

Registered Nurses' Perceptions of Workplace Stress in
Paediatric Intensive Care Units in Saudi Arabia: A Mixed-
Method research study

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Abstract

Background: Workplace stress among nurses in Intensive Care Units (ICU) has been shown to variously affect their health, the quality of nursing care, healthcare delivery and national healthcare costs (Mokhtar et al., 2016). Although this is equally true for Paediatric Intensive Care Units (PICUs), research into this environment has remained scarce and no previous studies have focused on workplace stress in PICUs within a Saudi Arabian (SA) context. The current research study addressed this omission.

Aims: This research study used a mixed-method approach to explore and understand workplace stress and its sources among nurses working in public hospital PICUs in Riyadh and Dammam, SA.

Methods: In this mixed-method research study, 172 Registered Nurses from six PICUs in large public hospitals completed questionnaires in Phase 1 (quantitative data collection). These questionnaires comprised of the Expanded Nursing Stress Scale (ENSS) and personal characteristic questions. In the subsequent Phase 2 (qualitative data collection), 24 of the original 172 participants from Phase 1 took part in face-to-face semi-structured interviews.

Results: The majority of the nurses suffered from a medium level of workplace stress; this was associated with tangible personal characteristics, such as gender, nationality and academic nursing qualifications. Sources of workplace stress related to ‘workload’, ‘caring for critically ill children’, ‘cultural challenges’ and ‘nursing management and nursing colleagues’. However, nurses in PICUs (both SA and expatriates) practiced effective coping strategies that were both individual to each person as well as work related – these helped them to deal with workplace stress and remain working in a PICU environment for several years. The results of this research study led to the development

of the dynamic model of workplace stress; this illustrates the complexity of workplace stress within a PICU context and highlights the interactions between both the sources and consequences of it.

Conclusion and Implications: This research study found that nurses in public hospital PICUs in the cities of Riyadh and Dammam in SA, reported a medium level of workplace stress. However, interestingly, and importantly, the nurses perceived the PICU environment to be a most rewarding place to work. The results have implications for policy and practice for SA stakeholders in terms of how to enhance the working environment for nurses, raise healthcare professionals' cultural awareness, provide insight into coping strategies and promote respect for the nursing profession in SA. These measures would potentially facilitate a reduction in PICU workplace stress and thus improve both the nurses' health as well as the quality of the nursing care.

Dedication

By the grace and mercy of Allah

This thesis is dedicated to

My parents

Anwar and Eman

Who valued education and for their kind words and wisdom, for loving me unconditionally and for their support and encouragement in every way.

My husband, Ahmad, my soulmate

For being the person who was patient and understanding during my research study, who made sacrifices and who reassured me. I could not have accomplished my doctoral degree and fulfilled my dreams without him. He always believed in me and provided loving and endless support.

My brothers and sisters

Ayman, Omimah, Amna, Alaa and Ameen

And all my extended family for always supporting me and understanding that my time away from them was necessary to complete my thesis.

My only child, my little prince, Faisal

For making my life so enjoyable and happy

And to my nieces and nephew, who are so loving and who make me smile.

My brothers-in-law and sisters-in-law for their belief in me and for always offering encouragement throughout this process.

My close friends, for being there for me when I needed them.

Finally, I dedicate this research study to every nurse in the world, because I value, appreciate and admire the work that we do every day.

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It is also a pleasure to extend my gratitude to the Ministry of Health (MoH) for their kindness and willingness to provide me with an environment in which I was able to collect my data and so complete my research study. In addition, I would like to thank all the administrators at participating hospitals and Dr Hesham Aziz at the Administration of Researches and Studies in the MoH in SA who helped me to obtain the ethical approval needed to conduct this research study. A very special thank you to all the nurses who participated in this research study — this research study could not have been completed without your cooperation. Thank you to all the nurses' supervisors who supported me during data collection in both phases of this research study.

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Abbreviations and Definitions

Abbreviations	Definitions
ANOVA	Analysis of Variance
BSN	Bachelor of Science in Nursing
CASP	Critical Appraisal Skills Programme
CICU	Cardiac intensive care unit
CINAHL	Cumulative Index of Nursing and Allied Health Literature
ER	Emergency room
ENSS	Expanded Nursing Stress Scale
ECG	Electrocardiogram
HPSI	Health Professions Stress Inventory
ICU	Intensive Care Unit
JSS	Job Satisfaction Scale
IRB	Institutional Review Board
Msc	Master of Science
MoH	Ministry of Health
MoHE	Ministry of Higher Education
n	Sample size
NICU	Neonatal intensive care unit
NIOSH	National Institute for Occupational Safety and Health
NSS	Nursing Stress Scale
NVivo	A qualitative data analysis computer software package produced by QSR International
OGA	Other government Agency
OPD	Outpatient department
OR	Operational room/operation theatre
PALS	Paediatric advanced life support
PHCC	Primary HealthCare Centres
PHCS	Private HealthCare Services
PhD	Doctor of Philosophy
PICU	Paediatric Intensive Care Unit
PNU	Princess Nourah bint Abdulrahman University
PSS-10	Perceived Stress Scale-10
SA	Saudi Arabia/Saudi Arabian
SCFHS	Saudi Commission for Health Specialties
SD	Standard significant
SNB	Saudi Nursing Board
SPSS	Statistical package for the social science
UK	United Kingdom
UH	University of Hertfordshire
USA	United States of America
WHO	World Health Organization
%	Percentage

Chapter One: Introduction

1.1. Introduction

This introductory chapter provides an overview of this research study, the interests that drove it, its aim and questions and its importance. The chapter concludes by defining the terms used and providing a summary of all the chapters and content in this dissertation.

1.2. An overview of this research study

According to the World Health Organization (WHO) (2018), workplace stress “*is the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope*” (para 3). Workplace stress can occur under many circumstances and environments where it is prevalent may lead to poor individual health as well as poor organisational performance (Abdul Rahman et al., 2017; Burton, 2010).

Nursing is one such an environment where workers are exposed to considerable different sources of workplace stress. “*Nursing is, by its very nature, an occupation subject to a high degree of workplace stress. Every day the nurse confronts stark suffering, grief, and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are, by normal standards, distasteful, even disgusting, others are often degrading; some are simply frightening*” (McGrath et al., 2003, p. 555). However, there are different experiences of workplace stress within nursing units.

Over the last 20 years, workplace stress in nursing has become a growing global concern (Azeem et al., 2014; Portero de la Cruz & Vaquero Abellán, 2015). Levels of workplace stress and their consequences on nurses’ health is an important issue for all

healthcare managers — including nursing managers — because of the implications to the maintenance of high-quality nursing care and effective healthcare systems (Karadzinska-Bislimovska et al., 2013; Lamadah & Sayed, 2014; Ongori & Agolla, 2008; Taylor et al., 2007).

As nurses play a key role in both providing healthcare and in strengthening the associated systems (Kemppainen et al., 2013; WHO, 2019), consideration of the levels of workplace stress that may impact on their overall health is crucial. A stressful work environment and a poor healthcare system climate could have a global negative impact on nurse retention and the ability of nurses to provide quality care to patients (Aiken et al., 2014; Duffield et al., 2011), potentially leading to adverse effects on healthcare systems (Buchan & Aiken, 2008).

Based on Vision 2030 of Saudi Arabia's (SA) and the importance of improving healthcare for a growing population, SA is investing substantially in its healthcare system (National Transformation Programme, 2019). However, by increasing the number of beds and hospitals, there is also a need to expand the nursing workforce and support both local and expatriate nurses by minimising the challenges they face within the SA healthcare system. The unique culture of SA, and its varied nursing workforce (as discussed in Chapter Two), are important considerations when exploring workplace stress within any acute or critical nursing unit in SA. To date, however, there has been limited focus on this subject. The lack of studies suggests that scholars are either disinterested in the topic or do not recognise the importance of how workplace stress affects nurses in SA.

The studies that has been undertaken in relation to workplace stress among nurses in SA have used a quantitative methodological approach rather than a mixed-method one

(Al Hosis et al., 2013; Kamal et al., 2012; Mansour et al., 2014; Muhawish et al., 2019; Rayan et al., 2019; Saleh et al., 2013). In addition, only five recent studies have specifically focused on specialist nurses in SA — these are Alomani (2016) (haemodialysis unit nurses); Wazqar (2018) (nurses working in the field of oncology); Sayed and Ibrahim (2012), Alharbi and Alshehry (2019), Muhawish et al. (2019) (Intensive Care Unit [ICU] nurses). While workplace stress in ICUs has been studied in SA literature, no study has focussed on nurses working in Paediatric Intensive Care Units (PICUs). The PICU is an entirely different environment than adult ICU as the provision of nursing care to adults is vastly different from caring for critically ill children. Nursing in PICUs is tailored to the child's developmental stages and age and involves a greater level of family involvement (Brenner et al., 2018; Lin et al., 2016). As such, workplace stress among nurses in PICUs warranted further exploration.

In addition, although international nursing literature discusses similarities to the sources of workplace stress experienced by nurses in SA (Chang et al., 2005; Gelsema et al., 2006; Watson et al., 2008; Xianyu & Lambert, 2006), there is still little understanding about this within a specific SA context. Hence, this research study was conducted. It was important to explore and gather evidence about how nurses in PICUs perceived workplace stress and its potential consequences on the quality of the care they provided to critically ill children—this research study has been the first to provide this insight, specifically in public hospitals in Riyadh and Dammam City (see Figure 1.1 for the research study process undertaken). It is also the first to use a mixed-method approach. Firstly, quantitative data collection was undertaken in Phase 1; this was followed by a qualitative data collection in Phase 2. This research study has contributed to existing literature and added to the knowledge on workplace stress and its sources among nurses in PICU in SA. The results will also provide empirical evidence and recommendations

to the SA Ministry of Health (MoH); this may facilitate greater understanding of workplace stress, enabling nursing managers to address it by developing the relevant operational guidelines.

