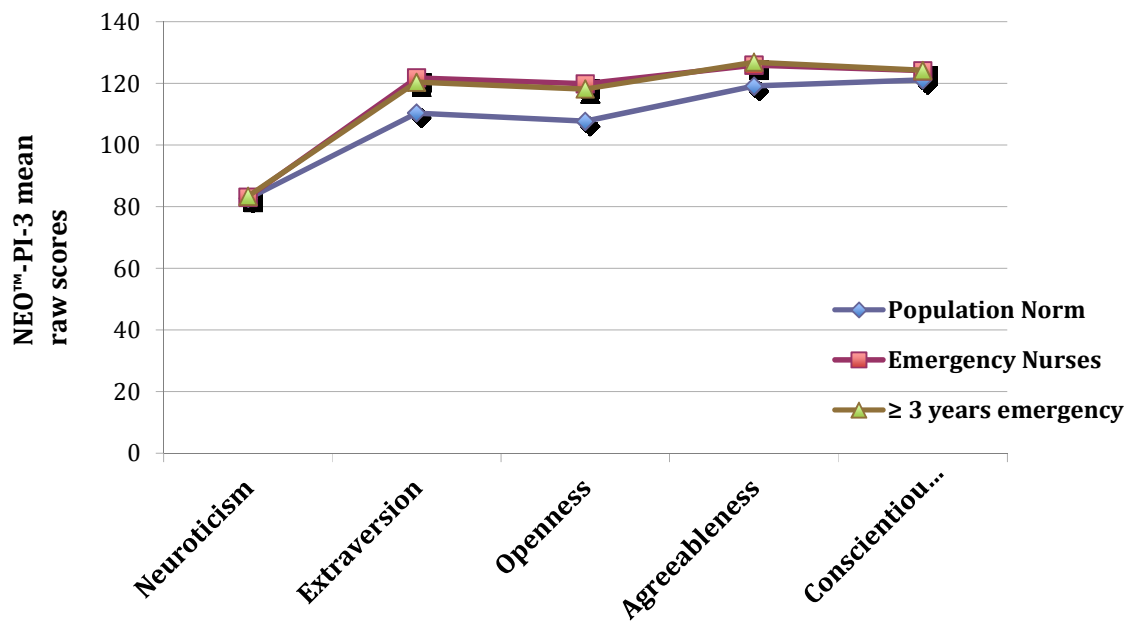
Table 4-2: Personality domains and facets of the NEO™-PI-3

Personality domain	Facets	
N: Neuroticism	N1: Anxiety N2: Angry Hostility N3: Depression	N4: Self-consciousness N5: Impulsiveness N6: Vulnerability
E: Extraversion	E1: Warmth E2: Gregariousness E3: Assertiveness	E4: Activity E5: Excitement-seeking E6: Positive emotions
O: Openness to Experience	O1: Fantasy O2: Aesthetics O3: Feelings	O4: Actions O5: Ideas O6: Values
A: Agreeableness	A1: Trust A2: Straight-forwardness A3: Altruism	A4: Compliance A5: Modesty A6: Tender-mindedness
C: Conscientiousness	C1: Competence C2: Order C3: Dutifulness	C4: Achievement striving C5: Self-discipline C6: Deliberation

4.4 Emergency Nurse Domains of Personality

Figure 4.1 (below) shows the mean of the raw scores on the NEO™-PI-3 for the 72 emergency nurse participants in this study compared to combined population norms for the five personality domains of neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. The blue line in Figure 4.1 represents the combined population norms, the red line is the mean raw scores for the total group of emergency nurses in the study (n=72), and the green line represents the mean scores for the sub-group of emergency nurses (n=49) in the sample with three or more years of emergency nursing experience.

Figure 4-1: Emergency nurses mean raw scores compared to the population norms NEO™-PI-3 personality domains



Participant mean scores for each personality domain on the NEO™-PI-3 were compared to population norms using a one-sample *t*-test and results are presented in Table 4.3. As demonstrated in Figure 4.1, the total emergency nursing sample scored significantly higher than combined population norms for the personality domains of extraversion ($p < .001$), openness to experience ($p < .001$) and agreeableness ($p = .001$). Each of the personality domains will be explored in detail in Sections 4.4.1 to 4.4.5.

Similarly, the sub-group of experienced emergency nurses also had significantly higher mean scores than the population norm for three out of five personality dimensions: extraversion ($p = .001$), openness to experience ($p = .001$) and agreeableness ($p = .001$). Table 4.3 shows that there was no statistically significant difference in the mean raw scores for the personality domains of neuroticism and conscientiousness between either emergency nurses or emergency nurses with more experience when compared to combined population norms.

Table 4-3: NEO™-PI-3 raw scores for emergency nurse sample and experienced emergency nurse sub-group

Personality Domain	Population Norm	Emergency Nurse Participants	Emergency Experience Group
	Mean (SD)	Mean (SD)	Years ≥3yrs (n=49)
Neuroticism (N)	82.7 (22.3)	83.1 (21.9) p = .397 ^a	83.4 (21.7) p = .835 ^a
Extraversion (E)	110.4 (19.3)	121.8 (19.9) p < .001 ^a	120.4 (19.6) p = .001 ^a
Openness (O)	107.7 (18.6)	119.9 (19.1) p < .001 ^a	118.2 (20.1) p = .001 ^a
Agreeableness (A)	119.1 (18.2)	125.9 (17.5) p = .001 ^a	126.9 (15.3) p = .001 ^a
Conscientiousness (C)	121.1 (19.9)	124.1 (18.5) p = .153 ^a	124.2 (19.7) p = .227 ^a

^aone-sample t-test with Combined population norms, alpha set at $p \leq 0.01$

The NEO™-PI-3 results across the five personality domains for the total and sub-group of experienced emergency nurses according to employment status and educational level are reported in table 4.4. While there appears to be some slight differences, no statistical analysis was attempted due to the relatively small sample sizes being unlikely to provide any meaningful results.

Table 4-4: NEO™-PI-3 mean raw scores for emergency nurse sub-groups according to postgraduate qualification and employment status

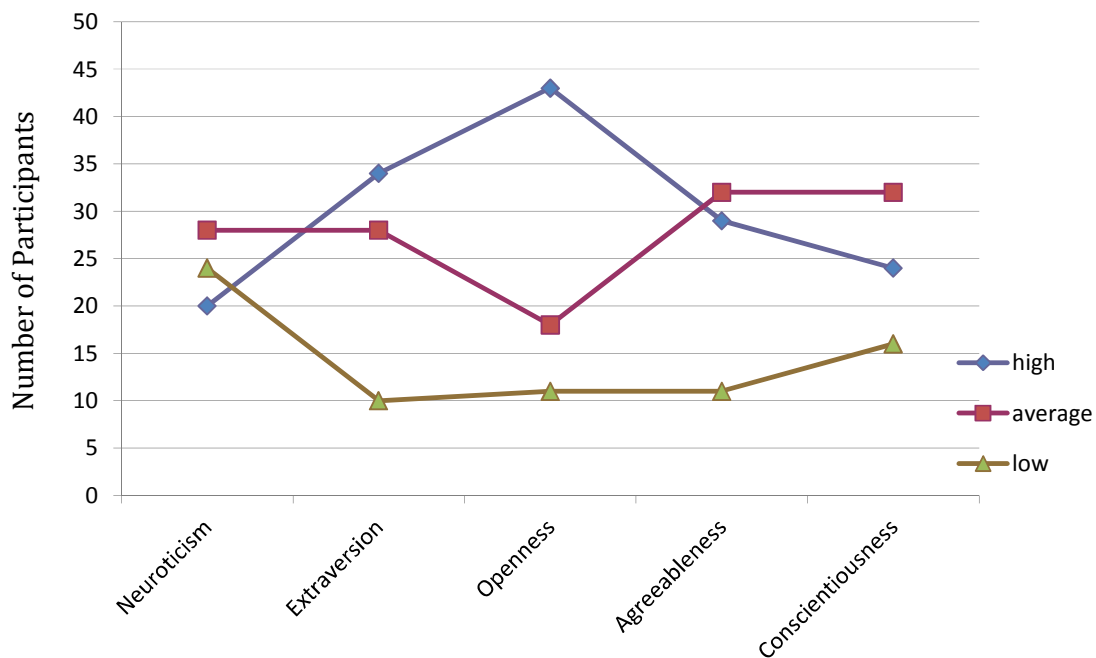
Personality Domain	Population Norm	Qualifications		Employment	
	Mean (SD)	No post graduate (n=35)	Post graduate (n=37)	Part time (n=16)	Full time (n=56)
Neuroticism (N)	82.7 (22.3)	82.1 (22.0)	82.1 (22.0)	86.9 (29.8)	82.0 (19.5)
Extraversion (E)	110.4 (19.3)	122.8 (17.8)	120.7 (22.4)	117.0 (22.2)	123.2 (19.3)
Openness (O)	107.7 (18.6)	118.1 (19.6)	121.5 (18.9)	117.4 (22.3)	120.6 (18.4)
Agreeableness (A)	119.1 (18.2)	127.3 (17.2)	125.0 (17.9)	125.7 (16.9)	126.2 (17.8)
Conscientiousness (C)	121.1 (19.9)	121.2 (17.1)	127.2 (19.6)	121.9 (14.2)	125.0 (19.7)

NEO™-PI-3 Score Ranges

The NEO™-PI-3 self-report profile form for raw score conversion to T scores provided the score range for each of the domains and facets. Score ranges for each of the domains and facets are available with tabulated results in Appendix 12. Descriptive statistics were calculated to explore the distribution of the NEO™-PI-3 scores for the emergency nurse sample and the sub-group of more experienced nurse across three defined score ranges: low, average and high.

Figure 4.2 (below) shows that most of the NEO™-PI-3 score results for the total sample of emergency nurses participating in this study fell within the average to high scoring range for the personality domains of extraversion, openness to experience and agreeableness. By contrast, for the personality domains of neuroticism and conscientiousness, a large proportion of this emergency nurse sample scored in the average and low score range for these personality domains.

Figure 4-2: Distribution of emergency nurses NEO™-PI-3 scores for personality domains according to low, average and high score range



Of the five factors measured by the NEO™-PI-3, results were more evenly distributed across all three score ranges and showed less variance in the neuroticism domain in comparison to the other four personality domains (Figure

4.2). Similarly, a higher proportion of study participants scored within the average (44.4%) score range for the conscientiousness personality domain, with fewer in the high (33.3%) score range when compared to the extraversion, openness to experience and agreeableness personality domains. Figure 4.2 demonstrates that the majority of study participants' scores were within the average and high score ranges for the domains of extraversion, openness to experience and agreeableness.

When NEO™-PI-3 raw score results for extraversion, openness to experience and agreeableness were categorised into the three scoring ranges, 86.1% of the total participants scored in the high or average range for extraversion and 84.7% scored either high or average in the openness to experience personality domain. For the agreeableness personality domain, similar proportions of participant scores were distributed between average (44.4%) and high (40.3%). The distribution of NEO™-PI-3 scores for nurses with more than three years emergency nursing experience were similar to the results of all of the participants combined. The distributions of NEO™-PI-3 scores for each personality domain are reported in Appendix 12.

The following section describes each of the individual personality domains measured by the NEO™-PI-3, including the facets of personality measured within each of these domains (Table 4.2). Each domain has six associated facets that are measured in order to generate an overall result for the domain.

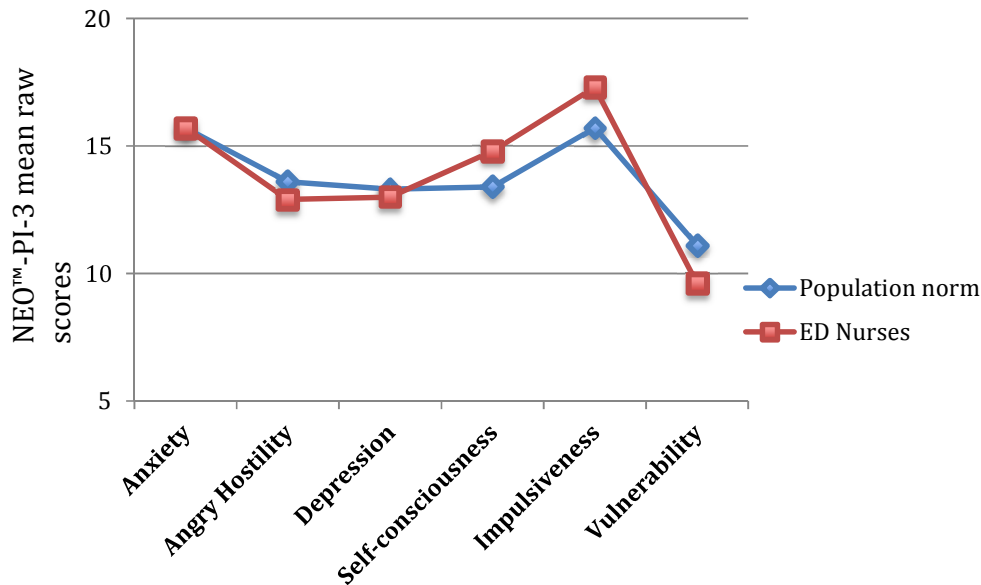
4.4.1 Neuroticism

Neuroticism is the domain reflective of the emotional stability of the individual, encompassing a broad range of emotional states. The facets associated with the neuroticism domain are anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability.

Overall results on the neuroticism domain demonstrated minimal variation and no difference was found between this sample of emergency nurses and general population norms. However, analysis undertaken on the facets within this domain found that this sample of emergency nurses differed from the population norm in two out of the six facets, as demonstrated in Figure 4.3. The total group

of emergency nurses scored significantly higher on the facet of *impulsiveness* ($p = .002$) and lower on the facet of *vulnerability* ($p < .001$), while the differences noted in the other facets were not significant (Table 4.5).

Figure 4-3: Emergency nurses' mean raw scores for neuroticism facets compared to population norms



The more experienced sub-group of emergency nurses in this study demonstrated a significant difference from the population norm on only one facet, *vulnerability* ($p = .002$). While the experienced group's score was also higher than the population norm on *impulsiveness*, the result was not significant (Table 4.5).

The distribution of NEO™-PI-3 score results for the neuroticism facets for both the entire sample of emergency nurses and the more experienced sub-group is detailed in Appendix 12. The majority of emergency nurse participants scored within the average (50%) and high (36.1%) ranges on the *impulsiveness* facet. When the results of the total sample are compared to the group of nurses with more experience, a larger proportion of the more experienced group (18.4%) scored within the low range for the *impulsiveness* facet resulting in a lower mean NEO™-PI-3 score on the facet for this group.

In contrast, the emergency nurses in this study scored lower than the population norms on the *vulnerability* facet. This is highlighted by a larger number of study participants scores distributed across the average (52.8%) and low (37.5%) ranges when compared with the other NEO™-PI-3 facet results for the neuroticism domain (Appendix 12). The distribution was similar for nurses with more than three years of emergency experience, who had a slightly higher proportion of scores falling within the average (57.1%) score range and who, as a sub-group, also scored significantly lower than population norms ($p = .002$) on the *vulnerability* facet (Table 4.5).

Table 4-5: NEO™-PI-3 Neuroticism raw scores for emergency nurse participants and experienced sub-group compared to population norms

Personality Facet	Population Norm	Emergency Nurse Participants	Emergency Experience Group
	Mean (SD)	Mean (SD)	Years \geq 3yrs (n=49)
Anxiety (N1)	15.7 (5.6)	15.7 (5.0) $p = .970^a$	16.4 (5.0) $p = .366^a$
Angry Hostility (N2)	13.6 (4.7)	12.9 (5.0) $p = .207^a$	12.9 (4.7) $p = .332^a$
Depression (N3)	13.3 (5.5)	13.0 (5.8) $p = .616^a$	13.1 (5.9) $p = .815^a$
Self-consciousness (N4)	13.4 (5.0)	14.8 (5.5) $p = .043^a$	14.7 (5.6) $p = .109^a$
Impulsiveness (N5)	15.7 (4.2)	17.3 (4.2) $p = .002^a$	16.7 (4.3) $p = .098^a$
Vulnerability (N6)	11.1 (4.3)	9.6 (3.5) $p < .001^a$	9.5 (3.4) $p = .002^a$

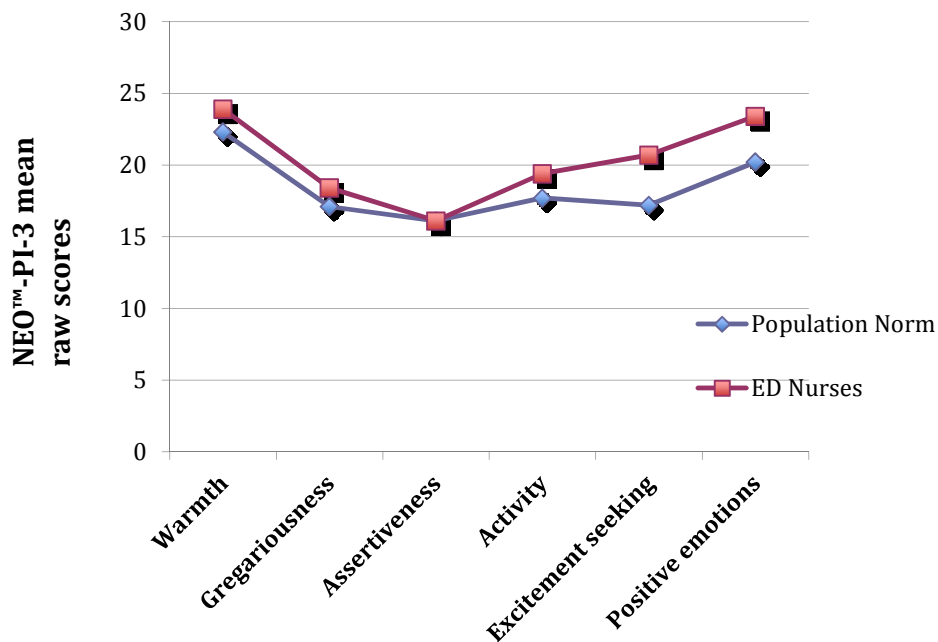
^aone-sample *t*-test with combined population norms

4.4.2 Extraversion

Extraversion is associated with individuals who are considered sociable, outgoing, confident and active individuals.^{17,61} The six facets associated with extraversion to determine the overall score are warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions.

Figure 4.4 (below) demonstrates that emergency nurses in this study scored higher than the population norm for five of the extraversion facets, and four of these results were significant. The results for the total sample of emergency nurses were significantly different from the population norms on the facets of *warmth* ($p = .003$); *activity* ($p = .002$); *excitement seeking* ($p < .001$); and *positive emotions* ($p < .001$). There was no significant difference demonstrated on the extraversion facets of *gregariousness* and *assertiveness* when compared with the combined population norms (Table 4.6).

Figure 4-4: Emergency nurses' mean raw scores for extraversion facets compared to population norms



The sub-group of emergency nurses with three or more years experience was found to be different from the population norm on only three of the facets within the domain of extraversion. They also scored higher than the population norm in the facets of *warmth* ($p = .007$), *excitement seeking* ($p = .001$) and *positive emotions* ($p < .001$), but there was no significant difference found on the remaining three facets of *gregariousness*, *assertiveness* and *activity*. The results of analysis for the extraversion facets are detailed in Table 4.6.

Table 4-6: NEO Extraversion facet raw scores for emergency nurse participants and experienced sub-group compared to population norms

Extraversion Facet	Population Norm	Emergency Nurse Participants	Emergency Experience Group
	Mean (SD)	Mean (SD)	Years ≥ 3yrs (n=49)
Warmth (E1)	22.3(4.4)	23.9 (4.5) p = .003 ^a	23.9 (4.1) p = .007 ^a
Gregariousness (E2)	17.1 (5.1)	18.4 (5.0) p = .039 ^a	18.0 (4.6) p = .172 ^a
Assertiveness (E3)	16.1 (4.9)	16.1 (5.5) p = .962 ^a	15.7 (5.1) p = .564 ^a
Activity (E4)	17.7 (4.3)	19.4 (4.3) p = .002 ^a	19.4 (4.4) p = .012 ^a
Excitement seeking (E5)	17.2 (5.1)	20.7 (4.8) p < .001 ^a	19.7 (4.9) p = .001 ^a
Positive emotions (E6)	20.2 (4.9)	23.4 (4.6) p < .001 ^a	23.7 (4.7) p < .001 ^a

^aone-sample *t*-test with combined population norms

All of the emergency nurses in this sample scored higher on *warmth* than the population norm, and this is associated with more of the emergency nurses NEO™-PI-3 scores predominantly in the high (48.6%) and average (37.5%) score ranges for the *warmth* facet (Appendix 12). Similar distributions of the NEO™-PI-3 scores were noted for the sub group nurses with more than three years experience for the *warmth* facet.

Similarly higher scores in *activity* were reflected with the majority (82%) of total emergency nurse participants in this study scoring in the average and high score ranges for this facet. For nurses with more experience there was no significant difference found when compared to the population norm (p = .012) on the extraversion facet *activity* and a slightly larger proportion of this group of participants' NEO™-PI-3 scores were within the average score range for this facet.

The high scores among the total sample of emergency nurses in the study for *excitement seeking* corresponds with 50% of emergency nurses who participated in the study scoring in the high score range and 36.1% in the average score range for this facet. The more experienced emergency nurses also scored higher than the population norm for *excitement seeking* with more than 80% of those within this group having an average to high score on the NEO™-PI-3 for this facet.

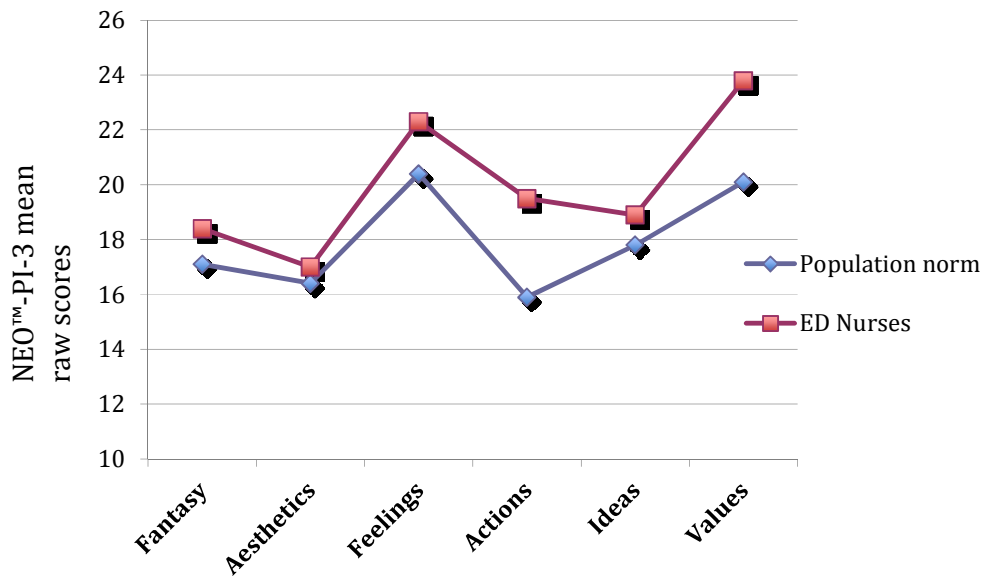
Emergency nurses who participated in the study also scored significantly higher than the population norm on the NEO™-PI-3 facet of *positive emotions* with 88.3% of the total sample of emergency nurses scoring average to high on this facet, with greater than 50% scoring high. The distribution of emergency nurses' NEO™-PI-3 score results across the score ranges is detailed in Appendix 16 for each of the extraversion facets.

4.4.3 Openness to Experience

Openness to experience is associated with one's awareness of inner feelings; it is a measure of the response of an individual to different types of experience. An open individual is considered to be broad-minded, and willing to consider new ideas and unconventional values. Closed individuals have a more conservative approach to life and prefer what is familiar.^{17,104} The facets that measure openness to experience on the NEO™-PI-3 are *fantasy*, *aesthetics*, *feelings*, *actions*, *ideas*, and *values*.

Figure 4.5 (below) illustrates the 72 emergency nurses' mean scores for openness to experience facets compared with the population norm. The figure shows that these nurses scored higher than the general population on all of the facets. The difference between emergency nurses and the general population for *feelings* ($p < .001$), *actions* ($p < .001$) and *values* ($p < .001$) were significant. The results for the remaining openness to experience facets were not significantly different from the population norm. Emergency nurses with more experience also scored higher than the population norm for all three facets and the results were also significant. There was no difference found between the remaining personality facets: *fantasy*, *aesthetics* and *ideas* (Table 4.7).

Figure 4-5: Emergency nurses' mean raw scores for openness to experience facets compared to population norms



The distribution of scores across the low to high score range for the *feelings* facet demonstrates that more than half (51.4%) of all participants scored within the high score range, followed by 33.3% scoring within the average range. A similar distribution of participant scores was demonstrated in the sub-group of nurses with greater emergency experience (Appendix 12).

A large proportion of emergency nurses (70%) in this study fall within the high score range for the *action* facet on the NEO™-PI-3, and a similar distribution is noted for the sub-group of nurses with more than three years emergency experience. This accounts for the higher scores than the general population as detailed in Table 4.7.

Similarly, for the *values* facet score, more than half of the emergency nurse sample (62.5%) were within the high score range followed by 34.5% within the average score range. As with previous facet score distributions, the sub-group of more experienced emergency nurses demonstrated a very similar distribution. Appendix 12 details the distribution of emergency nurses NEO™-PI-3 scores across the low, average and high score ranges for each of the personality facets of openness to experience.

Table 4-7: NEO™-PI-3 Openness to experience facet raw scores for emergency nurse participants and experienced sub-group compared to population norms

Openness to experience Facets	Population Norm	Emergency Nurse Participants	Emergency Experience Group
	Mean (SD)	Mean (SD)	Years ≥ 3yrs (n=49)
Fantasy (O1)	17.1 (4.6)	18.4 (5.6) p = .045 ^a	17.8 (5.6) p = .413 ^a
Aesthetics (O2)	16.4 (5.7)	17.0 (5.7) p = .398 ^a	17.1 (6.1) p = .414 ^a
Feelings (O3)	20.4 (4.1)	22.3 (3.8) p < .001 ^a	22.3 (3.8) p = .001 ^a
Actions (O4)	15.9 (3.6)	19.5 (3.4) p < .001 ^a	19.2 (3.4) p < .001 ^a
Ideas (O5)	17.8 (5.4)	18.9 (6.0) p = .135 ^a	18.4 (6.3) p = .545 ^a
Values (O6)	20.1 (4.2)	23.8 (3.7) p < .001 ^a	23.4 (3.6) p < .001 ^a

^aone-sample *t*-test with combined population norms

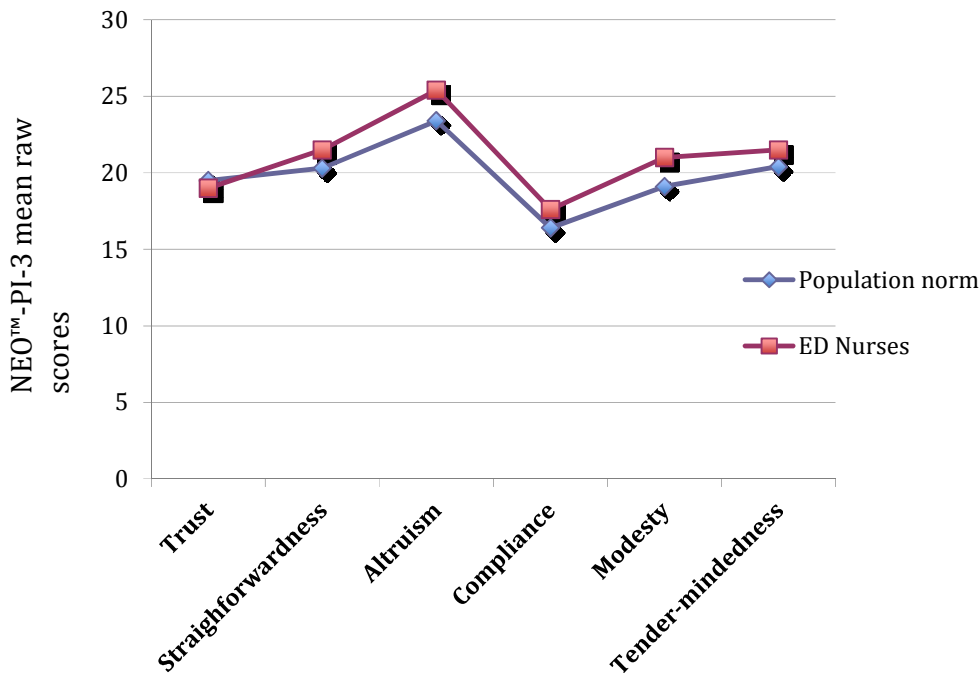
4.4.4 Agreeableness

Similar to extraversion, agreeableness is an assessment of interpersonal behaviour. Agreeable individuals are unselfish, helpful individuals compared with lower scorers on this domain who may be egocentric or antagonistic.¹⁷ The facets associated with agreeableness are trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness.

NEO™-PI-3 results for the total sample of emergency nurses followed similar trends to that of the population norms as illustrated in Figure 4.6. The higher scores noted for the *altruism* and *modesty* facets are significant when compared to the population norm (Table 4.8). There was no statistical difference between the participants' mean NEO™-PI-3 score and the population norms for the remaining facets.

Emergency nurses with more experience yielded similar results with higher scores for *altruism* (p < .001) and *modesty* (p = .002) than the population norm. In addition to these results, the sub-group with more experience also had a significantly higher score on the facet *straightforwardness* (p = .008) than the population norm (Table 4.8).

Figure 4-6: Emergency nurses' mean raw scores for agreeableness facets compared to population needs



Agreeableness facets in which this sample of emergency nurses was significantly different from the population norm were *altruism*, with more than 50% of this sample scoring in the high score range and more than 35% of scores falling within the average range, and the *modesty* facet with almost 50% of nurses who participated scoring within the high score range and around 35% within the average score range, as detailed in Appendix 12.

Study results found that the sub-group of emergency nurses with more experience scored higher than the population norm on *straightforwardness*, but there was no difference when the results for the total sample were compared with the population norms. With the NEO™-PI-3 scores for the *straightforwardness* facet, there was a slightly higher proportion (49%) of more experienced nurses scoring within the high range when compared with the total sample of emergency nurses (45.8%). The distribution of scores within the average score range was similar for the total sample and more experienced group, 34.7% and 36.7% respectively (Appendix 19).

Table 4-8: NEO™-PI-3 agreeableness facet raw scores for emergency nurse participants and experienced sub-group compared to population norms

Agreeableness Facets	Population Norm	Emergency Nurse Participants	Emergency Experience Group
	Mean (SD)	Mean (SD)	Years ≥ 3yrs (n=49)
Trust (A1)	19.5 (4.5)	19.0 (5.2) p = .441 ^a	19.1 (5.0) p = .617 ^a
Straightforwardness (A2)	20.3 (4.7)	21.5 (4.5) p = .030 ^a	21.9 (3.9) p = .008 ^a
Altruism (A3)	23.4 (3.9)	25.4 (3.6) p < .001 ^a	25.5 (3.4) p < .001 ^a
Compliance (A4)	16.4 (4.5)	17.6 (5.0) p = .042 ^a	17.6 (4.2) p = .061 ^a
Modesty (A5)	19.1 (4.4)	21.0 (4.5) p = .001 ^a	21.4 (4.4) p = .002 ^a
Tender-mindedness (A6)	20.4 (3.9)	21.5 (4.4) p = .030 ^a	21.8 (4.1) p = .026 ^a

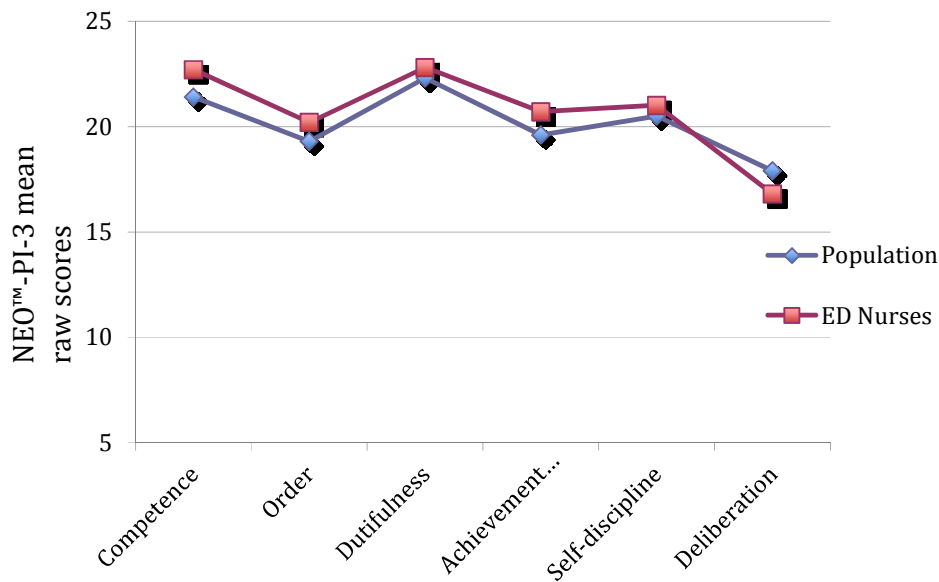
^aone-sample *t*-test with combined population norms

4.4.5 Conscientiousness

Conscientiousness is the trait that is related an individual’s self-control and ability to plan and organise themselves to carry out desired tasks or actions. Higher scores on this personality domain have been associated with individuals who are determined, well-organised and thorough, and often with professional and academic accomplishments.^{17,61} The facets associated with conscientiousness are competence, order, dutifulness, achievement striving, self-discipline, and deliberation.

The NEO™-PI-3 results for the total sample of emergency nurses show that conscientiousness facets demonstrated a similar pattern to population norms, as illustrated in Figure 4.7. While overall, emergency nurses did not differ from the general population (p = .153) on the Conscientiousness domain of personality (Table 4.3), analysis of each of the facets found emergency nurses had statistically higher scores for *competence* (p = .003), when compared to population norms. There were no other differences noted between emergency nurses and the established population norms (Table 4.9).

Figure 4-7: Emergency nurses' mean raw scores for conscientiousness facets compared to population norms



When comparing the distribution of NEO™-PI-3 scores for the emergency nurse sample and the sub-group of more experienced nurses scores for *competence*, it is evident that the total emergency nurse sample had only a very slightly larger number of scores (44.4%) within the high score range than the sub-group of more experienced emergency nurses (42.9%). Conversely, the more experienced emergency nurses had a larger proportion of scores (36.7%) within the average score range when compared with the total sample of emergency nurses (33.3%). The distribution of NEO™-PI-3 scores for the conscientiousness facets are detailed in Appendix 12 for the sample of emergency nurses, but it is concluded that scores for this personality domain are no different to population norms.