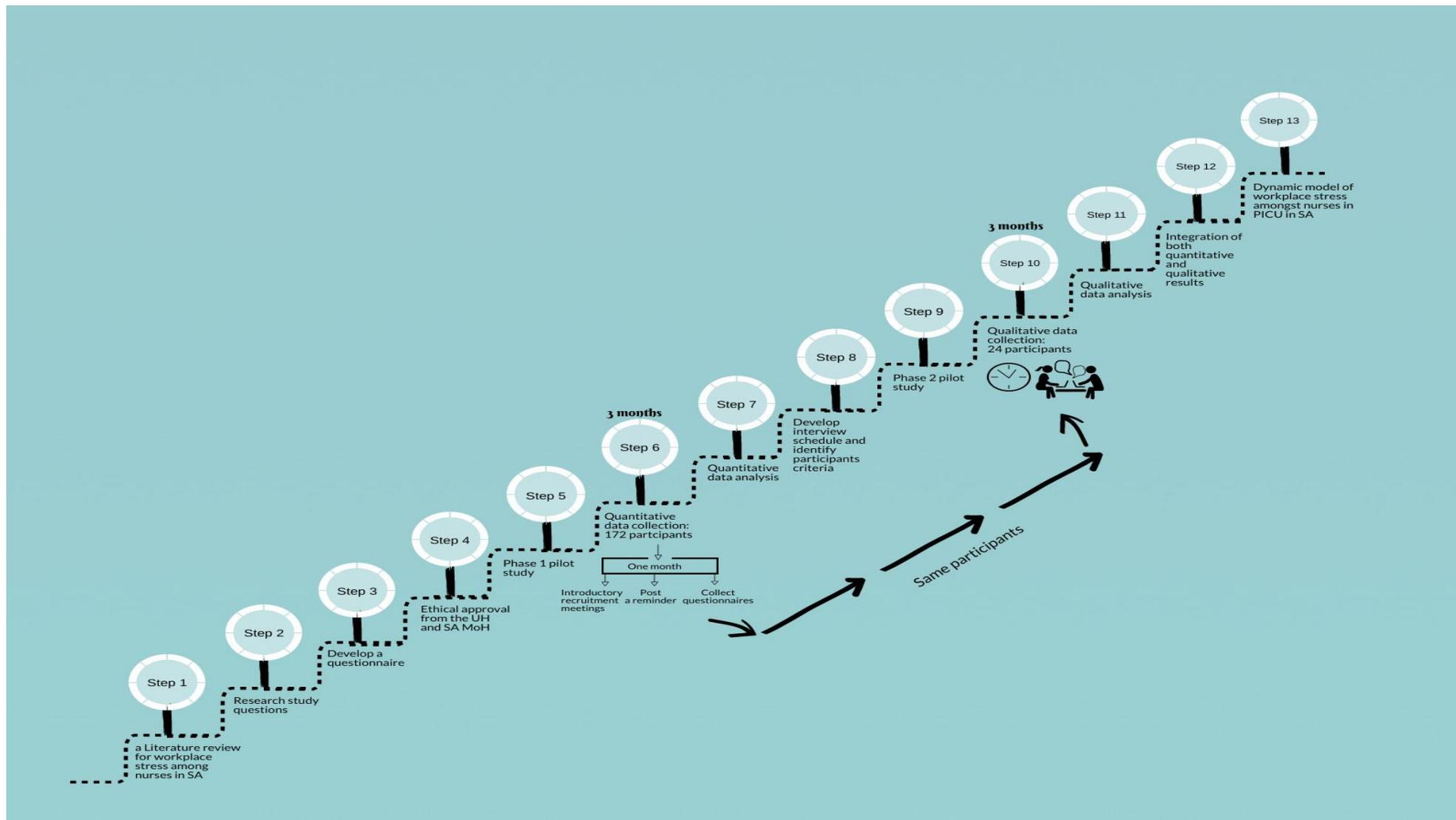


Figure 1.1: The process used to conduct this research study

1.3. Personal interest in this research study

My interest in the research study was ignited, inspired and motivated by the workplace stress I faced as a nursing student and subsequently as a Registered Nurse. I completed my nursing education in SA, first obtaining a Bachelor of Science in Nursing (BSN) and then a Master of Science (MSc) in Nursing for which my specialisation was Clinical Paediatric Nursing. I trained in a range of acute and critical nursing units throughout SA, specifically in paediatrics, and obtained clinical work experience as a Registered Nurse in a paediatric setting in SA. I was one of few SA nurses who worked in acute and critical paediatric units alongside expatriate nurses.

I was also motivated by my subsequent work experience as a nursing lecturer in two academic institutions in Riyadh and Dammam City, teaching future nurses at the undergraduate level. My observations while supervising nursing students in paediatric units (in both acute and critical settings, including PICUs), in different SA healthcare sectors, also heightened my interest in exploring workplace stress among nurses in a paediatric setting.

This interest increased and became more focussed when a child from my extended family was admitted to a PICU. As the only nurse in the family, I was at the hospital nearly every day, updating family members and providing support. During this experience, I further observed the composition of the nursing workforce and noticed that most nurses were expatriates, with only a few having a limited ability to speak Arabic. While I observed both SA and expatriate nurses, I anecdotally identified several different sources of workplace stress in the PICU. In particular, I felt that levels of workplace stress in the PICU were higher than what I had seen in other nursing units,

and I realised that this could potentially result in negative consequences for nursing care.

Since I could find no previous studies in this field within SA, I knew that this phenomenon warranted further investigation. Motivated by my own experiences and observations, I set out to investigate sources of workplace stress among nurses in PICUs. Specifically, I thought it to be essential to focus on PICUs in public hospitals, as these are the primary sector of the SA healthcare system (i.e. the government healthcare sector) and the only option for the public without admission restrictions or cost. This sector holds the highest percentage of the nursing workforce, both SA and expatriate nurses.

The topic became my research study during my Doctor of Philosophy (PhD) in Nursing programme at the University of Hertfordshire (UH) in the United Kingdom (UK).

1.4. The research study aim and questions

1.4.1. The research study aim

This research study utilised a mixed-method approach to explore and understand workplace stress and its sources among nurses, working in public hospital PICUs, in Riyadh and Dammam City, SA.

Five questions were asked to reach these aims:

1.4.2. The research study questions

- 1) Do participants working in paediatric intensive care units in public hospitals run by the government healthcare sector in Saudi Arabia healthcare system in Riyadh and Dammam city, experience workplace stress?
- 2) What is the perceived prevalence of workplace stress among the participants in their work setting?

- 3) If the participants experience workplace stress, what do they perceive to be the sources of it?
- 4) What are the participants' perceptions of the impact of workplace stress on the quality of nursing care and their work performance in their daily nursing practice?
- 5) Is there a relationship between the participants' personal characteristics and their perceptions of workplace stress?

For the purpose of guiding this empirical research study, the above research study questions, along with the mixed-method approach were employed (see Figure 1.2).

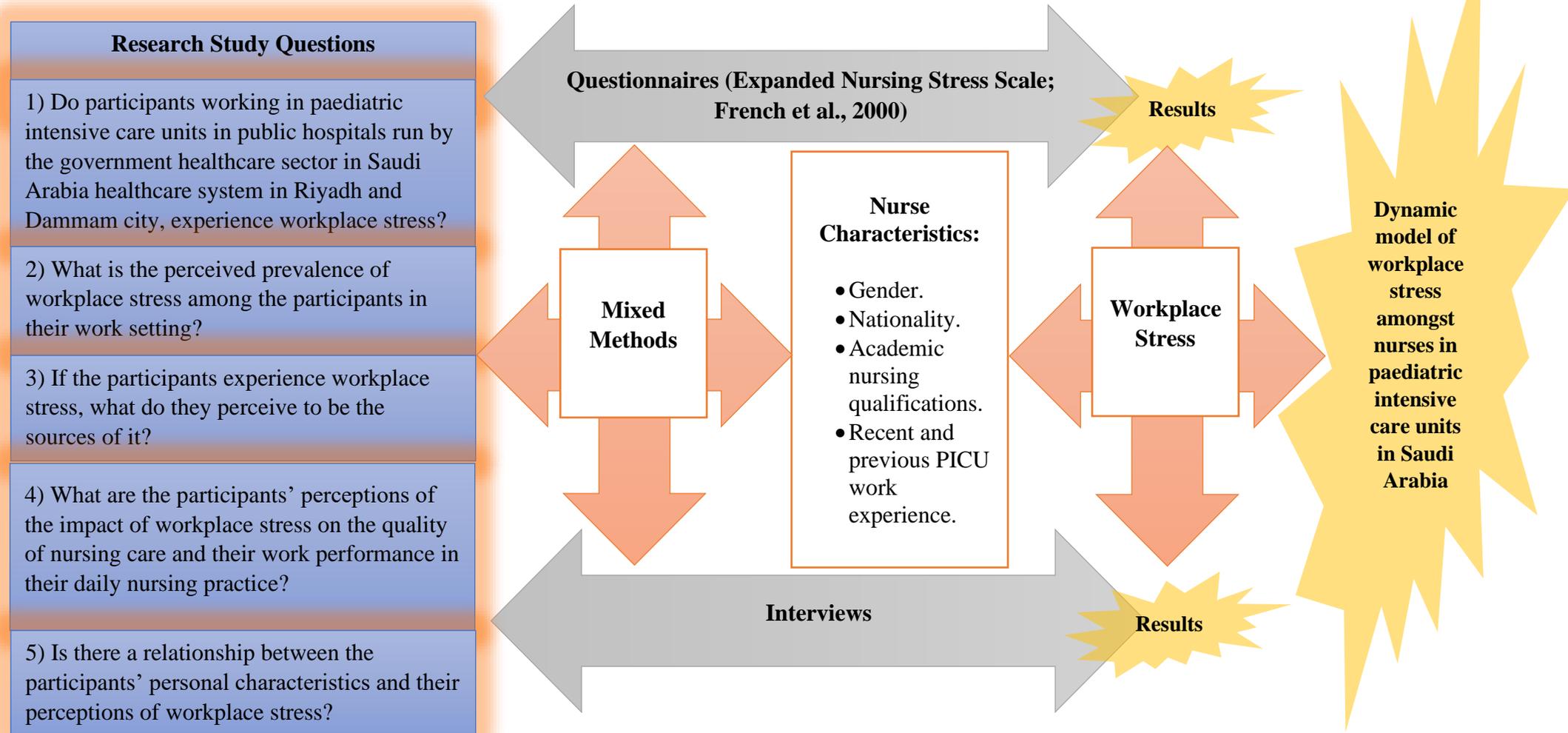


Figure 1.2: Guiding framework

1.5. The importance of this research study

Workplace stress is a complex phenomenon resulting from the interaction between an individual and the environment in which the individual functions (Ornelas & Kleiner, 2003; Topper, 2007; Varca, 1999; Vermunt & Steensma, 2005). Differences exist in the levels and sources of workplace stress experienced by nurses working in the SA healthcare system, primarily due to the type of nursing unit in which they work.

The previous international studies relating to workplace stress, particularly among nurses working in PICUs (Fogaça et al., 2008; Lin et al., 2016; Milutinović et al., 2012; Mohamed et al., 2011; Mohamedkheir et al., 2016; Mokhtar et al., 2016; Sayed & Ibrahim, 2012), have provided an initial understanding of the potential sources of workplace stress that affect nurses working with critically ill children. However, in many of these studies, the PICU nurses were not studied on their own but were integrated and studied together with adult ICU nurses or acute paediatric nurses. Studies have also identified ways of mitigating any potentially negative consequences of workplace stress experienced by acute and critical nurses, including in PICUs (Aiken et al., 2011; Alharbi & Alshehry, 2019; Karkar et al., 2015; Lin et al., 2016; Mokhtar et al., 2016; Su et al., 2009; Wakim, 2014). As the PICU setting has not yet been independently investigated in SA, it was therefore important to conduct a study to understand how workplace stress affected nurses in this particular environment.

This research study also acknowledged the potential consequences of workplace stress on nurses' health, their performance and the quality of care they are able to provide. In SA, there are currently no support services for workplace stress either for the general population or healthcare professionals, including nurses (as discussed in Chapter Two).

The reported shortage of nurses in SA, the low nurse-patient ratio and the comparatively large population of children under the age of 15 years (as discussed in Chapter Two) further contributed to the researcher's decision to examine workplace stress among nurses in SA PICUs.

It is important to recognise that workplace stress differs from culture to culture. The concept of stress is normally based on Western psychology, such as Lazarus' transactional theory of work stress and coping (Lazarus & Folkman, 1987) and Karasek's Job Demand-Control model (Karasek, 1979). However, the PICU setting in SA has its own medical culture in which both SA and expatriate nurses are involved in caring for critically ill children; in addition, SA has its own distinct culture. These factors illuminate key healthcare differences from other countries. For these reasons, the researcher determined that investigating and developing an appropriate workplace stress model was crucial; the research study was the first to explore the perceptions of workplace stress among nurses in PICUs in SA.

1.6. Definitions of terms used in this research study

For the purpose of this research study, the following definitions were adopted.

Workplace stress: *"The adverse reaction people have to excessive pressures or other types of demand placed on them at work"* (Health and Safety Executive, 2019, p. 3).

Sources of workplace stress: *"Conditions of threat, challenge, demands, or structural constraints that, by the very fact of their occurrence or existence, call into question the operating integrity of the organism"* (Wheaton & Montazer, 2010, p. 173).

Nurse: Any male or female professional who has all four of the following traits:

- 1) Has completed an accredited academic nursing qualification (Diploma in Nursing or BSN) from a health institute, college, or university in the country where they undertook their nursing education.

- 2) Has been awarded the professional nursing qualification from the appropriate professional body in the country where they undertook their nursing training.
- 3) Has met the registration requirements outlined by the SA licencing body in order to register with the Saudi Commission for Health Specialties (SCFHS), and
- 4) Has obtained their nursing licence to permanently work full-time in a hospital practicing as a bedside clinical nurse and performing patient care for a specific nursing unit e.g. the PICU.

Furthermore, nurses may also be referred to as registered nurses, or sister, regardless of the individual's specific academic nursing qualifications. All nurses have the same level of professional role and responsibility and, in this research study, were appointed to the same level of post (i.e. as qualified nurses) in a nursing unit (as opposed to in the UK where they may hold different posts at different pay grades).

Charge nurse: A nurse who manages and organises the entire nursing unit i.e. the PICU. The charge nurse is responsible for the immediate functioning of the unit during the shift and ensuring the entire unit operates smoothly. The charge nurse ensures that quality nursing care is adequately delivered to patients within the unit. The charge nurse also schedules daily nursing assignments for nurses in the unit. The equivalent position in the UK is a ward manager.

Nurse supervisor: A nurse who manages the nurses in a unit (i.e. the PICU) for a shift of duty. The nurse supervisor plans the work schedules and ensures compliance with all professional codes and policies. The nurse supervisor also organises educational activities and training for the nurses in their unit. The equivalent position in the UK is a senior ward manager or senior charge nurse.

Nurse manager: A nurse responsible for the staffing, planning, goals, and objectives of a nursing department within a hospital. The nurse manager maintains nursing guidelines and updates policies and procedures for the hospital. The nurse manager performs the function of leadership and decision making for nurses in a hospital. The equivalent position in the UK is a matron or modern matron.

Paediatric Intensive Care Unit (PICU): An area within a hospital that specialises in delivering intensive medical services and intensive nursing care to critically ill children.

Critically ill children or child patients: A critically ill child (from one day to 14 years old) admitted to the PICU. In line with SA phraseology ‘child patients’ was the term used by the researcher in this thesis rather than the UK term, children and young people.

Paediatric patients: A term used only within the research study’s measurement tools (questionnaires and interviews) as it is the phrase that nurses in SA were more familiar with.

Participants’ personal characteristics: In this research study, participants’ personal characteristics were selected to include gender, nationality, academic nursing qualifications, years of PICU work experience in SA and previous years of PICU work experience outside SA.

Academic nursing qualifications: A term used in this research study to highlight the differences among participants between academic nursing qualification levels such as a Diploma in Nursing and a BSN. However, in terms of professional qualifications, all participants were registered nurses.

SA Vision 2030: A long-term plan to develop SA’s strength and capacity by reducing its dependence on oil, diversifying its economy and developing public sectors, such as the health sector. SA’s goal is to be an exemplary and leading nation in all aspects and create structural shifts, including shifts in the healthcare system. This final component is one of the main focus areas of the ambitious SA Vision 2030 and national transformation programme. The healthcare transformation strategy is managed by the SA MoH and emphasises value-based healthcare that improves the quality of healthcare, patient health outcomes, and medical/nursing education. One of the major goals is ‘caring for our health’, which requires the MoH to increase capacity requirements, allowing more healthcare professionals, including nurses, to deliver more efficient and high-quality care (Al-Dossary, 2018; National Transformation Programme, 2019).

1.7. Structure of the thesis

This dissertation explores perspectives on workplace stress and its sources among nurses working in PICUs as well as its potential consequences on the quality of nursing care in the public hospitals in Riyadh and Dammam City. This dissertation is divided into eight chapters (Figure 1.3) and the following section presents an overview of the content of each subsequent chapter.

Chapter Two, ‘Background’: A detailed discussion of the context and background of this research study’s setting and sample. This chapter contains geographic and demographic details of SA and its population’s culture, especially the attitudes and beliefs about health and illness. In addition, the different sectors of the SA healthcare system are presented, including the government, Other Government Agencies (OGA) and Private HealthCare Services (PHCS). The chapter also includes facets relevant to the nursing workforce in SA that have informed and justified the content of this research study.

Chapter Three, ‘Literature review’: This chapter is a critical review of previous relevant worldwide literature relating to workplace stress among nurses; the associated factors such as its sources, potential consequences as well as coping and management strategies are also considered. It includes a systematic review of the relevant SA literature.

Chapter Four, ‘Methodology of the research study’: This chapter details the overall research study design and discusses the strategy of a mixed-method approach using a sequential explanatory design initiated by quantitative (Phase 1) and then the qualitative (Phase 2) data collection methods. This chapter also presents data analysis processes.

Chapter Five, ‘Quantitative results’: This chapter contains three sections detailing the research study’s quantitative (Phase 1) results: Descriptive statistics, bivariate statistics, and multiple regression analyses.

Chapter Six, ‘Qualitative results’: This chapter presents the six themes and 21 sub-themes that emerged from the qualitative (Phase 2) based on face-to-face, semi-structured interview analysis, illustrated with quotes from the participants.

Chapter Seven, ‘Discussion’: This chapter discusses the results of both the quantitative (Phase 1) and qualitative (Phase 2) phases and reviews these within the context of the existing body of evidence. Further consideration of these results revealed additional insights that shed new light in the context of SA nursing practice; as a result, a dynamic model of workplace stress is also presented

Chapter Eight, ‘Conclusion and recommendations’: This chapter summarises the research study, considers the implications of the results for nursing policy and practice and provides recommendations for future studies. The latter part of the chapter outlines the previous and future planned dissemination of this research study, both in SA and the UK.