Table 4-9: NEO™-PI-3 conscientiousness facet raw scores for emergency nurse participants and experienced sub-group compared to population norms

Conscientiousness Facets	Population Norm	Emergency Nurse Participants	Emergency Experience Group
	Mean (SD)	Mean (SD)	Years ≥ 3yrs (n=49)
Competence (C1)	21.4 (3.8)	22.7 (3.5) p = .003 ^a	22.7 (3.5) p = .012 ^a
Order (C2)	19.3 (5.0)	20.2 (3.5) p = .158 ^a	20.6 (5.6) p = .121 ^a
Dutifulness (C3)	22.3 (4.0)	22.8 (3.4) p = .197 ^a	22.9 (3.2) p = .223 ^a
Achievement striving (C4)	19.6 (4.5)	20.7 (5.1) p = .080 ^a	20.1 (5.7) p = .524 ^a
Self-discipline (C5)	20.5 (4.60)	21.0 (4.2) p = .313 ^a	21.0 (4.4) p = .493 ^a
Deliberation (C6)	17.9 (4.5)	16.8 (4.5) p = .053	17.0 (4.8) p = .190 ^a

^aone-sample *t*-test with combined population norms

4.5 Factors Influencing Retention in Emergency Nurse Sample

As discussed in the previous chapter (Section 3.3.2), work and personal variables that have the potential to influence an individual's choice to remain in the work place were measured in this study. Sixty-eight (94.4%) of the emergency nurse participants completed the second page of the demographic questionnaire that asked about reasons for remaining employed in emergency nursing. The remaining four survey forms had no responses selected for any of the items. In addition to the specified variables, participants were permitted to identify their own reasons for remaining in emergency nursing in a free-text section (Appendix 4). Participants could choose more than one work-related or personal retention factor, therefore, Figures 4.8 and 4.9 (below) indicates the percentage of respondents who nominated each of the individual factors.

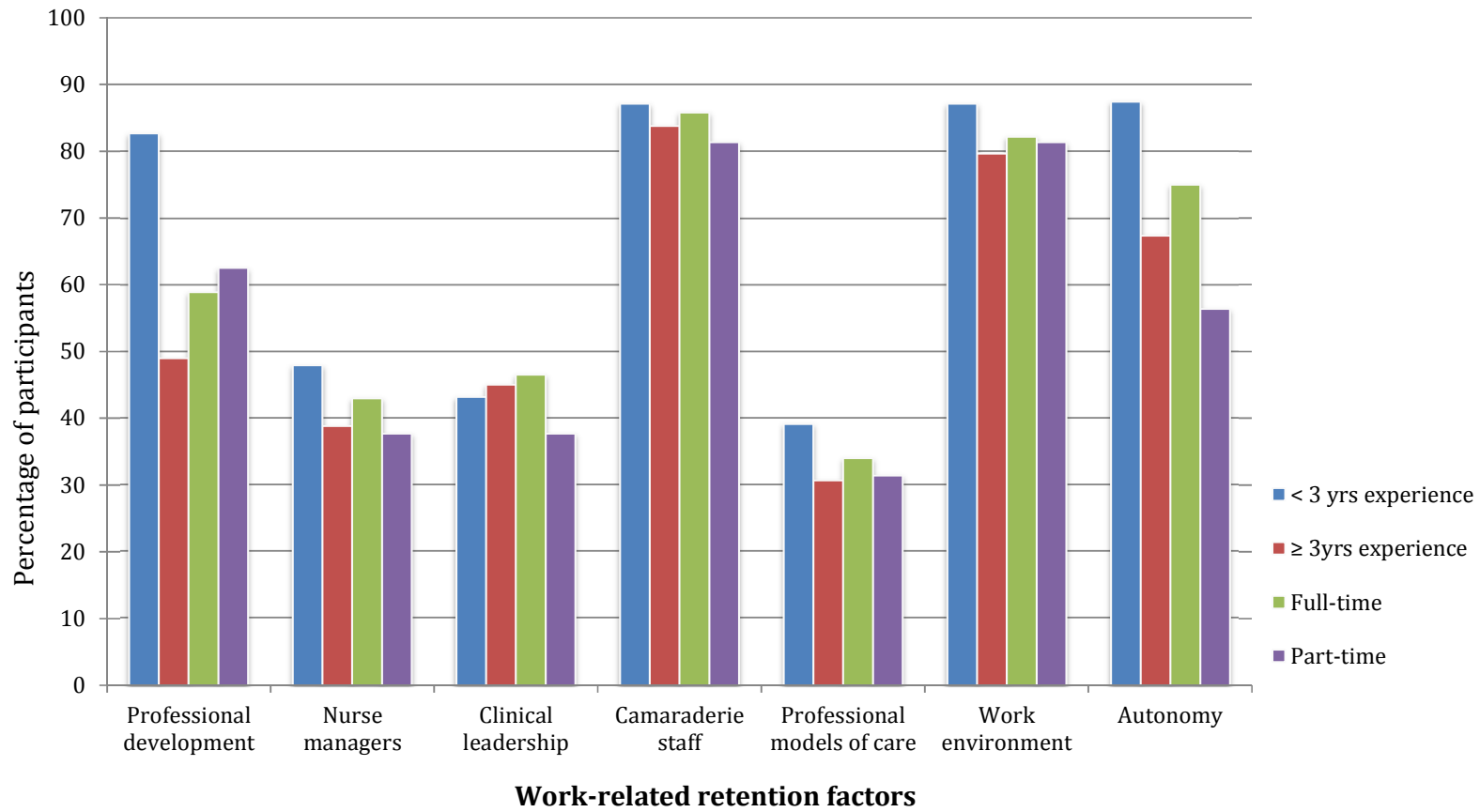
Work-Related Retention Factors

Descriptive analysis of the responses clearly demonstrates that more than 80% of emergency nurses in this sample cited their work environment as an important factor keeping them working in emergency nursing. A similarly high proportion (84%) indicated that the camaraderie amongst colleagues was another influencing factor to remain in the workplace (Figure 4.8).

While autonomy was cited as being important to all groups, it was less so for those who were employed on a part-time basis. Professional development opportunities were also considered important, particularly by less-experienced emergency nurses. More than 80% of the emergency nurses in the sample identified professional development opportunities as one of their reasons for staying in emergency nursing.

Figure 4.8 illustrates these work retention factors by full- and part-time work groups and for those with less or more than three years of emergency nursing experience. The figure demonstrates that results for the other three work-related factors – nurse managers, clinical leadership and professional models of care – were similar across all subcategories. Nurses who had been employed in the emergency environment for a shorter period of time indicated that nurse managers and professional models of care were slightly more important than for the other groups. Detailed results for each of these variables are presented in Appendix 13.

Figure 4-8: Work related retention factors identified by participants



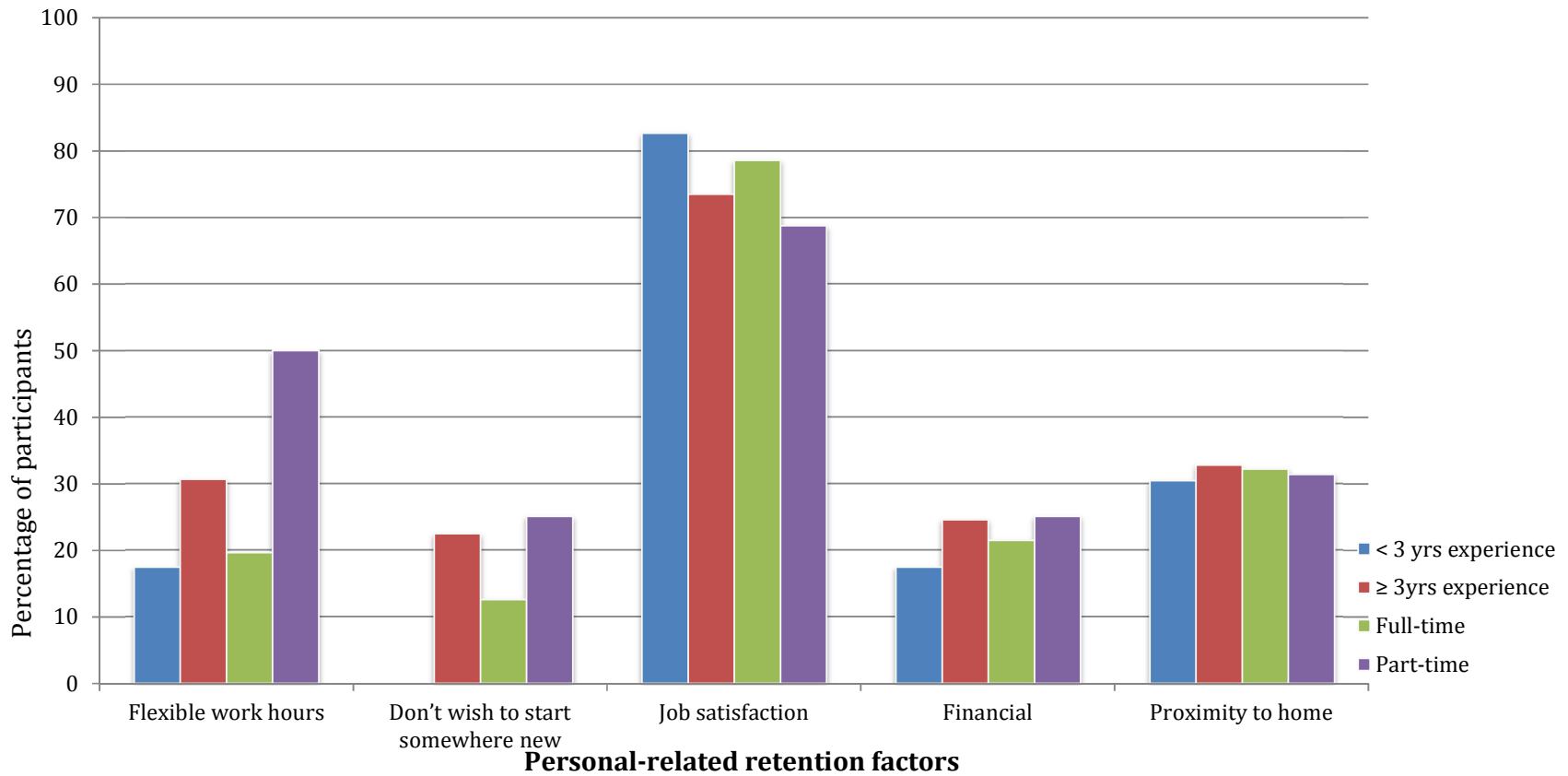
Personal Retention Factors

In addition to work-related factors, there were five personal variables that were considered to potentially influence the participants' choice to remain within the work environment in which they are currently employed. A large proportion of emergency nurses who participated in this study indicated that job satisfaction was an important factor influencing their choice to remain, with 76.4% of the sample of emergency nurses citing this as a personal influencing factor (Figure 4.9).

Flexible work hours were more important to those who were employed on a part-time basis, with 50% of this group indicating that this influenced their choice to remain in emergency nursing. Financial reasons seemed to have minimal influence on emergency nurses choosing to remain in their current work place, with only 22.2% of the sample selecting this option as an influencing factor. The proximity of the workplace to home also did not appear to hold any great importance, with only 32.1% of respondents indicating that it influenced their choice to remain in emergency nursing. Not wishing to start in a new position was considered more important by those respondents with more than three years of experience and those who were employed on a part-time basis, but on the whole was not considered a factor of great importance (Figure 4.9). The results for personal-related retention factors for this sample of emergency nurses are presented according to employment status and level of experience in Appendix 14.

Given the relatively small sample sizes resulting from dividing the sample into sub-groups, a more detailed analysis of work and personal related factors was not attempted.

Figure 4-9: Personal retention factors identified by participants



4.6 Summary of Results

This chapter has outlined the results of a demographic and personality questionnaire (the NEO™-PI-3) for a sample of 72 emergency nurses working in a large emergency department in Sydney, Australia. The results are presented according to five broad domains of personality as identified in the Five Factor Model of Personality. Each of the five domains has six associated facets, the results of which are also analysed and described. The analysis establishes a personality profile for a group of Australian emergency nurses.

The results indicate that the personality profile of this sample of emergency nurses is more extraverted, open to experience and agreeable than the general population. Analysis of the personality facets associated with each domain provides a more detailed personality profile of the group. The facet results indicate that this sample of emergency nurses was significantly different from general population norms on 12 of the 30 personality facets: vulnerability, excitement seeking, warmth, activity, positive emotions, impulsiveness, feelings, actions, values, altruism, modesty and competence. Analysis of the personality scores and facets also highlights some differences between the overall group results and for the sub-group of 49 more experienced emergency nurses, thus generating a more detailed personality profile for a group of emergency nurses with three or more years of experience.

The results also demonstrated that for this sample of nurses, job satisfaction is a major influencing factor in their decision to remain in emergency nursing. The work environment and good relations among fellow colleagues were also important work-related and personal factors for workforce retention.

The following chapter will discuss the results and what potential role they may serve in the emergency nursing and wider nursing workforce. Limitations to this study will be recognised along with suggestions for further investigation into the area of personality assessment in the emergency nursing workforce.

Chapter 5: Discussion

5.1 Introduction

This chapter discusses the findings of a personality assessment in a sample of Australian emergency nurses. The personal and work-related factors chosen by the nurses as influencing their decision to remain within the emergency work environment are also discussed. Limitations of the study will be outlined along with implications of the findings for recruitment and retention to the specialty emergency nurse workforce and recommendations for further research.

Emergency nursing has evolved considerably since its introduction as a nursing specialty more than 30 years ago. In the current health care climate, the demand on emergency services, and hence for emergency nurses, has increased considerably. In the six years to 2003 there was a 14% increase in emergency presentations in Australia,⁵² and this rise is greater than the growth of the Australian population. Other countries, such as the United States and Canada, are also experiencing increasing demands on emergency department services.⁴² This growth has been attributed to the ageing population, decreasing access and increased cost of primary health care, increasing numbers of individuals with chronic disease and the ever-increasing availability of new treatments and technologies increasing the overall number of people living with previously life-limiting conditions.^{39,42} There are concerns that the demands on emergency services within Australia may increase even further if the proposed introduction of GP co-payments of the 2014/15 Australian Federal budget are passed through the Senate.^{105,106} These increasing service demands place significant pressure on the supply and retention of nursing staff working in the field of emergency nursing.

Another consequence of advances in technology and health care is that it takes significant resources to train nurses to function as 'experts' in their specialty.¹⁰⁷ For example, it can take up to two years for an emergency nurse to attain the requisite knowledge base and skills to progress to triage training, for oncology nurses to perform plasmapheresis, or for intensive care nurses to perform extracorporeal membrane oxygenation. The estimated economic cost of

specialty training is variable given differences in the definition of specialty and health care models across studies and across countries. A Canadian-led study conducted across four countries estimated the direct and indirect costs of staff turnover at CAD\$21 514 per nurse for medical and surgical units.¹⁰⁸ It is not only the economic costs that are problematic; high staff turnover can also have a negative impact on staff morale as well as adverse effects on patient care.⁴²

While there is an increasing demand for emergency nurses, the time it takes to train nurses for the emergency specialty also contributes to supply issues experienced in the emergency workforce. These factors, along with the economic costs and adverse effects on patient care secondary to poor nursing retention, make it necessary to consider ways that recruitment and retention in the field can be optimised.

5.2 Personality Profile of Australian Emergency Nurses

This study generated a profile of the personality of Australian emergency nurses working in the emergency department of a large hospital in Sydney. Emergency departments historically attract a younger nursing workforce⁴² and this was reflected in the mean age (32.4 years) of the nurses participating in this study, which was considerably lower than the average age of the Australian nursing and midwifery workforce (44.3 years). The emergency nurses participating in this study were a relatively experienced group, with more than half (68.1%) having worked in the ED for three or more years. This suggests that their results may be consistent with nurses who have been retained within the emergency nursing specialty.

The exploration of the five domains of personality within the Five Factor Model (FFM) offers a very broad description of the personality characteristics of an individual or a group. It is known however that while samples may exhibit similar results on the domain scores, groups may actually be quite different when the individual facets of the domains are analysed.⁶¹ Analysis of the facets therefore provides a more detailed, comprehensive description of personality and allows for the identification of specific differences between individuals. In the past, a multitude of instruments have been used for the assessment of

personality in nurses, producing a wide variety of terms to describe different personality characteristics and making it difficult to compare the results between studies. The theoretical basis of the FFM is well-supported by research, and a large body of work undertaken by Paul Costa and Robert McCrae over the last three decades has led to the development of the NEO Inventories, the current version being the NEO™-PI-3.^{17,23,25} Given the now wide acceptance of this instrument, the NEO™-PI-3 was chosen for personality assessment in this study as it was considered most appropriate given the established validity and reliability.^{17,23,25,92} The NEO™-PI-3 is also considered an acceptable instrument for the conduct of further research in this field.

The emergency nurses participating in this study demonstrated significantly higher scores than combined population norms on three of five personality domains as measured by the standardised NEO™-PI-3 personality assessment instrument. The three personality domains where differences were found were extraversion, openness to experience, and agreeableness. There was no difference found on the personality domains of neuroticism and conscientiousness (Chapter 4, Table 4.3).

When a sub-group of 49 nurses with three or more years of experience was tested, the results remained consistent, with significantly higher scores on the domains of extraversion, openness to experience and agreeableness when compared to population norms. As this group was relatively small, no specific analysis was undertaken between those who had more than three years experience (experienced group) and those who had less than three years experience (inexperienced group). It is possible that even in a larger sample there would not be much difference between the two groups, as the inclusion criteria required participants to be permanently employed in emergency nursing, hence creating a sample of nurses with similar interests and desire to work within emergency nursing. However, it is noted that there are some differences in the facet analysis between the more experienced group of emergency nurses when compared with the combined results for all of the emergency nurses who participated in the study.

The following sections will discuss the results of the NEO™-PI-3 personality assessment for a group of 72 Australian emergency nurses working in a large Sydney hospital. The domain and facet results will be discussed, outlining the characteristics of the personality traits and how they might relate to emergency nursing and the emergency practice environment.

5.2.1 Extraversion

The extraversion domain of personality is related to the characteristics of an individual that will influence the way in which they approach and interact with the world around them.^{17,61} This study found that emergency nurses scored significantly higher than the population norm for the extraversion domain.

Analysis of the facet results shows that this sample of nurses scored higher than the population norm for four out of the six facets within this domain: *warmth*, *activity*, *excitement seeking* and *positive emotions*. These results are reflective of an individual who is sociable, with a happy and 'bubbly' persona. People who score highly on these facets enjoy undertaking new experiences and will engage in activities for the 'thrill'. They tend to lead fast-paced lives and have the ability to interact well with strangers.^{17,61} Analysis of this sample of emergency nurses showed a significantly higher score on the *activity* facet than population norms. High scores on the *activity* facet are reflective of those who lead fast-paced and energetic lives,¹⁷ which could be considered reflective of the emergency nursing environment. While the score was the same for the experienced group of nurses, the result was no longer significant when compared with the population norm. While this could be attributed to the smaller sample size of the experienced group, it is not possible to make the assertion that this variation is due to the greater level of experience.

Emergency nursing is a unique and specialised area of practice, functioning within a distinct health delivery environment.⁵¹ The emergency department is a busy, noisy work environment, with high patient turnover. The frequency and type of presentations is unpredictable and emergency nurses must have the capacity to care for the full spectrum of physical, psychological and social health problems within their community.⁵¹ Emergency nurses are required to work

within a time-pressured environment. With the introduction of National Emergency Access Targets (NEAT) in New South Wales in 2012, it is intended that by 2015, 90% of patients must be triaged, treated and discharged from the ED within four hours.⁴⁷ The unpredictability, along with time pressures, adds to the stress of the work environment. This practice environment is likely to offer experiences and opportunities appreciated by nurses who score higher than the general population in the personality domain of extraversion. To gather the information necessary for effective treatment of patients within their care, it is vital that emergency nurses have sufficient skill and the type of (extraverted) personality that allows them to develop relationships and engage in conversation with patients and families while conducting an assessment and/or treating a patient.¹⁰⁹

5.2.2 Openness to Experience

The emergency nurses in this study also scored higher than the population norm on the personality domain of openness to experience. This personality domain is a measure of how an individual responds to different situations or experiences. Emergency nurses scored higher than the general population on all of the six facets within this domain. The results for three of the facets – *feelings*, *actions* and *values* – were statistically significant. These results remained consistent even for the smaller sample of experienced emergency nurses.

High scores on these three facets are reflective of an individual who prefers variety in their experiences and is attuned to their own emotions, having the ability to empathise with others. Higher scores on the *values* facet are associated with broad-minded individuals.^{17,61} As has already been highlighted in section 5.1.1, the emergency department presents many challenges with the variety of clinical presentations. This would likely be suited to individuals with high scores on facets of openness to experience. All nursing staff are required to be broad-minded, open and non-judgemental of others' lifestyle choices. Failure to display these characteristics may create barriers when attempting to form rapport and relationships, and to provide care to patients and their significant others. Emergency nurses must be able to develop a rapport with individuals from all

age groups and socioeconomic and cultural backgrounds, during critical situations, and often at a time when these individuals are most vulnerable.⁵¹ While the personality characteristics of extraversion are likely to assist in the ability to form the relationships and rapport necessary to gain essential information from patients and their families, higher scores in the openness to experience facet of *values* would appear to align closely with the desirable characteristics of a nurse.

5.2.3 Agreeableness

The personality domain of agreeableness is associated with interpersonal relationships and how people interact with others. Agreeable individuals are respectful and caring in nature, and possess the ability to sympathise with others.¹⁷ The emergency nurses in this study showed higher scores on five of the facets within this personality domain, and slightly lower scores on the facet of *trust*. Only the higher scores on the facets of *altruism* and *modesty* were found to be significant when compared to the population norms. The more experienced group of nurses also had significant higher scores on the facets of *altruism* and *modesty*. High scores on these facets are associated with humble individuals who prefer not to draw attention to themselves, who are generally liked, and who are willing to assist others.^{17,61}

The *straightforwardness* facet within the agreeableness domain was not found to be significantly different from the population norm for this sample of emergency nurses. However, the more experienced sub-group of emergency nurses did reveal significantly higher average scores than the general population on the *straightforwardness* facet. High scores in this facet are associated with individuals who are open and honest.¹⁷ One may postulate that this result could be related to the fact those with more experience are older or more confident, but the sample size is inadequate to make such claims or assumptions.

The results within the domain of agreeableness, particularly the facets of *modesty* and *altruism*, may not be unique to the specialty area of emergency nursing and may in fact be common to many individuals who choose nursing as a career. The literature review identified what may be considered similar qualities

among many different groups of nurses studied. For example, while different instruments were used in the assessment of the personality of emergency⁶⁹ and oncology⁶² nurses, both specialty groups demonstrated higher scores on the *feeling* dimension of personality. The *feeling* dimension of personality, in line with Jung's personality theory, is associated with individuals who are 'empathetic, warm, sensitive and able to relate well to others'⁷¹(p. 483). Similarly, using Cattell's 16PF instrument, Gambles, et al.⁷² reported higher scores on *emotional sensitivity* for cancer nurses. This personality factor is associated with sensitive and intuitive individuals.⁷²

5.2.4 Neuroticism and Conscientiousness

This study showed no difference between emergency nurses and general population norms for the NEO™-PI-3 personality domains of neuroticism and conscientiousness; however, analysis of the facets within each domain did reveal some variance. Within the domain of neuroticism, the sample of emergency nurses who participated in this study had a higher score on the *impulsiveness* facet than the population norm; however, when just those with more experience were analysed, no difference was found (Chapter 4, Table 4.4). High scores on the *impulsiveness* facet are associated with those who have difficulty controlling their emotions and who may at times regret actions that were taken on impulse. Such characteristics may be considered undesirable in the emergency environment, which requires decisive, yet well-informed decisions. Age may also influence this result, given that there is a larger proportion of younger nurses represented in this study. It is also recognised that there can be changes in personality profiles as a result of maturation, particularly up until the late twenties.¹¹⁰

Within the conscientiousness domain, the facet of *competence* was significantly higher for the combined group of emergency nurses than population norms and although the more experienced emergency nurses scored the same on this facet, their sub-group result was not significant. High scores on *competence* are associated with individuals who apply themselves to work, make informed decisions and keep themselves educated and up to date. These are both desirable

and professionally mandated skills for registered and specialist nurses.¹¹¹ To be considered a specialist in their field, emergency nurses need to actively seek to develop themselves professionally as well as to provide support and education to colleagues.^{51,112} Maintaining professional education helps to promote and implement best practice.¹¹²

5.3 Influence of Work- and Personal-Related Characteristics on Retention

This study also reported on both work-related and personal characteristics considered to potentially influence an individual's choice to remain within emergency nursing. The sample was insufficient to conduct comparisons between these results and the personality profile generated by the NEO™-PI-3, and therefore only descriptive level analysis was conducted.

Work Environment

Other evidence, demonstrating that positive relations among staff are a motivating factor for nurses to remain in the workplace are supported by the results of this study.¹¹³ A large proportion of emergency nurses participating in this study cited workplace autonomy, professional development opportunities and staff relations as reasons influencing their decision to remain. The selection of these items is consistent with results in the literature that suggest positive staff relations and the work environment (which incorporates things such as unit management style, management support, professional development opportunities, adequate staffing levels, staff involvement in decision making and interdisciplinary relationships) will influence staff retention.^{36,42,43,60} These factors are collectively considered to contribute to a 'positive practice environment'¹¹³ and are known to be significantly associated with a nurse's intention to remain or leave the field in which they are employed.⁶⁰ Twigg and McCullough¹¹³ also found a strong positive correlation between the positive practice environment and the quality of nursing care.

Personal factors

Job satisfaction is regarded as an important personal factor in nurse retention and previous literature has demonstrated positive correlations between this and other elements associated with a positive practice environment.^{36,113} A large proportion of emergency nurses in this study indicated that job satisfaction influenced their decision to remain in their current position in the emergency department. It must be noted that a number of variables related to positive nursing practice environments were included in the work variable list (above), potentially reflecting a positive bias on these work-related factors.

In terms of other personal factors, O'Brien and Pallas³⁶ note inconsistencies in previous research regarding the influence of income on nurse retention. The results of this study suggest that pay is not an influencing factor, with only 16 of the 72 (22%) emergency nurses citing it as a factor that influences their choice to remain in their current nursing position. The location of the workplace, flexible work hours and the desire to not start new employment somewhere else, appeared to have minimal influence on the retention of the emergency nurses in this study. Of note, a greater proportion of part-time workers (50%) indicated that flexible work hours do influence their decision to remain in work.

5.4 Summary of Findings

The aim of this study was to develop a personality profile of emergency nurses and to explore whether a relationship exists between their personality profile and their decision to work in the emergency setting. The study explored two research questions related to these aims:

1. What is the personality profile of a sample of Australian emergency nurses?
2. Is there a relationship between personality characteristics and/or profile and length of employment within emergency nursing?

The study has generated a profile of the personality of a small group of Australian emergency nurses working in the ED of a large hospital in Sydney. These nurses demonstrated significantly higher scores than combined

population norms on three of five personality domains measured by the standardised NEO™-PI-3 personality assessment instrument which is based on the Five Factor Model of personality. These were the personality domains of extraversion, openness to experience, and agreeableness. Analysis of facet results from the NEO™-PI-3 found that this group of emergency nurses shows significant differences from established combined population norms on 12 of the 30 personality facets.

Together, these results describe the profile of a sample of Australian emergency nurses. These nurses could collectively be described as individuals who enjoy variety in their life, as presented within the diverse clinical environment of an emergency department. They function well when working in stressful environments, possessing the ability to make sound decisions even when they are under considerable amounts of stress. They are proactive individuals who enjoy challenges and actively strive to professionally develop themselves. Emergency nurses are friendly, easy-going individuals who possess the ability to engage and develop a rapport with individuals from a diverse range of cultural and socioeconomic backgrounds.

Exploration of the second research question was attempted but was unable to be tested using the current sample. In order to establish whether a relationship exists between personality and the length of employment (or retention) within emergency nursing requires a larger sample than was able to be generated for this study. However, given the results for the sub-group of 49 emergency nurses who had more than three years of experience within the specialty, it is possible to speculate that the personality characteristics identified among this group of experienced emergency nurses are consistent with those that remain employed within the emergency nursing specialty for a longer period of time.

Previous studies of personality in nursing have been undertaken over a very long period of time, many are now very dated and use a multitude of different personality inventories and tests. The results of this study give an overview of the personality characteristics of a contemporary sample of Australian emergency nurses and, as such, offer significant new knowledge on which to

base a larger study of personality in emergency nurses, using a national sample. Further research in emergency and other specialty areas of nursing, using the same personality instrument, will more accurately establish personality profiles and determine whether these are unique to nurses working within these specialties for the purposes of informing recruitment and retention strategies.

5.5 Limitations

The basis of this exploratory study was to test the research questions related to the aims of the study within a local Australian context and to obtain pilot data for a larger multisite study of the personality characteristics of specialty nurses in Australia. The study was undertaken at a single site with a relatively small population from which to draw a sample due to the time and resource constraints of research degree study. A larger sample of emergency nurses is necessary to be able to determine whether these results are an accurate reflection of all emergency nurses across emergency settings and across Australia and to explore any relationships that may exist between personality and retention in emergency nursing.

Despite extensive searching, we have been unable to source any longitudinal studies exploring the personality of emergency nurses, or studies specifically describing their personality profile. Similarly, no available data on the personality characteristics of emergency nurses that have left the profession could be found. It is therefore not possible to accurately establish whether the personality characteristics identified among the more experienced emergency nurses in this study are reflective of nurses who actually remain within the profession.

The diversity in levels of emergency departments and their variable casemix also render it is feasible that the variation in emergency work environments may potentially influence the personality characteristics of the individuals working at different sites. Australian emergency departments are classified according to their ability to provide services, staffing and location, among other factors.¹¹⁴ The classification of EDs range from level 1 – the ability to provide first aid and general practice cover – to level 6, where the department has the ability to

manage all emergencies, with the provision of definitive care. Participants in this study were all registered emergency nurses employed at a level 6 tertiary referral centre and presumably were more likely to encounter a larger volume and variability in their work and represent a more varied group of individuals.

A further limitation of the study is the recognised limitation of self-report personality assessment instruments, such as the NEO™-PI-3, in that participants can distort their response on the inventory in a favourable or unfavourable way. This has been found to occur less frequently in adults and the likely incidence is even less when the questionnaire is completed anonymously.⁶¹ Engaging the participants by explaining the instrument prior to participation in this study, and the presence of the same investigator during completion of the NEO™-PI-3, were adopted to lessen the participants' distortion of responses or random responding.¹⁷ While there were no obvious or known external motivators for participants in this study to distort their responses, there is potential for response distortion on any self-report instrument.⁶¹

The demographic questionnaire developed for collecting information related to participants' intention to remain in the workplace was not validated, but was based on evidence from contemporary literature for the identification of factors influencing retention. In a larger study, consideration should be given to using a validated instrument to collect this information.

No exploratory analysis were undertaken to examine data relating to intention to remain in emergency nursing. After consultation with a statistician, it was considered that the small sample size further analysis was unlikely to generate any meaningful results from further analysis. This is a limitation of the study as it must be acknowledged that other factors, apart from personality, may influence ones intent to remain in employed in emergency nursing.

5.6 Conclusion

It has previously been identified that personality characteristics may differ between nursing specialty areas. This study has shown that a group of emergency nurses working in tertiary referral hospital in Sydney, Australia demonstrated higher levels of openness to experience, agreeableness and extraversion in their personalities than established population norms. In combination, the personality of these emergency nurses could be described as representing individuals who enjoy variety in their life, as presented in the diverse clinical presentations through an emergency department. Individual's featuring this personality profile may be considered to function well when working in stressful environments, possessing the ability to make sound decisions even when they are under considerable amounts of stress. They are proactive individuals who enjoy challenges and actively strive to professionally develop themselves. This personality profile also describes emergency nurses to be friendly, easy-going individuals who possess the ability to engage and develop a rapport with others from a diverse range of cultural and socioeconomic backgrounds. While it is likely that nurses in other specialty areas might demonstrate similarities in aspects of their personalities (such as for the *feeling* and *emotional sensitivity* facets), it is also possible to speculate about personality differences when a comprehensive personality profile is generated measuring personality domains and facets.

The emergency nurses in this study cited work environment factors such as workplace autonomy, professional development opportunities and the camaraderie among fellow employees as having an influence on their decision to remain in emergency nursing (Chapter 4: Figure 4.8–4.9). While issues of recruitment and retention are not unique to emergency nursing, it is recognised that critical care areas such as emergency nursing have traditionally been more difficult to recruit to.^{42,52} It is also recognised that improving nurse recruitment and retention requires a multifaceted approach and that no single initiative on its own will achieve the goals to retain staff.¹³ Personality assessment potentially offers another method for identifying those nurses who are suited to a particular specialty area, and may therefore be used as a tool to improve

retention – although this aspect could not be tested in this study due to sample size.

Personality has also been linked to burnout and stress in the workplace^{5,8,31,84,86} and consequently is a factor in nursing turnover.⁴² Knowledge of workforce personality characteristics would potentially be useful in implementing strategies relevant to improving the health of the nursing workforce, including strategies for the management of stress which eventually influence workforce retention.⁴² Personality testing is therefore increasingly being used by a variety of corporations and professions to complement recruitment processes and improve retention.²⁸

Personality testing has the potential to play a role in the recruitment of nursing staff to a particular specialty area, just as it has been considered in some medical fields such as anaesthesia.^{115,116} While personality testing should not be used to prevent people working in a particular specialty area of their choice, testing may have a role in targeting those nurses more suited to a clinical context and therefore improving retention within the field. A clear personality profile of nurses successfully employed and retained within defined specialty areas is needed. The investment required to train nurses to function as a ‘specialist’ implies that a benefit exists in targeting individuals potentially suited to working within specialty nursing areas to optimise their retention within the specialty workforce.

5.7 Recommendations

1. Replication of this study across multiple Australian hospitals, thereby obtaining a larger sample of emergency nurses as well as nurses from other nursing specialties.

Given that this study has been conducted at a single site, the results are not generalisable to the wider emergency nurse population in Australia. Nor could the second aim of the study be rigorously tested. A larger sample randomly drawn from different practice environments across Australia would generate a more accurate personality profile of emergency nurses, and establish whether differences exist between emergency and other specialty practice environments. It would be expected that there are common personality characteristics among nurses, although there is also evidence to suggest potential differences between specialties.

The establishment of a clear personality profile of emergency nurse can potentially supplement the recruitment of nurses through the use of targeted recruitment strategies. Personality testing is already being used by some agencies in Australia to supplement the recruitment process by distinguishing personality differences between equally qualified applicants.

2. Engagement with nursing workforce organisations

The Australian Health Practitioner Registration Agency (AHPRA) and the Australian Institute of Health and Welfare (AIHW) are the peak nursing bodies in Australia. AHPRA coordinate and manage the national registration of nurses and other health professionals. AIHW is an independent agency set up by the Australian Government to provide reports on the state of Australia's health and welfare. They are responsible for compiling reports on the Australian nursing and midwifery workforce, as well as reports looking at the activity of the Australian health services. The government uses the reports to monitor workforce supply and the service delivery within the Australian health service. These reports, related to nursing workforce and health service delivery, assist

the government to monitor and identify areas for improvement or deficiencies in the health service or nursing workforce.