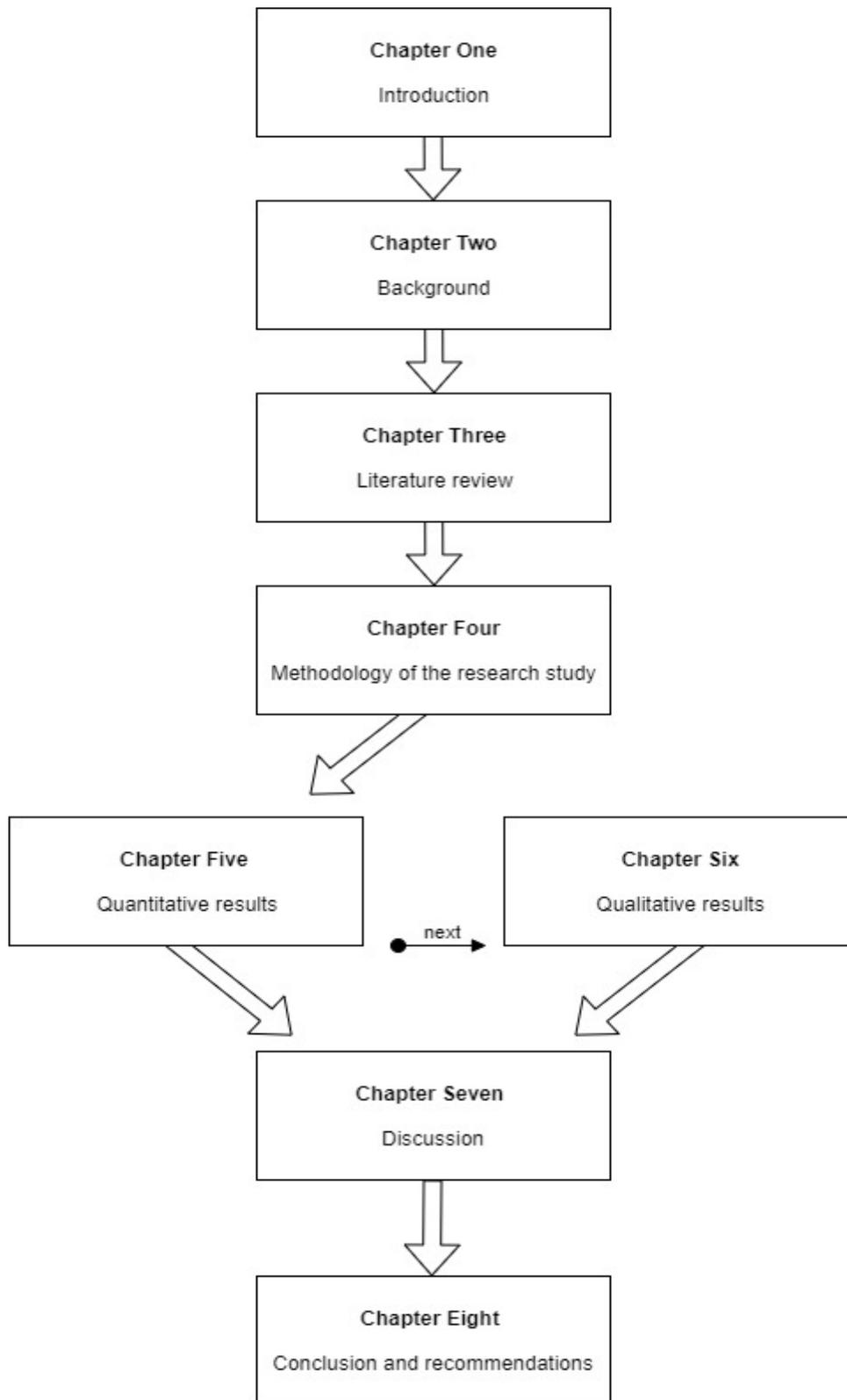


Figure 1.3: Chapters structure for the current thesis

1.8. Summary of the chapter

This introductory chapter has briefly presented the topic of the current research study while providing both definitions of the terms used and an overview of the dissertation chapters. The following chapter presents an overview of SA context, its healthcare system and nursing profession to provide further insight in terms of its unique cultural and religious background.

Chapter Two: Background

2.1. Introduction

Chapter One presented the structure of this thesis and provided an overview of the information related to this research study. It is important to provide more detail about the research study context because it was conducted in SA, an Arab Islamic country, which has a different religion, lifestyle and culture to that of non-Arab countries, including the UK where the researcher's PhD is being completed. Therefore, it is important to provide appropriate background information about SA and its healthcare system, including the nursing population from which the research study sample was drawn, before considering the underpinning literature.

The following sections provide a comprehensive background of the research study setting, including a general overview of SA, its geography, demography and cultural background, especially the attitudes and beliefs about health and illness. Following this, an overall description of the SA healthcare system is provided. Lastly, this chapter discusses the nursing profession in SA, and the challenges nurses face.

2.2. Characteristics of Saudi Arabia

SA was only designated as an Arab country in the last century, when it was unified in 1932 by the late King Abdulaziz Al Saud (Albougami, 2015; Cooper & Simmons, 2005). SA's official religion is Islam, which is the backbone and predominant influence of SA's moral laws, lifestyle and culture (Al-Sadan, 2000; Ramady, 2010). SA possesses one of the world's largest oil reserves (Albougami, 2015) and it is a member of the Arabian Gulf Cooperation Council (General Authority for Statistics, 2018). The following section explains the characteristics of SA, including its geography,

demographics, and its traditional cultural background, including the attitudes and beliefs about health and illness.

2.2.1. Geography of Saudi Arabia

SA is in the Middle East and is part of the Asian continent. Covering approximately 2.25 million square kilometres, it occupies 80% of the Arabian Peninsula and is the largest country in the Middle East (Al-Dossary et al., 2012; General Authority for Statistics, 2018). Geographically, SA's location is strategically importance because it is situated between Africa and mainland Asia, with borders on the Red Sea and the Arab Gulf. The north-west region of SA also has access to the Suez Canal (Cooper & Simmons, 2005).

SA is adjacent to the Red Sea on the west; Bahrain, Qatar, the United Arab Emirates and the Arab Gulf lie to the east. Additionally, SA has borders with Oman and Yemen to the south, and Kuwait, Iraq and Jordan to the north. The climate is variable, depending on where each region is located. Typically, it is hot and dry, although it is also humid near the coastline (General Authority for Statistics, 2018). SA is divided into 13 administrative regions, and Riyadh is its capital (Embassy of the Kingdom of Saudi Arabia in Washington, D.C., 2019; see Figure 2.1). Table 2.1 indicates the regions in SA, the capital cities, the total area for each region and each region's size (percentage, [%]) in relation to the entire country. Table 2.1 shows that the Eastern and Riyadh regions are the largest regions in SA.



Figure 2.1: A map of Saudi Arabia's administrative regions and capital cities (Saudi Arabia Map, 2012)

Table 2.1: Saudi Arabian regions, capital cities, total areas in kilometres and percentage of the total Saudi Arabian area (Regions of Saudi Arabia, 2019)

Region	Capital city	Total Area	Area Percentage (%)
Riyadh	Riyadh	404,240 km²	18.8%
Makkah region	Makkah	153,128 km ²	7.1%
Madinah region	Madinah	151,990 km ²	7.0%
Al-Qaseem region	Buraidah	58,046 km ²	2.7%
Eastern region	Dammam	672,522 km²	31.3%
Aseer region	Abha	76,693 km ²	3.6%
Tabouk region	Tabuk	146,072 km ²	6.8%
Hail region	Ha'il	103,887 km ²	4.8%
Northern Borders region	Arar	111,797 km ²	5.2%
Jazan region	Jazan	11,671 km ²	0.5%
Najran region	Najran	149,511 km ²	7%
Al-Jouf region	Sakakah	100,212 km ²	4.7%
Al-Baha region	Al-Baha	9,921 km ²	0.5%
SA Total	Riyadh	2,149,690 km ²	100%

2.2.2. Demographics of Saudi Arabia

SA is predominantly comprised of vast desert tracts; traditionally, this has influenced the population's lifestyle. Historically, most people had a humble Bedouin existence, living in tents in the desert, tending to animals (cows, sheep and camels) and following a nomadic lifestyle based on where they could locate water (Mitchell, 2009).

However, the discovery of crude oil in SA in 1936 set the country on a path of swift social and economic development (Albougami, 2015; Almalki et al., 2011a; Almutairi, 2015; Cooper & Simmons, 2005), which had a dramatic influence on the population's lifestyle (Albougami, 2015; Aldossary et al., 2008; Almutairi, 2015). This resulted in a departure from the nomadic Bedouin life and migration of the desert's population to the capital cities in the largest regions of SA-Riyadh in the centre (Riyadh region, SA's capital), Dammam in the east (Eastern region) and Jeddah to the west (Makkah region). Consequently, those cities now have very large populations, consisting of both native SA citizens and expatriates (General Authority for Statistics, 2018).

According to the General Authority for Statistics in SA (2018), the population of SA was 33,413,660, in 2018 (Table 2.2). The table also shows a steady population growth between 2014 and 2018. In 2018, the total population in SA consisted of 62.2% SA nationals and 37.8% expatriates.

The Annual Population Growth Rate was 2.52% in 2017 with the birth rate continually increasing from 565,627 in 2016 to 593,053 in 2017 and to 602,243 in 2018 (General Authority for Statistics, 2018). This also highlights the high population of children in SA.

Table 2.2: Demographic indicators 2014–2018 (General Authority for Statistics, 2018)

Year	Population
2014	30,770,353
2015	31,521,418
2016	31,742,308
2017	32,612,641
2018	33,413,660

Table 2.3 shows that Makkah, Riyadh and the Eastern region are, respectively, the most heavily populated areas. Additionally, Table 2.3 shows that, in 2018, 24.6% of the total population in SA consisted of children aged 0–14 years (General Authority for Statistics, 2018). Based on statistics SA’s total population, Riyadh (24.8%) and the Eastern region (14.6%) has recorder large number of children aged 0–14 years (Table 2.3; General Authority for Statistics, 2018).