There are significant actual and opportunity costs associated with both the training and retention of nursing staff. It is recognised that recruitment and retention is multifaceted and personality is another aspect to be considered. The publication and presentation of the results of this study, at the College of Emergency Nursing Conference in 2013 and publication in the *Australasian Emergency Nursing Journal* aim to increase attention to the possibilities of further research in personality testing as a recruitment and retention strategy and as an adjunct to existing methods. Exploration of the relative costs of recruitment strategies, for example, overseas recruitment drives versus personality testing, is also another area of future research.

3. Engagement with nursing specialty colleges

In undertaking further research in this field, it would be essential to engage with the College of Emergency Nursing Australasia as well as other specialist professional bodies. These organisations can assist with disseminating and implementing the results of future studies and mobilise their members to assist with implementation and generation of a sample of potential nurses for further research.

5.8 Dissemination of Research

The results of this study have been actively disseminated throughout the period of candidature:

Conference Presentations

College of Emergency Nursing Conference, Melbourne, 12-13 October 2013.

1st International Emergency & Trauma Nursing conference, Dublin, 18-21 September 2014

Publications

Kennedy B, et al. The personality of emergency nurses: Is it unique? *Australas Emerg Nurs J* (2014), <http://dx.doi.org/10.1016/j.aenj.2014.07.002> – published online August 8 2014.

Kennedy, B, Curtis, K & Waters, D. Is there a relationship between personality and choice of nursing speciality: an Integrative Literature Review. *BMC Nursing* 2014; 13 (40)- accepted for publication November 10 2014.

Media

Results published in the Australasian Emergency Nurses Journal have been disseminated via radio, online and social media. Details provided in Appendix 15.

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7.1 Appendix

Appendix 1: Critical Appraisal Tool

Appendix 2: Summary of Articles for Integrative Review

Appendix 3: Data Collection Protocol

Appendix 4: Characteristics of the Personality Domains and Facets as measured by the NEO™-PI-3

Appendix 5: Demographic Data Questionnaire

Appendix 6: Participant Information Sheet

Appendix 7: Ethics Correspondence

Appendix 8: Written Study Instructions

Appendix 9: Statistical Analysis Plan (SAP)

Appendix 10: Kolmogorov-Smirnov Test Results for Personality Domains and Facets

Appendix 11: Q-Q plots for Facets warmth, Compliance and Achievement Striving

Appendix 12: NEO™-PI-3 Score Distributions for Personality Domains and Facets as measured by NEO™-PI-3

Appendix 13: Emergency Nurse Participant Identified Work Related Factors Influencing Retention

Appendix 14: Emergency Nurse Participant Identified Personal Related Factors Influencing Retention

Appendix 15: Dissemination of study results

Appendix 1: Critical Appraisal Tool

Critique of papers

Was the focus of the study related to: Personality as whole
Personality hardiness Other

If research is related to 'other' personality characteristics exclude article.

Research focus was personality in relation to:

Burnout management specialty
Attrition other Specify: _____

Study population:

Registered nurses Students other Specify: _____

If paper is related to student nurses and attrition please exclude.

Following items taken from Polit & Beck (2006) Essentials of nursing research pg 447-449

INTRODUCTION

Statement of Problem

- Is the research problem clearly stated?
- Does the problem statement clearly define the concepts and population to be studied?
- Is the problem significant to nursing?

Literature Review

- Is the literature review thorough?
- Is it based mainly on primary sources?
- Does the review summarise knowledge on the dependent and independent variables and their relationship?
- Does the review lay a solid basis for a new study?

Conceptual/theoretical framework

- Are key concepts adequately defined?
- Is there a conceptual/theoretical framework?
- Is it appropriate?

Hypothesis or research questions

- Are research questions and/or hypothesis explicitly stated?
- Are questions and hypothesis appropriately worded?
- Are questions/hypothesis consistent with literature review and the conceptual framework?

METHOD

Research Design

- Was the most rigorous design method utilised, given the study purpose?
- Did the design minimise threats to internal/external validity?

Population and sample

Sample size:

Sampling Method:

- Was the population identified and described?
- Was representativeness of the sample considered?
- Was the sample size adequate?
- Was power analysis used to estimate sample size needs?

Data collection and measurement

What tool was utilised?

- Was the tool utilised adequately described?
- Are the operational and conceptual definitions congruent?
- Does the report offer evidence of the reliability of measures?
- Does the report offer evidence of the validity of measures?

RESULTS

Data Analysis

- Were analysis undertaken to address each research question or test each hypothesis?
- Were appropriate statistical methods used?

Findings

- Were the findings adequately summarised with use of tables and figures?
- Do the findings provide strong evidence regarding the research questions? Were Type I and type II errors minimised?
 - If this study related to specialty, what was the personality type identified?
 - Was the result significant?

DISCUSSION

Interpretation of Findings

- Are all major findings interpreted and discussed within the context of prior research and/or the study's conceptual framework?
- Are the interpretations consistent with the results and the with the study's limitations?
- Does the report address the issue of generalisability of the results?

Implications/recommendations

- Do the researchers discuss the implications of the results for nursing and further research?
Are the implications reasonable and complete?

GLOBAL ISSUES

- Was the report well written, well organised, and sufficiently detailed for critical analysis?
- Were you able to understand the study? Was the report written in a manner that makes the findings accessible to practicing nurses?
- Despite any limitations, do the study findings appear to be valid- do you have confidence in the truth value of the results?
- Does the study contribute any meaningful evidence that is useful to nursing

Appendix 2: Summary of Articles for Integrative Review

Authors (year)	Sample (setting)	Personality tools	Findings (personality factors in italics)
Atkins, Piazza (1987)	46 emergency nurses with < 2 years emergency experience (USA)	Hogan Champagne Preference Survey (also known as Personality Style Inventory)	Most common combination: <i>introversion, sensing, feeling</i> (ISF) 22%; followed by <i>introversion, sensing, thinking, judging</i> (ISTJ) 11%. Most common individual characteristics: <i>introversion</i> (63%); <i>sensing</i> (61%); <i>feeling</i> (65%); <i>judging</i> (61%).
Bean & Holcombe (1993)	40 oncology nurses (USA)	Personal Style Inventory (PSI)	Most common combination: <i>introversion, sensing, feeling, judging</i> (ISFJ) 32%. Most common individual characteristics: <i>introversion</i> (65%); <i>sensing</i> (57%); <i>feeling</i> (55%); <i>judging</i> (50%).
Boyle, Grap, Younger & Thornby (1991)	103 intensive care nurses (USA)	<ol style="list-style-type: none"> 1. Alienation from work scale 2. Alienation from self scale 3. Locus of control scale 4. Powerlessness scale (Alienation test) 5. Security scale (California Life Goals Evaluation Schedule) 	All three dimensions of personality hardiness were negatively related to burnout: <i>commitment</i> ($r = -0.47, p < 0.001$), <i>control</i> ($r = -0.23, p = 0.01$), and <i>challenge</i> ($r = -0.33, p < 0.001$). Personality <i>hardiness</i> positive correlation with social support: work related ($r = 0.24, p = 0.006$) and non work related ($r = 0.19, p = 0.029$). Personality <i>hardiness</i> accounted for 7% of variance in burnout scores.
Buhler & Land (2003)	117 intensive care nurses (Germany)	Eysenck Personality Inventory (EPI) Trier Personality Questionnaire (TPQ) Scales of Control Locus of Control LOGO test	Relationship between personality and burnout (measured by three dimensions of Maslach Burnout Inventory: Emotional Exhaustion (EE); Personal Accomplishment (PA) and; Depersonalisation (D)): <i>fatalistic external locus of control, job-distance inability, existential frustration, extraversion</i> and <i>neuroticism</i> significant predictors of EE, explaining 43% of the variance ($p < 0.0001$) in multivariate regression analysis. <i>Existential frustration</i> and <i>extraversion</i> significant predictors of PA, explaining 15% of the variance ($p < 0.0002$). <i>Ability to love, extraversion</i> and <i>neuroticism</i> significant predictors of D, explaining 12% of the variance ($p < 0.0001$). Relationship between <i>external locus of control</i> (a measure of hardiness) and burnout: significant +ve correlation with EE (0.27, $p < 0.01$) and D (0.18, $p < 0.05$).

Authors (year)	Sample (setting)	Personality tools	Findings (personality factors in italics)
Burgess, Irvine & Wallymahmed (2010)	46 intensive care nurses (UK)	NEO Personality Inventory REVISED (NEO PI-R)	Relationship between personality and stress (measured by Nurse Stress Index): significant -ve correlations between <i>openness</i> and stress (-0.31, p<0.03), <i>extraversion</i> and stress (-0.33, p<.02) and between <i>conscientiousness</i> and workplace stressors (time management -0.34, p<0.02 and management demands -0.47, p<0.01). Relationship between personality and coping (measured by Brief COPE): significant +ve correlations between <i>openness</i> and planning (0.39, p<0.01), <i>openness</i> and reframing (0.47, p<0.01), <i>conscientiousness</i> and planning (0.40, p<0.01), <i>conscientiousness</i> and active coping (0.33, p<0.03), <i>agreeableness</i> and active coping (0.38, p<0.01) and <i>agreeableness</i> with both planning (0.36, p<0.02) and reframing (0.34, p<0.02).
Cross & Kelly (1984)	55 medical/ surgical & 41 intensive care nurses (Australia)	Myers Briggs Type Indicator (MBTI)	Relationship between personality and anxiety (measured by Taylor Manifest Anxiety Scale): both groups most commonly cluster in <i>introversion</i> (73%) and <i>sensing</i> (67%) quadrant (IS) incorporating ISTJ, ISFJ, ISTP, ISFP combinations. Significant correlation between <i>introversion</i> and anxiety (0.34, p<0.02) for ICU group only.
Gambles, Wilkinson & Dissayake (2003)	178 cancer & palliative care nurses (UK)	16 Personality Factor (16PF) (VERSION A)	6/16 primary order factors were extreme (very low or very high) or outside population norms. Higher scores on <i>emotional sensitivity</i> , <i>impulsivity</i> and <i>imagination</i> , lower scores on <i>self-sufficiency</i> , <i>suspiciousness</i> and <i>rebelliousness</i> . 2/8 second order factors were high (<i>extraversion</i>) or low (<i>tough poise</i>).
Lentz & Michaels (1965)	384 medical/ surgical nurses (USA)	Edwards Personal Preference Schedule (EPPS)	Nurses score higher than population norms for <i>order</i> , <i>endurance</i> , <i>deference</i> (not controlled for age) and lower than norms for <i>dominance</i> . Possible differences on 10/15 personality factors when compared to a mental health nurse cohort reported by Navaran, & Stauffacher (1958).
Levine, Wilson & Guido (1988)	200 critical care nurses (USA)	16 Personality Factor (16PF) (FORM C)	4/16 primary order factors were extreme (very high) compared to population norms. Higher levels of <i>dominance</i> ; ego strength (<i>leadership & conforming</i>); <i>self-sufficiency</i> ; <i>controlled (socially precise)</i> .
Lewis, Bonner, Campbell, Cooper & Willard (1994)	49 nephrology nurses (USA)	Myers Briggs Type Indicator (MBTI) FORM G	Most common combinations: INFJ* (14%), ISTJ* (12%), ESFJ* (12%). Most common individual characteristics: <i>introversion</i> (55%); <i>intuition</i> (51%); <i>thinking</i> (55%); <i>judging</i> (65%). No significant relationship between personality and personal stress (measured by Perceived Stress Scale) and work related stress (measured by Nurse Stress Scale). No significant relationship between personality and coping (measured by Sense of Coherence Scale and Coping Resources Inventory). No significant relationship between personality and burnout (measured by Maslach Burnout Inventory).
Meeusen, Brown-Mahoney, Dam, Zundert, Knape (2010)	923 anaesthetic nurses (Netherlands)	Myers Briggs Type Indicator (MBTI)	Relationship between personality and job satisfaction (measured by validated instrument): <i>Easy going</i> and <i>orderly</i> significant predictors of job satisfaction in multivariate regression analysis, but explaining only 3.5% of the variance.

Authors (year)	Sample (setting)	Personality tools	Findings (personality factors in italics)
Stauffer & Navran (1968)	453 nursing students followed up after five years of practice (USA)	Edwards Personal Preference Schedule (EPPS)	Change in 11/15 factors on EPPS after five years. Significantly higher mean difference (MD) in <i>achievement</i> (MD 2.2, $p < 0.001$), <i>order</i> (MD 2.0, $p < 0.001$) and <i>heterosexuality</i> (MD 1.7, $p < 0.001$) and significantly lower score for <i>abatement</i> (MD 1.56, $p < 0.001$). No significant relationship between personality and actual specialty experience in first five years but significant for <i>achievement</i> ($F = 3.2, p < 0.01$) <i>order</i> ($F = 3.01, p < 0.05$) and <i>intraception</i> ($F = 2.99, p < 0.05$) when analysed by preferred specialty. High <i>dominance</i> and <i>exhibition</i> in those preferring administration, teaching and research (after five years); high <i>intraception</i> in mental health nurses across all five years.
Topf (1989)	100 critical care nurses (USA)	<ol style="list-style-type: none"> 1. Alienation test (alienation from work scale and alienation from social institutions scale) 2. Locus of control scale 3. Security Scale (California Life Goals Evaluation Schedule) 	<p>Relationship between <i>hardiness</i> and occupational stress (measured by Nurse Stress Scale): significant +ve correlation between <i>external locus of control</i> and stress (0.34, $p < 0.001$)</p> <p>Relationship between <i>hardiness</i> and burnout (measured by Maslach Burnout Inventory): only one dimension <i>hardiness</i> (<i>commitment</i>) linked to all three dimensions (EE, PA & D) of burnout.</p> <p>No significant relationship between occupational stress and burnout.</p>

Appendix 3: Data Collection Protocol

Investigation of Personality Profile of Emergency Nurses

1. Aim

The purpose of this research is to establish whether individuals who remain within emergency possess common personality traits, and to establish a personality profile for emergency nurses. This has the potential to provide information for targeted recruitment, to improve retention of nurses within the emergency workforce.

The aim of this quantitative study is to develop a personality profile of a group of emergency nurses, in order to explore whether a relationship exists between personality profile and the decision to work in the emergency setting.

Specifically, this research study seeks to:

1. Identify the personality profile of a group of emergency nurses
2. Explore whether there is a relationship between personality factors and/or profile and length of employment within emergency nursing

2. Overview

Emergency nursing is a relatively new specialty that has evolved considerably since its inception in the early 1970s (Fry 2008). Research has demonstrated links between aspects of an individual's personality and stress and burnout, demonstrating personality traits that may place individuals at higher risk of burnout as well as traits that may improve one's ability to cope under stressful situations (Lewis, Bonner et al. 1994; Buhler and Land 2003; Burgess, Irvine et al. 2010). It has been recognised that the emergency environment is a highly stressful environment and staff employed within this area experience high levels of stress and emotional exhaustion (Potter 2006).

A systematically performed literature search has highlighted that there is no current research exploring the personality of this group of nurses. If it can be identified that there is a personality profile and/or personality facets that are unique to emergency nurses that remain within emergency nursing. This may assist to identify those individuals who will remain in the profession, and this information can be used in the recruitment of nurses to the specialty and assist with improving nurse retention in the area.

Personality plays an important role in occupational choice (Holland 1985; Ozer and Benet-Martinez 2006). There have been a number of studies that explore the personality of various specialty groups of nurses (Atkins and Piazza 1987; Levine, Wilson et al. 1988; Bean and Holcombe 1993; Bean, Grant et al. 1995). However, only one of these involved and group of emergency nurses (Atkins and Piazza 1987) and

there exists a lack of conclusive evidence as to whether differences exist between the groups.

3. Data Collection Protocol

3.1 Setting

The St George Public Hospital (SGH) Emergency Department (ED) will be the sole site for data collection. St George Hospital is a tertiary referral hospital located in South East Sydney, NSW. SGH is a level 1 trauma centre and the ED managed 59,753 emergency presentations in 2010.

3.2 Participant Identification

St George ED employs 105 registered nurses with varying levels of experience. All registered nurses will be invited to participate in the study on a voluntary and anonymous basis according the inclusion/exclusion criteria set out below.

3.3 Participant Inclusion/Exclusion Criteria

All registered nurses employed on a permanent basis, full-time or part time, within the emergency department will be invited to participate in the study.

Any registered nurses employed in the emergency department on a temporary or rotational basis will be excluded from the study.

3.4 Enrolment in the Study

Participants will be contacted via email and through in-service within the emergency department by the primary investigator, in order to provide them with information regarding the study.

Envelopes containing a participant information sheet, demographic data questionnaire and NEO™-PI-3¹ personality tool with instructions for completion will be distributed to all staff after being provided with information regarding the study. An unmarked envelope will be provided with instructions for return of completed questionnaire.

Participants will be provided with time, during existing allocated workforce development time, to complete the questionnaire if they consent to participate. Alternatively they can take the package home to complete the questionnaire in the privacy of their own home if preferred.

Documents will be able to be returned in unmarked envelope via a sealed box located in the staff tearoom or direct to the primary investigator.

Participation is voluntary and consent will be implied upon return of the completed research packs.

¹ © 2010 by PAR. www.parinc.com

Enrolment in the study is planned to commence in July 2012 with data collection taking place over a six-month period.