Table 2.3: Saudi Arabian regions and populations (General Authority for Statistics, 2018)

Region	Capital	Population	Population aged 0–14 years	Percentage (%) of the region’s total population aged 0–14-years	Percentage (%) of Saudi Arabia’s total population aged 0–14-years
Riyadh	Riyadh	8,446,866	2,035,375	24.1%	24.8%
Makkah region	Makkah	8,803,545	2,055,037	23.3%	24.9%
Madinah region	Madinah	2,188,138	565,839	25.9%	6.8%
Al-Qaseem region	Buraidah	1,455,693	356,428	24.5%	4.5%
Eastern region	Dammam	5,028,753	1,196,318	23.8%	14.6%
Aseer region	Abha	2,261,618	599,014	26.9%	7.3%
Tabouk region	Tabuk	930,507	267,024	28.7%	3.2%
Hail region	Ha’il	716,021	179,443	25.1%	2.2%
Northern Borders region	Arar	375,310	104,172	27.8%	1.3%
Jazan region	Jazan	1,603,659	428,030	26.7%	5.2%
Najran region	Najran	595,705	171,191	28.7%	2.08%
Al-Jouf region	Sakakah	520,737	152,363	29.3%	1.8%
Al-Baha region	Al-Baha	487,108	110,646	22.7%	1.3%
SA	Riyadh	33,413,660	8,220,880	24.6%	100%

2.2.3. Saudi Arabian culture

SA culture is mainly influenced and shaped by Islamic law (Littlewood & Yousuf, 2000). The Holy Quran (the Holy Book of Islam) and the Sunnah (prophetic practice as interpreted by the Prophet Mohammed; peace be upon him) are the principle guiding lights of the Islamic religion. SA citizens only follow Islam and this provides the framework for the country’s culture (Almutairi & McCarthy, 2012; Littlewood & Yousuf, 2000). According to Almutairi and McCarthy (2012, p. 1), SA culture is defined as a “*unique blend of Arabic tribal traditions and customs and the Islamic worldview, which shapes the mindset and behaviour of the Saudi people*”.

However, it can be difficult to distinguish between cultural norms and religious perspectives because an individual’s views frequently and doubtlessly reflect such interchangeable links, leading many to believe that the two perceptions are the same (Albougami, 2015; Al-Shahri, 2002).

Family lies at the core of SA society. Family represents identity and status and the traditional, extended family (the tribe) is the principal component of SA society. Within the tribe, machismo prevails; the dominant male character is evident as males must be clearly seen to have more power and authority than females, with further deference shown towards age and seniority (Danish & Smith, 2012; Gazzaz, 2009). Furthermore, males are usually the family 'breadwinner', while a female's role is usually that of housewife and mother (Al-Shahri, 2002; Gazzaz, 2009; Rassool, 2000).

In SA's culture, these multiple tribes (families) will associate and cooperate with other tribes that have a similar lifestyle or similar cultural norms and roles. This is known as the caste system which creates an influence-based status. Islamic ethical principles govern SA family relationships (Aldossary et al., 2008).

Traditionally, in SA culture, and by SA law, males have had more rights than females, but recently this has started to change. Females are becoming better educated and are working in positions of status as well as taking on more critical roles; for example, Princess Reema AlSaud is the first female SA Ambassador to the United States of America (USA) (CNN, 2019; Jameel, 2018). Many SA females are now professionals, and work in a variety of sectors (for example, hospitals, schools, universities, the media and banks). They now have identical legal rights as males; for example, in September 2011 females were given the right to vote, the right to stand as candidates in municipal elections in the city and the right to become members of the Consultative Assembly of SA (BBC, 2015). However, females were not allowed to drive cars until June 2018 (BBC, 2018).

Despite the fact that the SA education system still segregates male and female students in schools and universities, female students are permitted to study and compete with male students for overseas study scholarships, worldwide (Taylor & Albasri, 2014).

2.2.3.1. Cultural attitudes and beliefs about health and illness

Because loyalty is a fundamental principle in Islam, Muslims believe in predestination, so they apportion disease to the will of God [Allah in Arabic] (Al-Shahri, 2002). The Prophet Mohammad said “*no fatigue, no disease, nor sorrow, nor sadness, nor hurt, nor distress befalls a Muslim, even if it were the prick he receives from a thorn, but Allah [GOD] expiates some of his sins for that*” (Khan, 1994, p. 934). Rassool (2000) and Lawrence and Rozmus, (2001) attributed the perceptions of Muslim patients in relation to health, illness, suffering and death as simply being part of life; moreover, these are tests from God [Allah] that must be faced with patience, meditation and prayer. Al-Shahri (2002) claimed that Muslims do not see illness as a type of punishment; rather, they view it more as a form of atonement for one’s sins. However, despite a belief in predestination, Muslims are advised to obtain medical care when they are ill or injured and to take advantage of available preventative medical services, including infant immunisation services. Permitting suffering is also against Muslim beliefs; therefore, effective treatment is seen as a process relating to good health and a fulfilment of starting over again, for example, by eating sensibly and exercising regularly, abstaining from drugs and alcohol, and personal cleanliness (Rassool, 2000). However, Arab patients, including those in SA, may mistrust psychiatric healthcare professionals because they offer advice and treatment that can conflict with the traditional religious or spiritual teachings of Islam (Gilat et al., 2010; Okasha et al., 2012).

In addition to the stigma attached to mental illness, there are key factors that negatively influence Arab patients with mental illness from accessing mental health services (Dardas & Simmons, 2015; Gearing et al., 2014). According to Gilat et al. (2010), in Arab countries, when an individual displays symptoms of mental illness, 33% go to family practitioners, 21.6% turn to family members and 19% to the Sheikh [Islamic scholar]; only 11% seek advice from mental health practitioners.

Thus, people in Arabic countries, including SA, tend to have a negative attitude about mental health services and they have less knowledge regarding the existence of these services and the role of its providers (Al-Qutob, 2005). In SA, there are no existing stress support services or mechanisms, such as help lines or counselling services, that support stressed individuals, including healthcare professionals; there are only the psychiatric clinics.

However, there is increasing awareness of workplace stress in the SA healthcare system. Therefore, in 2019, the SCFHS established a new support service called 'Daam'. The aim of this service is to help SA healthcare professionals cope with workplace stress during their training period (but not after completion of it; SCFHS, 2019a).

2.3. The Saudi Arabia healthcare system

The SA healthcare system was established to meet the basic healthcare needs of the population. One of the principal objectives for SA development has been the National Transformation Programme in the SA Vision 2030, which is 'caring for our health'. The aim of this initiative is to increase the efficiency of the SA healthcare system and the quality of the care it provides (Al-Dossary, 2018; National Transformation Programme, 2019; Tobergte & Curtis, 2016).

In SA, funding for healthcare comes predominantly from the government, which is derived, in turn, from oil and gas revenue (Almalki et al., 2011a; Al-Yousuf et al., 2002; Ministry of Economy and Planning, 2019; MoH, 2017). The SA government has provided generous funding for the country’s healthcare system; in 2017, 7.61% of the government’s total budget was allocated to it (MoH, 2017). Table 2.4 presents the percentage of the budget appropriated to the SA healthcare system in relation to the overall governmental budget from 2013 to 2017.

Table 2.4: Percentage of budget appropriations for the Saudi Arabia healthcare system in relation to the overall governmental budget 2013–2017 (MoH, 2017)

Year	Percentage (%) of healthcare funding appropriation in comparison to the total government budget
2013	6.63%
2014	7.02%
2015	7.25%
2016	7.01%
2017	7.61%

The MoH is the principal government agency for the SA healthcare system. It is responsible for monitoring healthcare services in SA, in all healthcare sectors, in order to achieve the government’s healthcare objectives (Aldossary et al., 2008; Al-Homayan et al., 2013b; Almalki et al., 2011a; Al-Yousuf et al., 2002; MoH, 2017).

The SA healthcare system is comprised of three main service provider branches: The government, OGA, and PHCS, as shown in Figure 2.2 (Almalki et al., 2011a). The government sector is the largest in the SA’s healthcare system (Walston et al., 2008). As illustrated in Figure 2.2, the government provides 57.9% of all healthcare services; 42.1% are provided by the OGAs and the PHCS sectors combined (MoH, 2017).

Free medical care is given to the entire population by the government healthcare sector through provision of primary, secondary and tertiary healthcare. This is achieved via a network of Primary HealthCare Centres (PHCC) located across SA (Aldossary et al.,

2008; Almutairi, 2015; Jannadi et al., 2008) and a referral system to acute healthcare services in secondary public hospitals. Healthcare services that provide more advanced specialised treatments in tertiary public hospitals are in major urban regions (Jannadi et al., 2008; Yusuf, 2014).

OGAs operate hospitals that provide medical care for employees of specific agencies and their families (Figure 2.2). For example, The Royal Commission for Jubail and Yanbu Health Services provide healthcare directly to its employees and their dependents, free of charge (Aldossary et al., 2008; Almalki et al., 2011a). However, in a medical emergency, everyone has access to any Emergency Room (ER) in any of the OGAs (Almalki et al., 2011a). Lastly, the PHCS deliver healthcare services for a fee. Both OGAs and PHCS offer all levels of healthcare services, including primary, secondary and tertiary healthcare (Almalki et al., 2011a).