3.5 Data Tool

Personality Inventory

The NEO™ Personality Inventory is the only tool available that measures the dimensions of personality according to the Five Factor Model of personality. The tool is designed to measure the more fundamental temperaments of personality. Measurements of these temperaments of personality are more likely to remain constant over time and situations. (Piedmont 1998)

The Five Factor Model of personality is a trait-based taxonomy of personality dimensions. It consists of five independent domains shown to provide a comprehensive description of normal personality: Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness (McCrae and Costa 2010). Each of the five domains consists of six facets. Measurement in this way allows for the detection of meaningful individual differences within the domain (Piedmont 1998; McCrae and Costa 2010).

The NEO™-PI-3 is the latest version of the personality inventory. It is a self-report tool, consisting of 240 items answered by participants on a five-point scale from strongly disagree to strongly agree. It can be administered in a group setting under supervision. There is no time limit for completion of the NEO™-PI-3, however 30-40 minutes is generally adequate time. The NEO™-PI-3 can be taken away and completed in the privacy of the respondent's home if necessary, in order to maintain test integrity it is necessary to ensure all test materials are returned (McCrae and Costa 2010).

3.6 Demographic data collection

A demographic data collection tool will be provided along with the NEO™-PI-3 to be completed at the same time.

It will collect personal and educational data on the participants. The data will be used to inform the analysis of the personality profile, in order to identify whether particular personality profiles are associated with a variety of demographic variables, including occupational choice and retention.

3.7 Data Management

A unique identifier will be allocated to the demographic and NEO™-PI-3 to enable linkage of the data.

Neither the NEO™-PI-3 nor the demographic data collection tool will contain any personal details that will enable the identification of participants. Demographic data will be entered into an excel spread sheet that is password-protected.

The NEO™-PI-3 answer sheets, hand-scored sheets and demographic data collected will be stored together in a locked filing cabinet, in a key locked office.

3.8 Data Analysis

The NEO™-PI-3 data will be hand-scored and then entered into database for further analysis.

Demographic data will be analysed in SPSS with the use of descriptive statistics. The data obtained will be analysed against the personality results obtained from the NEO™-PI-3 analysis.

The results of the study will be written up and submitted for publication. The results will be disseminated to participants through Emergency Department meetings and via general email to all emergency nursing staff.

3.9 Peer review

The methods and study design have been peer-reviewed as a part of Masters of Philosophy candidature at Sydney Nursing School, The University of Sydney and by supervisors A/Professor Donna Waters and A/Professor Kate Curtis. It has also been reviewed by Dr Judy Hyde, Clinical Director, Psychology Clinic, School of Psychology and Dr Jo Patching, Course Coordinator of the Advanced Learning (Mental Health) Program, Sydney Nursing School and registered psychologist.

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Appendix 4: Characteristics of the Personality Domains and Facets as measured by the NEO™-PI-3

Table 1: Characteristics of the Neuroticism domain and associated facets^{17,61}

Neuroticism (N): associated with maladjustment and emotional stability, lower scorers possess a calm temperament and cope well in stressful situations.
Anxiety (N1): higher scorers are ‘worriers’, they can be apprehensive about the future and unknown. On the lower end of the spectrum individuals are calm and relaxed and do not tend to concern themselves with things that may go wrong.
Angry hostility (N2): measures individuals’ tendency to experience anger or frustration. Higher scorers will display such emotions easily and express the annoyance at things that bother them. Lower scorers require a much greater catalyst for them to express such emotions, and they are rarely seen to express anger or frustration.
Depression (N3): measures the tendency of one to experience depressive symptoms. Higher scorers are easily discouraged when things don’t work out and experience feelings of sadness and guilt. Lower scorers rarely experience such emotions and feelings; they do not tend to blame themselves when things go wrong.
Self-consciousness (N4): feelings of embarrassment or shame are integral to this facet. Higher scorers have a tendency to experience such emotions and are shy, fearful of making mistakes in social circumstances, they experience feelings of inferiority and are easily embarrassed. Lower scorers are comfortable around others and not upset or uncomfortable in awkward social situations.
Impulsiveness (N5): is associated with inability to control cravings or urges. High scorers regret actions taken as a result of impulsive behaviour, and have difficulty controlling their emotions. Lower scorers are much more controlled in their behaviour and emotions.
Vulnerability (N6): refers to vulnerability to stress. Higher scorers do not cope well in stressful situations, are easily panicked and have difficulty making a decision. Lower scorers can remain calm in a crisis and possess effective decision-making skills when under stress.

Table 2: Characteristics of the Extraversion domain and associated facets^{17,61}

Extraversion (E): related to the way in which one approaches individuals and the world around them. Higher scorers enjoy socialising in groups, they are active and take on leadership roles.
Warmth (E1): relates to interpersonal intimacy. High scorers find it easy to interact with strangers; they enjoy socialising and talking with others, and strong relationships with friends.
Gregariousness (E2): higher scores associated with those who enjoy other people’s company; conversely lower scorers are comfortable on their own and do not necessarily seek out the company of others.
Assertiveness (E3): refers to those who are dominant and assertive in social situations, actively participating in conversation; lower scorers prefer to remain in the background, allowing others to talk.
Activity (E4): relates to those who are full of energy, lead fast-paced lives, prefer to keep busy; low scorers take a more leisurely approach to both work and personal life.
Excitement-seeking (E5): high scorers like excitement and action, they undertake activities for the ‘thrill’. Those at the other end of the spectrum do not undertake activities of experiences for the ‘thrill’, opting for a more sedate lifestyle.
Positive emotions (E6): looks at the experience of positive emotions, higher scores are bubbly, happy and optimistic individuals. Lower scorers exhibit less energy and excitement, although not necessarily unhappy. Facet of E with the greatest predictor to personal happiness.

Table 3: Characteristics of the Openness to Experience domain and associated facets^{17,61}

<p>Openness to Experience (O): this domain is a measure of the response of an individual to different types of experience. An open individual is considered to be broad-minded, willing to consider new ideas and unconventional values. Closed individuals have a more conservative approach to life and prefer what is familiar.</p>
<p>Fantasy (O1): those who are open possess an active imagination, as children they engaged in imaginative play. Lower scorers prefer to focus on the task at hand, remaining realistic in their thought processes.</p>
<p>Aesthetics (O2): higher scores possess an appreciation for the arts and enjoy music and poetry. Low scorers have little interest in arts and beauty.</p>
<p>Feelings (O3): refers to one's awareness of their own feelings and emotions. An open individual is more attuned to their emotional state and experiences the spectrum of emotions, they are able to empathise with others. A closed individual does not experience such a wide range of emotions; they tend not to notice the mood of the environment.</p>
<p>Actions (O4): behavioural expression of openness, willingness to try new activities and experience new foods. Individuals prefer 'novelty and variety to familiarity and routine'¹⁷. Low scorers are set in the ways and prefer a familiar environment.</p>
<p>Ideas (O5): refers to one's intellectual curiosity. High scorers enjoy completing puzzles, they possess a wide range of intellectual interests and are open to the consideration of new, or alternative, ideas. Low scorers avoid philosophical arguments, they may concentrate their interest on a narrow range of topics.</p>
<p>Values (O6): openness on this facet refers to one's willingness to examine social, political and religious beliefs and values. Open individuals are considered broad-minded and advocate changing policy to reflect current social and political trends. Those scoring lower on this facet are more conservative and are accepting of authority and traditional values and principles.</p>

Table 4: Characteristics of the Agreeableness domain and associated facets^{17,61}

<p>Agreeableness (A): is a personality dimension reflective of one's interpersonal preferences. Agreeable individuals sympathise with others and are caring in nature and display respect to others. Lower scorers are sceptical of others' intentions and competitive in nature, they can be sarcastic and may be manipulative to achieve the desired outcome.</p>
<p>Trust (A1): high scorers tend to see the best in people and believe that others are honest and trustworthy. Lower scorers are more cautious and may have reservations about others, concerned they will try to take advantage of them.</p>
<p>Straightforwardness (A2): higher scores are open and honest individuals. They can be creative with solutions, but do not like to deceive others. Lower scorers are suspicious of others and can be manipulative.</p>
<p>Altruism (A3): higher scorers display consideration of others and are generally well liked, they are always willing to assist others. Those on the lower end of the spectrum tend to be preoccupied with meeting their own needs, they can be selfish and prefer not to get involved in assisting with other people's problems.</p>
<p>Compliance (A4): this facet relates to how an individual responds to interpersonal conflict. Higher scores would prefer to avoid conflict, they endeavour to cooperate with others and will rarely express dissatisfaction or anger even if justified. Lower scorers are more aggressive in nature and will readily express dissatisfaction and are known to be argumentative.</p>
<p>Modesty (A5): higher scorers are humble and prefer not to highlight their achievements or draw attention to themselves; at the other end of the spectrum, individuals believe they are better than others and may be considered arrogant; they will advertise their achievements.</p>
<p>Tender-mindedness (A6): is a measure of concern and sympathy for others. Those scoring higher in this facet demonstrate sympathy and concern for others, and believe that human needs should be met regardless of the economic considerations. Lower scores on this facet are associated with those who make decisions based on logic not influenced personal feelings for others; they may be considered 'hard-headed'.</p>

Table 5: Characteristics of the Conscientiousness domain and associated facets^{17,61}

<p>Conscientiousness (C): well-prepared and organised individuals, they work towards goals and a systematic way always thinking about the consequences before making a decision. Lower scorers come across as easy-going, they may take a while to focus on a task, they can make decisions at the last minute without first considering the consequences of the their actions.</p>
<p>Competence (C1): is highly associated with self-esteem and has a negative relationship with vulnerability (N6). High scorers are productive and apply themselves to their work, they keep themselves educated and are known for making sound decisions. Those with lower scores tend to approach situations poorly prepared and frequently to not complete tasks that are undertaken.</p>
<p>Order (C2): high scorers are clean, organised and methodical in their approach, everything has a place. Low scorers are poorly organised, rather make decisions and plans as they go than plan ahead.</p>
<p>Dutifulness (C3): higher scorers are guided by the ethical principles, and strive to complete all tasks appropriately so as to not have to be repeated. Lower scorers are not known to be dependable.</p>
<p>Achievement striving (C4): high scorers have clearly set out goals and work compulsively to achieve them. Lower scores seem somewhat unmotivated and lack ambition.</p>
<p>Self-discipline (C5): high scorers are productive and motivated to complete the necessary tasks. Lower scorers lack the motivation to start tasks and procrastinate before commencing, they are easily distracted and will quit.</p>
<p>Deliberation (C6): refers to the tendency to think through things before taking action. Higher scorers are cautious, taking into consideration the consequences before making a decision. Those at the other end of the spectrum tend not to think about consequences and will often make decisions at the last minute. They are spontaneous and can make a decision on the spot.</p>

Appendix 5: Demographic Data Questionnaire

STUDY NUMBER: _____

Demographic Data

Please complete the questions below in full.

1. Age: _____

2. Employment: Full-time Part-time

3. Sex: Male Female

4. How many years have you been working as a registered nurse? _____
(exclude periods of absence)

5. How long have you worked in emergency nursing? _____

6. Do you have a Bachelor of Nursing? Yes No

7. Do you have a Post Graduate Qualification? Yes No (go to Qu 10)

8. What level of qualification do you hold?

Graduate Certificate

Graduate Diploma

Masters please specify _____

Other post graduate qualification please specify _____

9. Is your qualification in: Emergency Nursing

Critical care

Midwifery

Management

Other _____ (please specify)

10. What things below best describe your reasons for staying in emergency? (tick all that apply)

Work related

- Professional development opportunities
- Quality of the nurse managers
- Quality of clinical nursing leadership
(eg senior nursing staff)
- Camaraderie amongst staff
(good rapport, support colleagues)
- Professional models of care
(clear, structured clinical processes eg stroke page)
- Work environment
(variety clinical presentations and acuity)
- Autonomy
(eg nurse initiated analgesia)

Personal

- Flexible work hours
- Don't wish to start somewhere new
- Job satisfaction
- Financial
- Proximity to home

Other (please provide details)

Appendix 6: Participant Information Sheet



Health
South Eastern Sydney
Local Health District



THE UNIVERSITY OF
SYDNEY

Participant Information Sheet

Title: Investigation into the Personality Profile of Emergency Nurses

Dear Colleague,

You are invited to take part in a research study exploring the Personality of Emergency Nurses. This study is being conducted as part of a Masters of Philosophy by Belinda Kennedy, supervised by A/Prof Donna Waters and Clinical Associate Professor Kate Curtis, through Sydney Nursing School.

Before you decide whether or not you wish to participate in this study, it is important to understand why the research is being done and what it will involve. Please take the time to read the following information carefully and discuss it with others if you wish.

1. What is the purpose of this research?

Personality is believed to be a determinant in occupational choice, it influences the way one perceives and deals with their external environment. It is theorised that individuals will seek an occupation that satisfies their personal needs. The purpose of this research is to establish whether individuals who remain within emergency possess common personality traits, and to establish a personality profile for Emergency Nurses.

This has the potential to provide information for targeted recruitment, to improve retention of nurses within the emergency workforce.

2. What if I do not want to take part in this study or wish to withdraw later?

Your participation in this study is entirely voluntary and you are under no obligation to participate. Submission of a completed questionnaire is an indication of your consent to participate in the study. You can withdraw at any time prior to submitting your completed questionnaire. Once you have completed the questionnaire, due to all information being de-identified, it will not be possible to withdraw from the study. If you decide not to participate in the study it will not affect your position in the Emergency Department now or in the future.

3. What does this study involve?

This study requires you to complete two questionnaires:

1. Demographic questionnaire
2. NEO-PI-3 (personality tool)

It will take approximately 30-40 minutes of your time. If you wish to take part in the study you will be able to complete the questionnaire during designated workforce development time.

If you prefer you can take the information home and complete it in your own time and return it to the designated collection box at your earliest convenience.

4. How will my confidentiality be protected?

All aspects of this study, including the results, will be strictly confidential. Only the chief investigators will have access to information provided by participants. All participants will be de-identified and the information will not be able to be associated with you. Your contribution is very important to obtaining an accurate representation of emergency nurses. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report. The results of the study will be made available to you upon completion of the study.

5. Who should I contact if I have concerns about this study?

This study has ethics approval from South East Sydney Local Health Local Health District. Any person with concerns or complaints about this study can contact:

South Eastern Sydney Local Health District Human Research Ethics Committee (St George and Sutherland Hospitals), Research Support Office on 02 9113 2481 and quote HREC reference number: LNR/11/STG/223

6. Who should I contact if I want further information regarding this study?

If after reading this information you have any questions or would like further information please do not hesitate to contact Belinda Kennedy, St George Hospital Emergency Department, +61 2 9113 1680 (Telephone) or Belinda.Kennedy@sesiahs.health.nsw.gov.au (Email) or A/Prof Kate Curtis, St George Hospital Trauma Service, on +61 2 9113 3499 (Telephone); +61 2 9113 3974 (Facsimile) or Kate.Curtis@sesiahs.health.nsw.gov.au (Email).

Thank you for your valuable time.

Appendix 7: Ethics Correspondence



Health
South Eastern Sydney
Local Health District

21 December 2011

Belinda Kennedy
Nurse Educator
Emergency Department
St George Hospital
Gray Street
KOGARAH NSW 2217

Via email: Belinda.Kennedy@sesiahs.health.nsw.gov.au &
Kate.Curtis@sesiahs.health.nsw.gov.au

Dear Ms Kennedy

HREC reference number: LNR/11/STG/223
Project title: Investigation of Personality Profile of Emergency Nurses

Thank you for submitting the above-noted project, which was first considered by the South Eastern Sydney Local Health District Human Research Ethics Committee – Southern Sector (EC00135) (HREC) at its meeting held 8 November 2011.

The additional information you provided on 15 November 2011 was considered by members of the Committee on 20 December 2011.

The Committee agreed that the use of the NEO P-I-3 questionnaire does not pose any risks to participants and has approved its use. However, the Committee has expressed concern that the content of the demographic questionnaire (Version 1, 12/10/11) could potentially infringe the privacy of health professionals.

Given the small number of staff being surveyed, the Committee feels that there is the potential for individual participants to be identified from the demographic data being collected, particularly based on the inclusion of question 4, which requires staff to disclose their position, eg. management, CNC, CNS, etc.

The Committee has indicated that the project could only be approved as low risk research via expedited ethics review if the following conditions were met:

1. The section of the NEO P-I-3 requiring completion of personal identifiers is blanked out (as you have indicated in your correspondence of 15 November 2011). Please provide the HREC with a hard copy of the questionnaire showing how the identifiers will be blanked out.
2. Question 4 (Position) on the demographic questionnaire (Version 1, 12/10/11) is deleted in order to minimise the risk of identifying individual participants. Please submit a revised version of the demographic questionnaire (without question 4) to the HREC.

E-MAILED
21/12/11

Research Support Office
Level 3, James Laws House
St George Hospital
Gray Street, Kogarah NSW 2217

3. All efforts will be made to ensure the security of the data in order to protect the privacy of staff.

In order to make a final determination of the ethical and scientific acceptability of your project, please provide a response to the 3 points noted above, and include the updated documents.

When submitting your response to the HREC please note the following:

- Your response should be accompanied by a brief covering letter addressing each of the above noted points.
- Amended versions of documents should be submitted in 'tracked changes,' and a clean copy. If the document is not available in tracked changes, the amended document should be accompanied by a summary of changes.
- Please ensure that all documents contain the Version Number, Date and Page Numbers.

Upon receipt of the modified documentation, the matter will be reviewed by the HREC Executive Officer. Please submit **one copy** to the Research Support Office.

Please note that if the requested information is not received within three months or two meetings from the date of this letter (whichever occurs sooner), the project will be dismissed and you will be required to re-submit the project at a later date.

Please quote HREC reference number: **LNR/11/STG/223** in all correspondence.

Should you require any additional information regarding the HREC's consideration of your proposal, please contact the Research Support Office on 9113 2481.

Yours sincerely



Vanessa Paterson
HREC Executive Officer

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research (2007)*, *NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007)* and the *CPMP/ICH Note for Guidance on Good Clinical Practice*.



23 December 2011

Belinda Kennedy
Nurse Educator
Emergency Department
St George Hospital
Gray Street
KOGARAH NSW 2217

Via email: Belinda.Kennedy@sesiahs.health.nsw.gov.au &
Kate.Curtis@sesiahs.health.nsw.gov.au

Dear Ms Kennedy

HREC reference number: LNR/11/STG/223
Project title: Investigation of Personality Profile of Emergency Nurses

I refer to your correspondence of 22 December 2011 responding to the HREC Executive Committee's request for clarification.

Based on the information you have provided, and in accordance with the NHMRC guidelines [National Statement 2007 – Section 5 Institutional Responsibilities and "*When does quality assurance in health care require independent ethical review?*" (2003)], this project has been assessed as low risk and is therefore suitable for expedited ethics review.

The following documentation has been reviewed and approved:

Document	Reference	Date
Application Form for Ethical and Scientific Review of Low and Negligible Risk Research	AU/6/101B012	31/10/2011
Principal Investigator's response letter		22/12/2011
Personality Profile Emergency Nurses Participant Information Sheet	Version 1	12/10/2011
Data Collection Protocol	Version 4	12/10/2011
Demographic Data	Version 2	21/12/2011
NEO-PI-3 NEO Personality Inventory-3 Self Report Form		2010

The HREC has provided ethical and scientific approval for the following sites:

- The St George Public Hospital

Please note the following conditions of approval:

Research Support Office
Level 3, James Laws House
St George Hospital
Gray Street, Kogarah NSW 2217

1. You will immediately report anything that might affect the continued ethical acceptability of the project.
2. Proposed changes to the research protocol, conduct of the research, or study investigators will be provided to the HREC for review in the specified format.
3. You will notify the HREC, giving reasons, if the project is discontinued before the expected date of completion.
4. You will provide a final progress report to the HREC at the completion of the study.
5. HREC approval is valid to **December 2013**. Further extension of ethical approval will be considered upon receipt of a progress report prior to the expiry date.

The HREC Terms of Reference, Standard Operating Procedures, membership and standard forms are available from our website:
www.sesiahs.health.nsw.gov.au/Research_Support/CHN/ or by contacting the Research Support Office.

Should you have any queries about the HREC's consideration of your project please contact the Research Support Office on 9113 2481 or 9113 2987. Please quote HREC reference number: **LNR/11/STG/223** in all correspondence with this office.

You are reminded that this letter constitutes ethical approval only.

Before you can proceed with this project, you must first have authorisation from the Chief Executive or delegate for St George/Sutherland Hospitals and Health Services (SGSHHS).

A copy of this advice has been forwarded to the Research Governance Officer (RGO) responsible for SGSHHS. You will receive separate written advice from the RGO concerning the authorisation of your project.

The HREC wishes you every success in your research.

Yours sincerely



Vanessa Paterson
HREC Executive Officer

Cc Lisa Stanton, Research Governance Officer, SGSHHS

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research (2007)*, *NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007)* and the *CPMP/ICH Note for Guidance on Good Clinical Practice*.

22nd December 2011

SESLHD Human Research Ethics Committee
Research Support Office
Level 3, James Laws House
St George Hospital
Gray St
KOGARAH NSW 2217

Dear HREC Committee,

RE:
HREC reference number: LNR/11/STG/223
Project Title: Investigation of Personality Profile of Emergency Nurses

Thank you for your consideration of the above-noted project. Your feedback is appreciated and points have been considered below.

1. Please find attached a copy of the NEO-PI-3 answer sheet demonstrating how personal identifiers have been removed. A study identification number has been placed to allow for data linkage with the demographic questionnaire. Also attached is a copy of page 1 of the NEO-PI-3 Item booklet demonstrating how instructions to record personal identifiers has been removed.
2. The Demographic Questionnaire has been revised and question 4 removed, a study number has been added to allow for data linkage between the two questionnaires. Please see attached the updated Demographic Questionnaire (Version 2, 21/12/11).
3. All data collected will be de identified and all efforts made to ensure the security of the data and the privacy of the participants. As per section 7.2 of the ethics application, the completed questionnaires will be stored in a locked filing cabinet in the key accessible trauma office. The de identified data will be entered into an excel database that is password protected on a secure server. The data will only be accessible by the principle investigator and project supervisors.

If you require any further information I can be contacted on 8012 6341 or via email Belinda.kennedy@sesiahs.health.nsw.gov.au .

Yours Sincerely



Belinda Kennedy



3 February 2012

Ms Belinda Kennedy
Emergency Department
St George Hospital
Gray Street
Kogarah NSW 2217

Dear Ms Kennedy

HREC reference number: LNR/11/STG/223
SSA reference number: LNRSSA/11/STG/224
Project title: Investigation of Personality Profile of Emergency Nurses

Thank you for submitting a Low and Negligible Risk Research – New South Wales, Site Specific Assessment (SSA) Form for governance review on 7 November 2011.

Please quote the above SSA reference number in all correspondence to the Research Governance Officer.

I confirm that the Associate Investigators are: A/Prof Kate Curtis (CNC).

The following definitions have been given to classify research conducted under this application type:

Low risk research

The National Statement on Ethical Conduct in Human Research 2007 describes research as "low risk", where the only foreseeable risk is one of discomfort. Discomforts may include minor side-effects of medication, discomforts related to measuring blood pressure or anxiety induced by an interview. Where the risk, even if unlikely, is more serious than discomfort, the research is not low risk.

Negligible risk research

The National Statement on Ethical Conduct in Human Research 2007 describes research as "negligible risk" where there is no foreseeable risk of harm or discomfort; and any foreseeable risk is not more than inconvenience to the participants. Inconvenience is the least form of harm that is possible for human participants in research. The most common examples of inconvenience in human research are filling in a form, participating in a survey or giving up time to participate in a research activity. Where the risk, even if unlikely, is more than inconvenience, the research is not negligible risk.

The following documents were submitted for consideration and entered into AURED:

Document	Details	Date
SSA LNR Form	AU/7/FF0B010	31/10/2011
HREC Approval Letter	St George	23/12/2011

You are encouraged to familiarise yourself with the NHMRC Research Governance Handbook (November 2011) in order to understand your responsibilities for the duration of this project.

SESLHD Research Support Office
St George & Sutherland Hospitals & Health Services
Level 3, James Laws House
St George Public Hospital
Gray Street, KOGARAH NSW 2217
CentralEthics@sesiahs.health.nsw.gov.au

I am pleased to inform you that authorisation has been granted by the Chief Executive (or delegate) for this project to take place at the following site/s:

- St George Hospital & Health Service**

Authorisation is conditional on ethical and scientific approval of the project, which has been granted in line with Policy Directive PD2010_055 *Research - Ethical and scientific review of human research in NSW Public Health Organisations*.

As part of our commitment to fostering and encouraging research participation you are required to submit a copy of this letter and the publication to the Director of Nursing, Vicki Manning, if a member of your research team is employed as a Clinical Nurse Consultant.

You are required to provide the Research Support Office with the following details (where applicable) at your earliest convenience:

1. Project commencement date
2. Proposed amendments to the research protocol or personnel which may affect the ongoing site acceptability of the project - these may include budget, risk, staffing and infrastructure issues
3. All authorised documentation from the approving HREC

Yours faithfully



Lisa Stanton
Research Governance Officer
St George / Sutherland Hospitals and Health Services

cc.

- A/Prof Kate Curtis – Trauma CNC*
- Vicki Manning – DON (STG)*



THE UNIVERSITY OF
SYDNEY

RESEARCH INTEGRITY
Human Research Ethics Committee

Web: http://sydney.edu.au/research_support/ethics/human/

Email: ro.humanethics@sydney.edu.au

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NSW 2006 AUSTRALIA

Ref: GD/KGSS

23 July 2012

Associate Professor Donna Waters
M02 - Sydney Nursing School
The University of Sydney
NSW 2006 Australia
Email: donna.waters@sydney.edu.au

Dear A/Professor Waters,

Title: Investigation of the Personality Profile of Emergency Nurses
Ref: 15119

Master of Philosophy Student: Ms Belinda Kennedy

The Executive of the Human Research Ethics Committee (HREC) has reviewed this study to include the Masters student – Ms Belinda Kennedy which will be conducted at St George Hospital Emergency Department. The Committee acknowledges your right to proceed under the authority of South Eastern Sydney Local Health District Human Research Ethics Committee.

The Human Research Ethics Committee advises that you consult with The University of Sydney Audit and Risk Management Office (http://sydney.edu.au/audit_risk/) to ensure that University of Sydney staff, students and premises are adequately covered for the purpose of conducting this research project.

Any modifications to the study must be approved by the South Eastern Sydney Local Health District Human Research Ethics Committee. A copy of any approved modification, approved progress report and any new approved documents must be provided to The University of Sydney HREC for our records.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

Professor Glen Davis
Chair
Human Research Ethics Committee

cc:
belinda.kennedy@sesiahs.health.nsw.gov.au (M.Phil Candidate)
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ABN 15 211 513 464
CRICOS 00026A

Appendix 8: Written Study Instructions

Contents:

1. Participant Information Sheet (yours to keep)
2. NEO-PI-3 Item booklet
3. NEO-PI-3 hand-scorable answer sheet
4. Demographic data questionnaire

Instructions

1. Read the participant information sheet, if you have any questions please contact me as per the details on the sheet
2. Read the instructions on page 1 of the NEO-PI-3 item booklet **carefully** before commencing
3. **Do not place any identifying information on any of the paperwork**
4. Complete the NEO-PI-3 and the demographic data questionnaire
5. **Before sealing** in the envelope **ensure you have completed all questions including questions A, B & C at the bottom of the NEO-PI-3**
6. Return the two questionnaires in the sealed envelope along with the Item booklet to the box in the educators office (or under their door and they will pop it in the box for you)
7. Please do not show others who may not have participated in the study the item booklet

Thank you very much for your participation

Belinda



Appendix 9: Statistical Analysis Plan

1. Literature Review

2. Rationale for Study

3. Aims and Objectives

To undertake a study of a group of emergency nurses in order to:

1. Develop a profile of demographic and personality characteristics of a group of emergency nurses
2. Ascertain whether any personality characteristics as measured by NEO-PI-3 are associated with retention of emergency nurses beyond three (3) years in emergency nursing
3. Ascertain whether any other identified demographic characteristics (e.g. age, post graduate qualifications, personal reasons) are associated with retention of emergency nurses

4. Question

- Are there common personality characteristics identified among the group of emergency nurses?
- Does a relationship exist between personality characteristics and emergency nurses who remain in the profession longer than three (3) years?

5. Methods

5.1 Data Collection

Data collection was undertaken from July 2012 to October 2012.

Data was collected from a single site. All registered nurses employed on a permanent basis (i.e full-time/ part-time) within the emergency department of a large tertiary referral hospital in Sydney were invited to participate.

The data was collected using two self report questionnaires; these contained no personal identifiers and were allocated with a study number for the purposes of data linkage. The majority chose to complete the questionnaires within allocated work time, with a few participants completing them in their own time.

Demographic Data

Collection of demographic data was undertaken using in survey tool developed for the study. It collected personal and educational data on all participants eg. age, gender, work status and educational qualifications, along with workplace and personal factors identified to influence intention to remain in current study.

5.3 Personality Data

Information related to the personality of the emergency nurses was collected using the NEO™-PI-3. It is a self-report tool consisting of 240 items answered by participants on a five point Likert- type scale, indicating their response ‘strongly agree’ to ‘strongly disagree’, with respondents blinded to the numerical value corresponding to response ranging from 0-4.

The NEO™-PI-3 personality tool measures personality according to the Five Factor Model of personality. The tool measures the five independent domains of personality: Neuroticism; Extraversion; Openness; Agreeableness and Conscientiousness, each of these domains are measured through the measurement of six facets. These are detailed in Box 1.

BOX 1: Personality Domains and facets

Neuroticism	
N1: Anxiety	N4: Self-consciousness
N2: Angry hostility	N5: Impulsiveness
N3: Depression	N6: Vulnerability
Extraversion	
E1: Warmth	E4: Activity
E2: Gregariousness	E5: Excitement-seeking
E3: Assertiveness	E6: Positive emotions
Openness	
O1: Fantasy	O4: Actions
O2: Aesthetics	O5: Ideas
O3: Feelings	O6: Values
Agreeableness	
A1: Trust	A4: Compliance
A2: Straightforwardness	A5: Modesty
A3: Altruism	A6: Tender-mindedness
Conscientiousness	
C1: Competence	C4: Achievement striving
C2: Order	C5: Self-discipline
C3: Dutifulness	C6: Deliberation

6. Outcomes

1. Participant demographics

- Participant demographics: age, gender, work status, RN years, ED years, post graduate qualification
- Detailed participant educational status: level of qualification; specialty

2. Participant personality profile

- Detail participant personality profile for five domains of personality: Introversion; Extraversion; Openness; Agreeableness; Conscientiousness
- Detailed participant profile on thirty (30) facets or personality (Box 1)
- Investigate relationships between personality domains and demographic variables
- Investigate the difference between emergency nurses and identified population norms

3. Identify participant and personality characteristics associated with retention greater than 3yrs:

- Participant identified reasons to remain

Work-related

- Professional development
- Quality of nurse managers
- Quality of clinical leadership
- Camaraderie among staff
- Professional models of care
- Work environment
- Autonomy

Personal

- Flexible work hours
 - Don't wish to start somewhere new
 - Job satisfaction
 - Financial
 - Proximity to home
 - Other
- Personality profile of participants remaining in ED at 3yrs
 - Educational qualification held by participants remaining in ED at 3yrs

7. Analysis Plan

- Descriptive and statistical analysis will be undertaken using SPSS
- A two-sided alpha level of .01 set to indicate statistical significance

7.1 Outcome # 1

- Table 1: all participant personal and educational characteristics (basic demographics)
- Age, RN years and ED years will be reported as mean and standard deviation.
- Table 2: Educational profile of nurses studied reported
- Detail the post grad qualification held by nurses with ≥ 3 years emergency experience

7.2 Outcome #2

- Table 3: results for five personality domains by basic demographic variables
- Results for each of personality domains (Table 4) and facets (table 5-9) are reported with mean +/- SD to enable comparison with population norms for combined gender as detailed in McCrae and Costa ¹⁷
- Results for personality domains (Table 4) and personality facets (Table 5-9) mean and SD are reported according to combined norms raw scores.
- Frequencies for each personality variable are reported: High/ Very High; Average; Low/ Very Low (distribution)

- One-sample *t*-test undertaken between participant results for each personality domain/ facets (table 3, 5-9) and established combined sex population norms
- One-sample *t*-test undertaken between participant results for subgroup ≥ 3 years emergency experience, for each personality domain/ facet (table 3, 5-9) and established combined sex population norms
- Relationship between educational level held and ≥ 3 years emergency experience and five personality domains (table 4) and personality facets (table 6-10)

7.3 Outcome # 3

- Detail number of nurses in sample and years experience obtained from Outcome 1
- Table 10 details participant identified reasons to remain in emergency nursing for all participants and for participants ≥ 3 yrs emergency experience
- Analysis or personality profile of nurses remaining in field ≥ 3 years explore any personality characteristics unique to group

Appendix 10: Kolmogorov-Smirnov Test Results for Personality Domains and Facets

Personality Domains

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
N TOTAL	.065	73	.200*
E TOTAL	.063	73	.200*
O TOTAL	.086	73	.200*
A TOTAL	.068	73	.200*
C TOTAL	.069	73	.200*

*. This is a lower bound of the true significance. a. Lilliefors Significance Correction

Neuroticism Facets

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
N1 TOTAL	.110	73	.028
N2 TOTAL	.117	73	.015
N3 TOTAL	.096	73	.094
N4 TOTAL	.114	73	.021
N5 TOTAL	.116	73	.016
N6 TOTAL	.108	73	.036

a. Lilliefors Significance Correction

Extraversion Facets

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
E1 TOTAL	.080	73	.200*
E2 TOTAL	.103	73	.054
E3 TOTAL	.082	73	.200*
E4 TOTAL	.120	73	.011
E5 TOTAL	.140	73	.001
E6 TOTAL	.080	73	.200*

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Openness to Experience Facets

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
O1 TOTAL	.086	73	.200 [*]
O2 TOTAL	.073	73	.200 [*]
O3 TOTAL	.102	73	.059
O4 TOTAL	.086	73	.200 [*]
O5 TOTAL	.121	73	.010
O6 TOTAL	.129	73	.004

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Agreeableness Facet

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
A1 TOTAL	.071	73	.200 [*]
A2 TOTAL	.091	73	.200 [*]
A3 TOTAL	.115	73	.018
A4 TOTAL	.085	73	.200 [*]
A5 TOTAL	.081	73	.200 [*]
A6 TOTAL	.087	73	.200 [*]