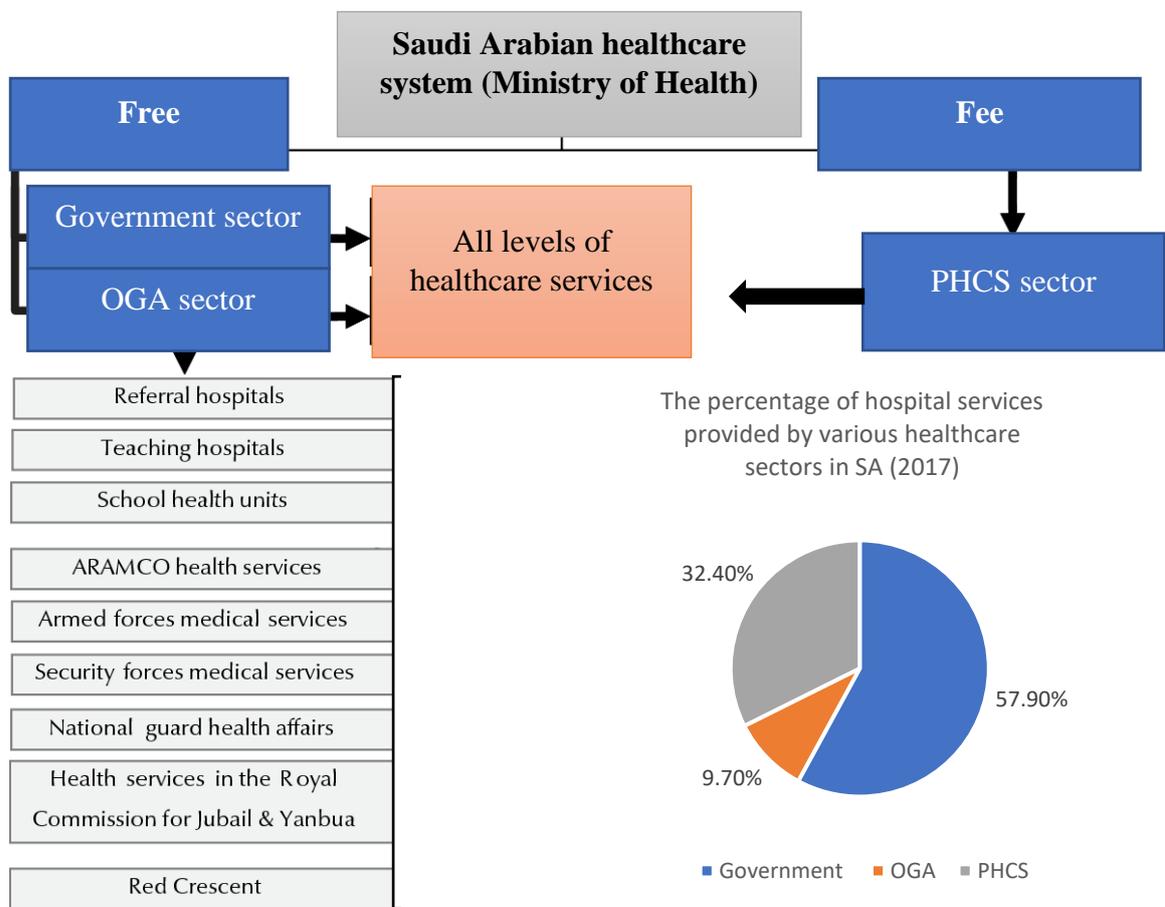


Figure 2.2: The current structure of the Saudi Arabian healthcare sectors (adapted from Almalki et al., 2011a; MoH, 2017)

The total number of hospitals and beds in the government, OGA and PHCS healthcare sectors is summarised in Table 2.5. Recent statistics show that the government healthcare sector includes 282 hospitals (57.9% of all hospitals) with 43,080 available beds, the OGA healthcare sector has 47 hospitals with a 12,279-bed capacity, and the PHCS healthcare sector has 158 hospitals with a 17,622-bed capacity (MoH, 2017). Table 2.5 highlights the differences in the distribution of healthcare services across the three healthcare sectors.

Table 2.5: Number of hospitals and beds in the Saudi Arabian healthcare sectors (MoH, 2017)

Healthcare sector	Total Number of Hospitals	Total Number of Beds
Government	282	43,080
OGA	47	12,279
PHCS	158	17,622
Total	487	72,981

Different sectors of the SA healthcare system are mainly staffed by expatriate healthcare professionals, including physicians, nurses and allied healthcare professionals (such as physiotherapists and speech therapists). The number of healthcare professionals has continually increased to meet the expansion of the SA healthcare system between 2014 and 2018 (Table 2.6). However, the system is challenged by a shortage of healthcare professionals that are SA nationals (Almalki et al., 2011b; MoH, 2018).

Table 2.6: Healthcare professionals in Saudi Arabia based on nationality (MoH, 2018)

Year	Healthcare Professionals			
	Physicians		Nurses	
	n	Percentage of SA Physicians (%)	n	Percentage of SA Nurses (%)
2014	80,475	22.4%	154568	35%
2015	81,532	23.3%	165334	37.2%
2016	86,756	26%	172483	38.3%
2017	89,675	26.7%	180821	36.5%
2018	98,074	29.5%	185693	36.7%

2.4. The nursing workforce in Saudi Arabia

Nurses make up the greatest proportion of healthcare professionals in SA. The primary role of nurses is to promote health, prevent and treat illness and minimise any suffering (Aldossary et al., 2008; Kemppainen et al., 2013). Nurses' primary commitment is to the health, safety and cultural and legal rights of their patients. Additionally, as patient

advocates, nurses are responsible for establishing, improving and maintaining an appropriate and effective healthcare environment where they work (Aldossary, 2013). While nurses have a variety of clinical responsibilities in SA, this does not include diagnosing conditions or prescribing medications, as is seen in other developed countries (Aldossary, 2013). In conclusion, nurses in SA provide care management services and attend to the physical and psychological aspects of patient care (Aldossary, 2013).

Based on the latest statistics in the SA healthcare system, a total of 184,913 nurses are distributed across all three healthcare sectors; 63.6% of these nurses are expatriates and the remaining 36.4% are SA nationals (MoH, 2017). A significant proportion of SA nurses work in administrative positions (Al-Dossary, 2018).

Table 2.7 provides the ratios of nurses to the total SA population and highlights a growing problem. Statistics reveal that the percentage of nurses per 10,000 people in SA is decreased slightly, probably as a result of the increase in the size of the population and the expansion of the SA healthcare system. Thus, in combination with a shortage of nurses, this means that there are not enough to meet the actual demands of the healthcare system (Aboshaiqah, 2016).

Table 2.7: Number of nurses per 10,000 people (MoH, 2015, 2016, 2017)

Number of nurses per 10,000 people	Year
54.7	2015
57	2016
55.2	2017

A total of 103,210 nurses were employed by the government healthcare sector in 2017, accounting for 55.8% of all nurses in the SA healthcare system. This makes it the largest of all healthcare sectors in the system (Figure 2.3). Of those nurses, 88.4% are SA

nationals. In contrast to this, only 7.7% of the nurses in the OGA healthcare sector and 3.9% in the nurses in PHCS healthcare sector are SA nationals. The number of nurses in the different healthcare sectors based on nationality is illustrated in Table 2.8.

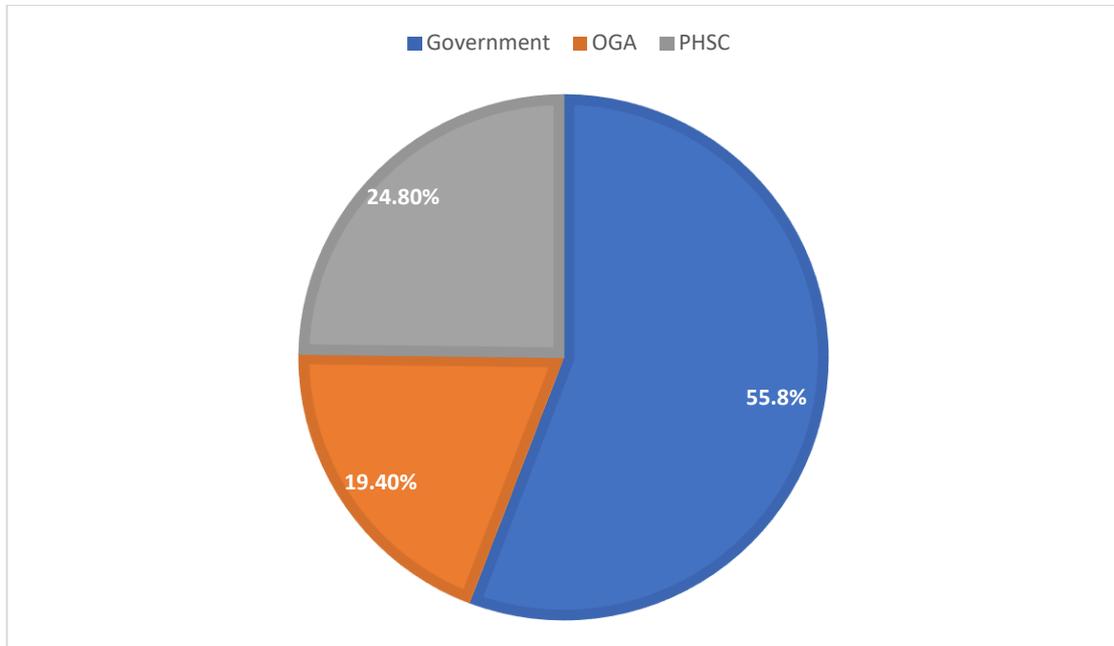


Figure 2.3: Percentage of nurses working in the Saudi Arabian healthcare system (MoH, 2017)

Table 2.8: Total number of nurses working in the Saudi Arabian healthcare system by nationality and healthcare sector (MoH, 2017)

SA Healthcare System	Number of Nurses n = 184,913 (100%)		
	Nationality		Total n
Healthcare Sectors	SA n = 67,308 (36.4%)	Expatriate n = 117,605 (63.6%)	
Government	59,473 (88.4)	43,737 (37.2%)	103,210
OGA	5,156 (7.7%)	30,652 (26.1%)	35,808
PHCS	2,679 (3.9%)	43,216 (36.7%)	45,895
Total	67,308 (100%)	117,605 (100%)	184,913

Table 2.9 shows the number of nurses working in the SA healthcare system by gender and healthcare sector. A total of 148,006 (80.1%) of the nurses are female, of which 22.3% are SA nationals and 57.8% are expatriates.

Table 2.9: Total number of nurses working in the Saudi Arabia healthcare system by gender and healthcare sector (MoH, 2017)

SA Health-care System	Number of Nurses n = 184,913 (100%)				Total n
	Nationality and gender				
Healthcare Sector	SA n = 67,308 (36.4%)		Expatriate n = 117,605 (63.6%)		
	Male	Female	Male	Female	
		26,100 (14.1%)	41,208 (22.3%)	10,807 (5.8%)	
Government	23,184 (22.5%)	36,289 (35.2%)	2,010 (1.9%)	41,727 (40.4%)	103,210 (100%)
OGA	1,820 (5.1%)	3,336 (9.3%)	3,231 (9.0%)	27,421 (76.6%)	35,808 (100%)
PHCS	1,096 (2.4%)	1,583 (3.5%)	5,566 (12.1%)	37,650 (82.0%)	45,895 (100%)

In more detail, the government healthcare sector had 83,953 nurses working in public hospitals in 2017, of which 19,257 were in PHCCs. Of the nurses working in public hospitals, 50.6% are SA nationals and 49.4% are expatriate. While PHCCs had the highest percentage of SA national nurses (88%), only 12% of the nurses were expatriates (Table 2.10). In the government healthcare sector, the proportion of female to male nurses was higher for both SA nationals and expatriates (Table 2.11).

Table 2.10: Total number of nurses working in the government healthcare sector by nationality (MoH, 2017)

SA Healthcare System	Number of Nurses		
	Nationality		Total
	SA	Expatriate	
Government healthcare sector	n (%)	n (%)	n (100%)
Public hospitals	42,522 (50.6%)	41,431 (49.4%)	83,953 (100 %)
PHCC	16,951 (88%)	2,306 (12%)	19,257 (100 %)
Total	59,473	43,737	103,210

Table 2.11: Total number of nurses working in the government healthcare sector by gender (MoH, 2017)

SA Healthcare System	Number of Nurses in the government healthcare Sector				Total n (%)
	Nationality				
	SA		Expatriate		
	Male	Female	Male	Female	
Government healthcare sector	n (%)	n (%)	n (%)	n (%)	
Public hospitals	16,398 (19.5%)	26,124 (31.1%)	1,975 (2.4%)	39,456 (47%)	83,953 (100%)
PHCC	6,786 (35.2%)	1,0165 (52.8%)	35 (0.2%)	2,271 (11.8%)	19,257 (100%)
Total	59,473		43,737		103,210

Based on these previously mentioned statistics, this research study focused on nurses in public hospitals in the government healthcare sector because it is the largest aspect of the SA healthcare system. This sector has the highest percentage of hospitals and nurses in comparison to the others. All public hospitals in the government healthcare sector have identical goals, policies, management operating procedures, planning strategies and funding arrangements across SA (MoH, 2017).

Table 2.12 shows the number of nurses working in public hospitals in the government healthcare sector for all 13 regions in SA. The table also reveals the differences in the distribution of nurses across the regions. The greatest number of nurses are in the Riyadh region (21%), followed by the Makkah region (20.8%) and the Eastern region (15.5%); however, the percentages of nurses in different cities of each region have not been statistically identified (MoH, 2017).

Table 2.12: Total number of nurses working in public hospitals across the 13 SA regions (MoH, 2017)

Regions	Capital city	Number of Nurses Working in Public Hospitals	
		n	Percentage %
Riyadh	Riyadh	17,659	21%
Makkah region	Makkah	17,459	20.8%
Madinah region	Madinah	5,850	7%
Al-Qaseem region	Buraidah	4,877	5.8%
Eastern region	Dammam	13,038	15.5%
Aseer region	Abha	5,043	6%
Tabouk region	Tabuk	3,301	3.9%
Hail region	Ha'il	2,235	2.7%
Northern Borders region	Arar	2,238	2.7%
Jazan region	Jazan	4,082	4.9%
Najran region	Najran	2,610	3.1%
Al-Jouf region	Sakakah	3,800	4.5%
Al-Baha region	Al-Baha	1,761	2.1%
Total	Riyadh	83,953	100%

For the purpose of this research study, the nurses who participated in this research study were working in public hospitals in capital cities in the two largest regions in SA. Both regions (Riyadh and the Eastern region) have high populations of patients under the age of 15 years and high number of nurses. The high child population in these regions was the rationale behind selecting their capital cities, Riyadh and Dammam, for this research study.

Table 2.13 and Table 2.14 shows the number of nurses, based on nationality and gender, in the public hospitals in Riyadh and the Eastern regions of SA. As seen, Riyadh has

the highest percentage of expatriate nurses, while the Eastern region has the highest percentage of SA national nurses. Therefore, this provides a balanced perspective in terms of the number of expatriate and SA national nurses working in the PICU environment for the purpose of this research study.

Table 2.13: Total number of nurses working in public hospitals in the Riyadh region by gender and nationality (MoH, 2017)

Region	Number of Nurses				Total
	Nationality and Gender				
	SA		Expatriate		
	Male	Female	Male	Female	
	n (%)	n (%)	n (%)	n (%)	
Riyadh region	2,812 (43.6%)	3,643 (56.4%)	916 (8.2%)	10,288 (91.8%)	17,659 (100%)
Total	6,455 (36.6%)		11,204 (63.4%)		

Table 2.14: Total number of nurses working in public hospitals in the Eastern region by gender and nationality (MoH, 2017)

Region	Number of Nurses				Total
	Nationality and Gender				
	SA		Expatriate		
	Male	Female	Male	Female	
	n (%)	n (%)	n (%)	n (%)	
Eastern region	2,041 (25.6%)	5,925 (74.4%)	264 (5.2%)	4,808 (94.8%)	13,038 (100%)
Total	7,966 (61.1%)		5,072 (38.9%)		

2.4.1. Professional and regulatory bodies for nurses

When nursing education was first offered in 1958 in SA, no formal voice or representation of SA nurses existed, nor was there any representation of the profession (Aboul-Enein, 2002; Tumulty, 2001). That continued until 1987, when the Central Nursing Committee was established, and SA physicians were assigned to manage it under the supervision of the MoH. The committee's main role is to develop the nursing

standards that will help advance the quality of nursing care by considering the cultural background of SA patients. It also has a role in developing and implementing strategies to attract more SA students to the nursing profession (Almalki et al., 2011b; Brown & Busman, 2003). Later, highly educated and experienced SA nurses established a nursing division within the MoH to support the nursing profession in SA and facilitate its development and presence (Tumulty, 2001).

In 1993, the SCFHS was established in Riyadh as an independent professional and scientific organisation with legal responsibility for healthcare professionals working within the SA healthcare system. Its main role is to regulate healthcare practice and ensure its consistency in all SA healthcare sectors. It also promotes compliance with the needs of patients in SA and respect for their culture (SCFHS, 2018). Additionally, SCFHS supports training programmes for healthcare professionals and provides them with accreditation. The SCFHS also issues all healthcare professionals, including nurses, with their licence to practice (Almalki et al., 2011b; SCFHS, 2018; Tumulty, 2001). Prior to this, there was no formal registration or exam for nurses working in SA (for either SA nationals or expatriates) and no accreditation for continuing education (Almalki et al., 2011b). However, this changed after the establishment of the Scientific Nursing Board (SNB) in 2002; since the board is under the authority and influence of SCFHS, it has a limited amount of influence on the nursing profession (Almalki et al., 2011b). All nurses working in SA are registered with this board; to renew their registrations, nurses must acquire a number of continuing medical education hours (Aldossary, 2013; Miller-Rosser et al., 2006; SCFHS, 2018). Therefore, whether a nurse is an SA national or an expatriate, it is compulsory for him or her to register with the SCFHS for a specific unit in a specific hospital in order to practice nursing in SA. A nurse can only work in one hospital at any one time in SA. Moreover, SCFHS

requirements stipulate that expatriate nurses must demonstrate English language competency to work in SA, and every expatriate nurse must have been licensed and registered to practice in their country of origin (SCFHS, 2018).

In 2003, the Saudi Nursing Society was formed at King Abdulaziz University, Jeddah, SA. The society includes highly educated and experienced SA nurses, who provide scientific and research-based advice on nursing (Saudi Nursing Society, 2016). However, there is no national nursing council in SA to listen to the concerns of or address the requirements and challenges experienced by nurses (Aldossary, 2013). Almadani (2017) indicated that there is a need to create an independent nursing council in SA instead of working under the influence and authority of SCFHS, which has a limited role in nurses' professional development. They suggest that this nursing council could adopt the role of a regulatory body for the nursing profession and that it could assume sole responsibility for the professional development of nurses and work to overcome the challenges they face in SA while also representing SA in forums, councils and on international platforms. This would be important, especially considering the rapid population growth in SA, the shortage of nurses (SA and expatriates) and the expansion of the SA healthcare system; all of these factors have led to the existence of numerous challenges related to professional development in the field of nursing (Almalki et al., 2011b).

Undergraduate nursing education is critical for increasing the number of qualified nurses in SA, and it should help overcome the existing nurse shortages and facilitate high quality nursing care (Tumulty, 2001).

2.4.2. Nursing education in Saudi Arabia

In SA, the nursing profession does not have as long a history as it does in Western countries. While nursing education in SA has undergone noticeable developments, the system of education is unique in terms of gender segregation. Female schools are managed by female staff and are similar to male schools; this system includes all education programmes in SA.

The education of nurses in SA began with a basic nursing programme in the first health institute in the city of Riyadh in 1958. The programme was offered to SA male students through a joint venture involving the MoH and the WHO. Fifteen SA male students were enrolled in a one-year nursing programme (Aldossary et al., 2008; Alhusaini, 2006; Al Thagafi, 2006; Tumulty, 2001).

This was followed in 1961 by two more health institute programmes that included the first 13 female SA students, one in the city of Riyadh and one in the city of Jeddah (Alhusaini, 2006; Al Thagafi, 2006; Tumulty, 2001). Shortly afterwards, additional health institutes opened for both male and female students across SA (Al-Dossary, 2018).

In 1967, the MoH established the Department of Health Education and Training, which had the main role of supervising all health institutions. In 1979, this department developed nursing education, and the nursing programme was extended from a one-year to a three-year nursing programme and recruited both male and female SA students (Al-Dossary, 2018; Alhusaini, 2006; Miller-Rosser et al., 2006), as well, all previous nurses graduated from the old health institutes in SA were enrolled into this programme (Abu-Zinadah, 2004; Alhusaini, 2006). SA male and female students who graduated from this programme were identified as holding a Diploma in Nursing; this general

nursing programme included fundamental nursing knowledge and skills (Al-Dossary, 2018; Almadani, 2017).