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

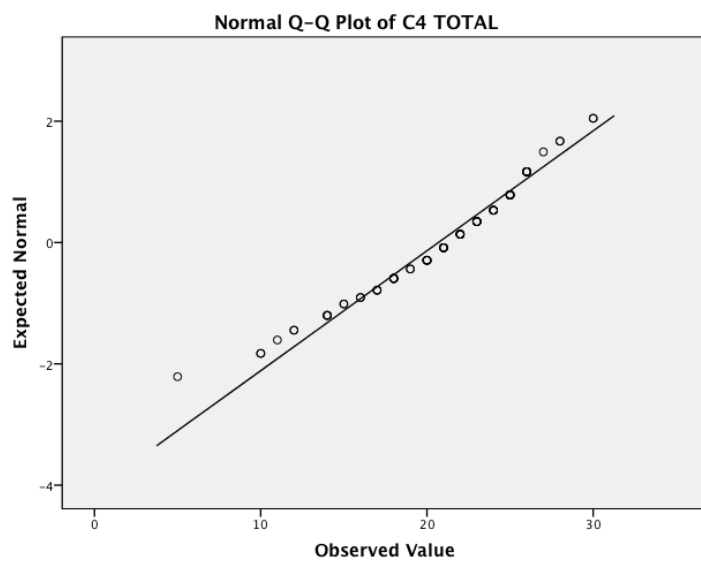
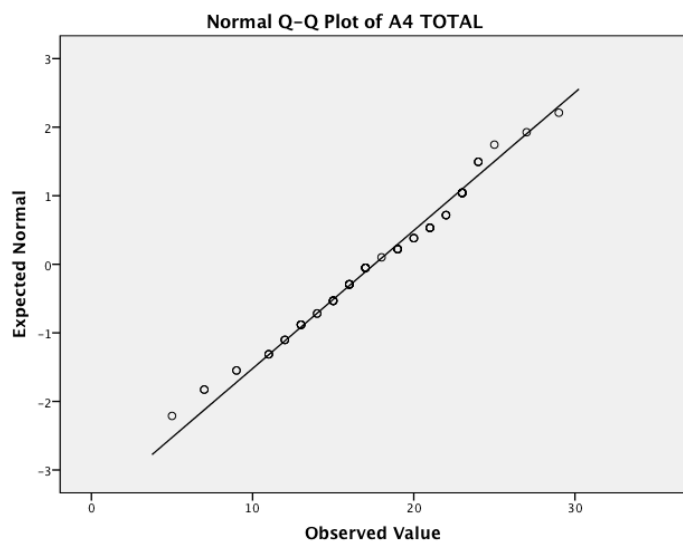
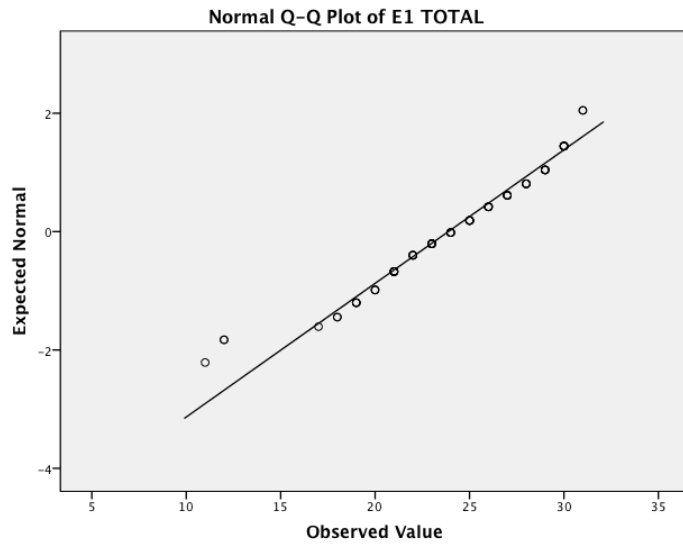
Conscientiousness Facet

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
C1 TOTAL	.088	73	.200 [*]
C2 TOTAL	.069	73	.200 [*]
C3 TOTAL	.097	73	.083
C4 TOTAL	.104	73	.050
C5 TOTAL	.096	73	.093
C6 TOTAL	.141	73	.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix 11: Q-Q plots for Facets warmth, Compliance and Achievement Striving



Appendix 12: NEO™-PI-3 Score Distributions for Personality Domains and Facets as measured by NEO™-PI-3

Emergency nurse participants and the sub group of experienced emergency nurses NEO™-PI-3 score distributions for Personality Domains

Personality Domains NEO-PI-3 raw score range low, medium, high	NEO-PI-3	NEO-PI-3 ≥ 3yrs Experience
	n (%)	n (%)
Participants	72	49 (68.1)
Neuroticism (N)		
High (95-192)	20 (27.8)	14 (28.6)
Average (71-94)	28 (38.9)	19 (38.8)
Low (0-70)	24 (33.3)	16 (32.7)
Extraversion (E)		
High (122-192)	34 (47.2)	21 (42.9)
Average (100-121)	28 (38.9)	20 (40.8)
Low (0-99)	10 (13.9)	8 (16.3)
Openness to experience (O)		
High (118-192)	43 (59.7)	26 (53.1)
Average (98-117)	18 (25.0)	15 (30.6)
Low (0-97)	11 (15.3)	8 (16.3)
Agreeableness (A)		
High (130-192)	29 (40.3)	18 (36.7)
Average (110-129)	32 (44.4)	26 (53.1)
Low (0-109)	11 (15.3)	5 (10.2)
Conscientiousness (C)		
High (133-192)	24 (33.3)	17 (34.7)
Average (111-132)	32 (44.4)	20 (40.8)
Low (0-110)	16 (22.2)	12 (24.5)

**Emergency nurse participants and the sub group of experienced emergency
NEO™-PI-3 score distributions for Neuroticism facets**

Neuroticism Facets NEO-PI-3 raw score range low, average, high	Participant NEO-PI-3	NEO-PI-3 ≥ 3yrs Experience
	n (%)	n (%)
Participants	72	49 (68.1)
N1: Anxiety		
High (19-32)	24 (33.3)	19 (38.8)
Average (13-18)	29 (40.3)	18 (36.7)
Low (0-12)	19 (26.4)	12 (24.5)
N2: Angry Hostility		
High 17-32)	16 (22.2)	10 (20.4)
Average (12-16)	26 (36.1)	19 (38.8)
Low (0-11)	30 (41.7)	20 (40.8)
N3: Depression		
High (17-32)	20 (27.8)	14 (28.6)
Average (11-16)	26 (36.1)	18 (36.7)
Low (0-10)	26 (36.1)	17 (34.7)
N4: Self-Consciousness		
High (17-32)	30 (41.7)	20 (40.8)
Average (11-16))	26 (36.1)	17 (34.7)
Low (0-10)	16 (22.2)	12 (24.5)
N5: Impulsiveness		
High (19-32)	26 (36.1)	15 (30.6)
Average (14-18)	36 (50.0)	25 (51.0)
Low (0-13)	10 (13.9)	9 (18.4)
N6: Vulnerability		
High (14-32)	7 (9.7)	4 (8.2)
Average (9-13)	38 (52.8)	28 (57.1)
Low (0-8)	27 (37.5)	17 (34.7)

Emergency nurse participants and the sub group of experienced emergency nurses NEO™-PI-3 score distributions for Extraversion facets

Extraversion Facets NEO-PI-3 raw score range low, average, high	Participant NEO-PI-3	NEO-PI-3 ≥ 3yrs Experience
	n (%)	n (%)
Participants	72	49 (68.1)
E1: Warmth		
High (25-32)	35 (48.6)	23 (46.9)
Average (20-24)	27 (37.5)	19 (38.8)
Low (0-19)	10 (13.9)	7 (14.3)
E2: Gregariousness		
High 20-32)	31 (43.1)	21 (42.9)
Average (15-19)	23 (31.9)	15 (30.6)
Low (0-14)	18 (25.0)	13 (26.5)
E3: Assertiveness		
High (19-32)	27 (37.5)	16 (32.7)
Average (14-18)	24 (33.3)	17 (34.7)
Low (0-13)	21 (29.3)	16 (32.7)
E4: Activity		
High (21-32)	30 (41.7)	19 (38.8)
Average	29 (40.3)	21 (42.9)
Low (0-15)	13 (18.1)	9 (18.4)
E5: Excitement-Seeking		
High (21-32)	36 (50.0)	20 (40.8)
Average (15-20)	26 (36.1)	20 (40.8)
Low (0-14)	10 (13.9)	9 (18.4)
E6: Positive Emotions		
High (23-32)	42 (58.3)	29 (59.2)
Average (18-22)	22 (30.6)	15 (30.6)
Low (0-17)	8 (11.1)	5 (10.2)

**Emergency nurse participants and the sub group of experienced emergency
NEO™-PI-3 score distributions for Openness to experience Facets**

Openness to experience Facets NEO-PI-3 raw score range low, average, high	Participant NEO-PI-3	NEO-PI-3 ≥ 3yrs Experience
	n (%)	n (%)
Participants	72	49 (68.1)
O1: Fantasy		
High (20-32)	34 (47.2)	19 (38.8)
Average (15-19)	21 (29.2)	17 (34.7)
Low (0-14)	17 (23.6)	13 (26.5)
O2: Aesthetics		
High (20-32)	27 (37.5)	19 (38.8)
Average (14-19)	26 (36.1)	17 (34.7)
Low (0-13)	19 (26.4)	13 (26.5)
O3: Feelings		
High (23-32)	37 (51.4)	24 (49.0)
Average (19-22)	24 (33.3)	17 (34.7)
Low (0-18)	11 (15.3)	8 (16.3)
O4: Actions		
High (18-32)	54 (75.0)	35 (71.4)
Average (14-17)	15 (20.8)	12 (24.5)
Low (0-13)	3 (4.2)	2 (4.1)
O5: Ideas		
High (21-32)	35 (48.6)	21 (42.9)
Average (15-20)	19 (26.4)	13 (26.5)
Low (0-14)	18 (25.0)	15 (30.6)
O6: Values		
High (23-32)	45 (62.5)	29 (59.2)
Average (18-22)	25 (34.7)	18 (36.7)
Low (0-17)	2 (2.8)	2 (4.1)

Emergency nurse participants and the sub group of experienced emergency nurses NEO™-PI-3 score distributions for Agreeableness Facets

Agreeableness Facets NEO-PI-3 raw score range low, average, high	Participant NEO-PI-3	NEO-PI-3 ≥ 3yrs Experience
	n (%)	n (%)
Participants	72	49 (68.1)
A1: Trust		
High (22-32)	24 (33.3)	17 (34.7)
Average (18-21)	18 (25.0)	13 (26.5)
Low (0-17)	30 (41.7)	19 (38.8)
A2: Straightforwardness		
High (23-32)	33 (45.8)	24 (49.0)
Average (18-22)	25 (34.7)	18 (36.7)
Low (0-17)	14 (9.4)	7 (14.3)
A3: Altruism		
High (26-32)	38 (52.8)	26 (53.1)
Average (22-25)	27 (37.5)	19 (38.8)
Low (0-21)	7 (9.7)	4 (8.2)
A4: Compliance		
High (19-32)	33 (45.8)	23 (46.9)
Average (14-18)	24 (33.3)	17 (34.7)
Low (0-13)	15 (20.8)	9 (18.4)
A5: Modesty		
High (22-32)	34 (47.2)	24 (49.0)
Average (17-21)	26 (36.1)	17 (34.7)
Low (0-16)	12 (16.7)	8 (16.3)
A6: Tender-Mindedness		
High (23-32)	27 (37.5)	17 (34.7)
Average (19-22)	28 (38.9)	23 (46.9)
Low (0-18)	17 (23.6)	9 (18.4)

Emergency nurse participants and the sub group of experienced emergency nurses NEO™-PI-3 score distributions for Conscientiousness Facets

Conscientiousness Facets NEO-PI-3 raw score range low, average, high	Participant NEO-PI-3	NEO-PI-3 ≥ 3yrs Experience
	n (%)	n (%)
Participants	72	49 (68.1)
C1: Competence		
High (24-32)	32 (44.4)	21 (42.9)
Average (20-23)	24 (33.3)	18 (36.7)
Low (0-19)	16 (22.2)	10 (20.4)
C2: Order		
High (23-32)	25 (34.7)	18 (36.7)
Average (17-22)	30 (41.7)	19 (38.8)
Low (0-16)	17 (23.6)	12 (24.5)
C3: Dutifulness		
High (25-32)	21 (29.2)	13 (26.5)
Average (21-24)	33 (45.8)	24 (49.0)
Low (0-20)	18 (25.0)	12 (24.5)
C4: Achievement Striving		
High (23-32)	29 (40.3)	21 (42.9)
Average (18-22)	26 (36.1)	13 (26.5)
Low (0-17)	17 (23.6)	15 (30.6)
C5: Self-Discipline		
High (24-32)	24 (33.3)	16 (32.7)
Average (18-23)	33 (45.8)	23 (46.9)
Low (0-17)	15 (20.8)	10 (20.4)
C6: Deliberation		
High (21-32)	19 (26.4)	14 (28.6)
Average (16-20)	24 (33.3)	15 (30.6)
Low (0-15)	29 (40.3)	20 (40.8)

Appendix 13: Emergency Nurse Participant Identified Work Related Factors Influencing Retention

Response	N (%)	< 3yrs experience	≥ 3yrs experience	Full-time	Part-time	Post graduate	No Post graduate
Total number participants (n)	72	23 (31.9)	49 (68.1)	56 (77.8)	16 (22.2)	37 (51.4)	35 (48.6)
Valid	68 (94.4)	22 (65.7)	46 (93.9)	52(92.9)	16 (100)	34 (91.9)	34 (97.1)
Missing	4 (5.6)	1 (4.3)	3 (6.1)	4 (7.1)	0	3 (8.1)	1 (2.9)
Work factors							
Professional development support	43 (59.7)	19 (82.6)	24 (49.0)	33 (58.9)	10 (62.5)	20 (54.1)	23 (65.7)
Nurse managers	30 (41.7)	11 (47.8)	19 (38.8)	24 (42.9)	6 (37.5)	17 (45.9)	13 (37.1)
Clinical leadership	32 (44.4)	10 (43.1)	22 (44.9)	26 (46.4)	6 (37.5)	18 (48.6)	14 (40.0)
Camaraderie staff	61 (84.7)	20 (87.0)	41 (83.7)	48 (85.7)	13 (81.3)	29 (78.4)	32 (91.4)
Professional Models of care	24 (33.3)	9 (39.1)	15 (30.6)	19 (33.9)	5 (31.3)	13 (35.1)	11 (31.4)
Work environment	59 (81.9)	20 (87.0)	39 (79.6)	46 (82.1)	13 (81.3)	28 (75.1)	31 (88.6)
Autonomy	51 (70.8)	18 (87.3)	33 (67.3)	42 (75.0)	9 (56.3)	26 (70.3)	25 (71.4)

Appendix 14: Emergency Nurse Participant Identified Personal Related Factors Influencing Retention

Response	N (%)	< 3yrs experience	≥ 3yrs experience	Full-time	Part-time	Post graduate	No Post graduate
Total number participants (n)	72	23 (31.9)	49 (68.1)	56 (77.8)	16 (22.2)	37 (51.4)	35 (48.6)
Valid	68 (94.4)	22 (65.7)	46 (93.9)	52(92.9)	16 (100)	34 (91.9)	34 (97.1)
Missing	4 (5.6)	1 (4.3)	3 (6.1)	4 (7.1)	0	3 (8.1)	1 (2.9)
Personal factors							
Flexible work hours	19 (26.4)	4 (17.4)	15 (30.6)	11 (19.6)	8 (50.0)	12 (32.4)	7 (20.0)
Don't wish to start somewhere new	11 (15.3)	0	11 (22.4)	7 (12.5)	4 (25.0)	5 (13.5)	6 (17.1)
Job satisfaction	55 (76.4)	19(82.6)	36 (73.5)	44 (78.6)	11 (68.8)	27 (73.0)	28 (80.0)
Financial	16 (22.2)	4 (17.4)	12 (24.5)	12 (21.4)	4 (25.0)	10 (27.0)	6 (17.1)
Proximity to home	23 (31.9)	7 (30.4)	16 (32.7)	18 (32.1)	5 (31.3)	13 (35.1)	10 (28.6)

Appendix 15: Dissemination of study results: radio, online and social media

Radio interview

2SM (1269 AM) Sydney, 12:00 News, 21 August 2015

Also broadcast from following 13 stations:

- 2AD (Armidale)
- 2DU (Dubbo)
- 2LM (Lismore)
- 2MG (Mudgee)
- 2MO (Gunnedah)
- 2NZ (Inverell)
- 2PK (Parkes)
- 2TM (Tamworth)
- 2VM (Moree)
- 4WK (Toowoomba)
- Max FM, 107.3 (Taree)

Online publication

Emergency department nurses aren't like the rest of us

[Medical Xpress](#) 21 Aug 2014 10:50 PM

431 words • ASR N/A • University of Sydney Internet • ID: 301807758

<http://medicalxpress.com/news/2014-08-emergency-department-nurses-rest.html>

Emergency nurses more extroverted, agreeable and open

[Daily Telegraph Australia - Inner West](#) by Sarah Sharples 21 Aug 2014 3:47 PM

436 words • ASR AUD 1,742 • University of Sydney Internet • ID: 301703785

http://www.dailytelegraph.com.au/newslocal/inner-west/university-of-sydney-research-finds-emergency-nurses-have-more-extroverted-and-agreeable-personality/story-fngr8h4f-1227032194623?from=newslocal_rss

Health News - Emergency department nurses aren't like the rest of us

[Health Canal](#) by healthcanal.com 22 Aug 2014 12:08 AM

412 words • ASR N/A • University of Sydney Internet • ID: 301926407

<http://medicalxpress.com/news/2014-08-emergency-department-nurses-rest.html>

Study explains why ER nurses do what they do

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http://www.upi.com/Science_News/2014/08/21/Study-explains-why-ER-nurses-do-what-they-do/7731408627126/

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[News-Medical.Net](#) 22 Aug 2014 7:12 PM

422 words • ASR AUD 264 • University of Sydney Internet • ID: 302223309

<http://www.news-medical.net/news/20140822/Australian-researcher-says-emergency-department-nurses-are-a-special-breed.aspx>

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