In addition to the health institution programmes under the supervision of the MoH, graduating nurses with diploma degrees, the Ministry of Higher Education (MoHE) offered an opportunity for students to obtain a BSN within the university system. This was seen as a proactive way to raise the overall standard of health education and the training of nurses (Almadani, 2017; Almalki et al., 2011b). In 1976, the MoHE launched the first BSN programme, which was also in general nursing, for female SA students at King Saud University in Riyadh. The five-year programme, including the internship (full-time), included theory and practice (Almadani, 2017; Tumulty, 2001). One year later, the BSN programme also became available at King Abdulaziz University in Jeddah, and in 1987, it was offered at King Faisal University in Dammam (Tumulty, 2001).

In the same year (1987), the MSc in Nursing programme was established at King Saud University in Riyadh. This was the first two-year MSc in Nursing university programme in SA and the Gulf countries' universities. Initially, all these nursing education programmes, at both the BSN and MSc levels, were only available to female students; later, they became open to males as well (Al-Dossary, 2018).

In 1992, the health institutes were upgraded by the MoH to post-secondary health institutes (i.e. junior colleges) to train SA nurses for a Diploma in Nursing. In 2008, to improve the quality of nursing education, all active health educational organisations (junior colleges) throughout the 13 regions of SA were taken over by the MoHE (Almalki, 2012; Jradi et al., 2013), so the MoHE oversees all nursing education programmes in SA and was responsible for stipulating the academic experience,

financial resources and educational facilities that nursing students required (Al-Mahmoud, 2013). Consequently, the MoH focused on providing healthcare as its primary role (Almalki et al., 2011b).

The PhD programme in nursing was not available in SA until 1994, when it was established by the MoHE at King Abdulaziz University in collaboration with the British University's PhD programme. The PhD programme had limited spaces and was only offered to SA female nurses with an MSc degree (Abu-Zinadah, 2004). In 1996, male and female SA nurses could apply for overseas PhD scholarships (Abu-Zinadah, 2007; Aldossary et al., 2008). Later, a sponsored overseas scholarship programme, in their four stage, prioritised all SA students with a medical speciality interest, including nursing, to study all over the world at all educational levels, including in BSN, MSc and PhD in nursing programmes. The aim was to enhance nursing educational outcomes and to encourage highly educated SA nurses to lead the profession in SA (Alhusaini, 2006; Almalki et al., 2011b).

In 2002, large hospitals started their own nursing education programmes, supervised by the MoHE, to meet their needs. Both male and female students can enrol in these programmes, which offer the opportunity to obtain a diploma or a BSN, both in general nursing (Abu-Zinadah, 2004; Al Thagafi, 2006; Almadani, 2017).

Additionally, one of the largest specialist hospitals in Riyadh city offers its nursing employees who hold a BSN degree a higher diploma degree through collaboration with an Australian university. This includes different specialities, such as adult ICU nursing (Aldossary et al., 2008; Miller-Rosser et al., 2006). The MoHE continue developing nursing education and made the MSc in nursing programme available in different large cities' universities in SA, including Dammam and Jeddah, and different specialities are

offered, such as adult ICU, general paediatric and medical-surgical nursing (Almalki et al., 2011b; Almadani, 2017; AlYami & Watson, 2014; Tumulty, 2001).

Recently, Imam Abdulrahman Bin Faisal University in Dammam established a Higher Diploma in Midwifery, which is available to both male and female SA nurses who hold a BSN degree (Imam Abdulrahman Bin Faisal University, 2019). The SCFHS also recently established a higher diploma degree curriculum for nurses with a BSN degree in different specialities, such as neonatal intensive care, emergency and oncology nursing. While the SCFHS started its adult ICU programme in 2019 (SCFHS, 2019b), none of the courses are specific for PICUs. In fact, the only PICU training received by nurses in SA is while studying for their undergraduate nursing degree or working in the PICU as a nurse immediately after completion of the degree. In addition, nurses can gain experience in PICU while undertaking their two-year courses in the MSc in nursing programme, specialising in general paediatric nursing.

The SA government has invested heavily in its healthcare system, and it has implemented a number of measures to improve the nursing workforce, to enhance nursing practices and to develop the nursing education system, particularly with the aim of increasing the number of male and female SA nurses. However, despite this, the profession is not able to recruit sufficient numbers of SA nursing students (male or female) or retain qualified SA nurses. This has resulted in a critical shortage of national SA nurses, which has contributed to increased demands on expatriates (Abu-Zinadah, 2004; Al-Dossary, 2018; Almalki et al., 2011b; Cruz et al., 2017; Walston et al., 2008).

2.4.3. Challenges for the nursing workforce in Saudi Arabia

The scarcity of nurses is a serious challenge to the efficiency and effectiveness of many healthcare services across the world (Fang, 2001), including SA. The ratio of nurse-to-patients in the SA healthcare system is low in all nursing units (Mitchell, 2009; MoH, 2015, 2016, 2017; WHO, 2013). This is due to many challenges, including cultural, social and religious factors in SA, which affect the number of SA males and females who are attracted to a career in nursing. The challenges include not having gender segregation while working as a nurse in SA, the low regard for the profession, the stereotypes associated with nursing and the demanding work shifts; all of these are major hurdles that still need to be overcome in SA (Aboshaiqah, 2016; Aboul-Enein, 2002; AbuAlRub, 2007; Almutairi, 2015; Almutairi et al., 2015; Almutairi & McCarthy, 2012; Almutairi & Moussa, 2014; Carty et al., 2007; Gazzaz, 2009; Takase et al., 2006).

To help solve the shortage of nurses in SA, the MoH depends on the recruitment of expatriate nurses, who, since the 1950s, have been a major part of the SA nursing workforce (Al-Ahmadi, 2006; Albougami, 2015; Almutairi, 2015; Sidumo et al., 2010; Walston et al., 2008). These expatriate nurses with different cultural backgrounds and language are principally recruited from other Asian countries, with Filipino and Indian nurses making up the majority. Nurses from Malaysia, Australia, South Africa or other Arab and Asian countries also commonly work as expatriate nurses in SA (Aboul-Enein, 2002; Aldossary et al., 2008; Al-Homayan et al., 2013b; Almutairi, 2015; Almutairi et al., 2013; Carty et al., 2007; Goh & Lopez, 2016; Mitchell, 2009; MoH, 2017; Tumulty, 2001). The number of nurses from the USA and the UK is extremely low (Aboul-Enein, 2002; Aldossary et al., 2008; Almutairi, 2015; Almutairi et al., 2013; Carty et al., 2007; Goh & Lopez, 2016; Mitchell, 2009; MoH, 2017; Tumulty, 2001).

However, the SA healthcare system is unable to retain expatriate nurses, which contributes to the scarcity of nurses (both SA nationals and expatriates) in the country's healthcare system.

Many expatriate nurses are attracted to the SA healthcare system because it pays well and it is primarily a career 'stepping-stone' where they can take temporary advantage of post-qualification nursing education, including new, advanced technologies in medical/nursing care as well as opportunities to gain further nursing experience (Mitchell, 2009).

These expatriate nurses then tend to move to more developed countries, such as the USA, the UK, Canada and Australia (Abu-Zinadah, 2004; Aldossary et al., 2008; Alhusaini, 2006; Almalki et al., 2011b; Alotaibi et al., 2016).

This results in the loss of SA healthcare system resources and the funds allocated for the recruitment and training of both SA and expatriate nurses (Mitchell, 2009). The following points illustrate the challenges experienced by both SA national and expatriate nurses in the SA healthcare system.

2.4.3.1. The status and view of nurses in Saudi Arabian culture

The SA culture strongly influences the decision to enter and remain in the nursing profession (Almutairi & McCarthy, 2012). Numerous sociocultural factors contribute to the low status and poor social image of the nursing profession, making it an unattractive career option for both SA males and females. This, in turn, has contributed to the shortage of SA nurses (Aboshaiqah, 2016; Aboul-Enein, 2002; AbuAlRub, 2007; Almutairi, 2015; Almutairi et al., 2015; Almutairi & McCarthy, 2012; Almutairi & Moussa, 2014; Carty et al., 2007; Gazzaz, 2009; Takase et al., 2006).

Although the SA nursing education system is totally gender-segregated, as are all education systems in SA, interaction between females and males (e.g. nurses and healthcare professionals in the workplace, as well as patients), is commonplace.

SA families perceive the nursing profession as an inappropriate career choice for females, due to the need to interact with male healthcare professionals and care for male patients (AlYami & Watson, 2014). In the SA healthcare system, same-gender care between healthcare professionals and patients is highly preferable, as it not socially or culturally acceptable for female healthcare professionals to care for male patients or to work with male healthcare professionals (Gazzaz, 2009). SA patients, and Muslim patients in general, prefer and even insist on receiving nursing care from a nurse of the same gender (Al-Omar, 2004). Working in a mixed-gender workplace, caring for male patients, and the negative public image of nursing are the principal challenges for SA females wanting to enter the field of nursing (Alotaibi et al., 2016; Lamadah & Sayed, 2014).

Few SA males choose nursing as a profession, because the type of work involved is not seen as 'manly' in SA; this can lead to a sense of shame or derision from their peers and family when combined with the perception of the profession's low social status (Abu-Zinadah, 2004; Lamadah & Sayed, 2014; Miller-Rosser et al., 2006).

Furthermore, people in the SA society have a limited understanding of the skills and role of the nursing profession; they believe that it is to provide basic ordinary care to patients, so they view nursing as an unsuitable profession for both SA males and females (Tumulty, 2001).

According to El-Sanabary (1993), reputation and honour are very important to SA families, so providing nursing care may be challenging and affect their sense of honour—for example, in tending to an individual's private genital areas. When an individual of

one gender gives this type of care to an individual of the opposite gender, it goes against the Islamic religious beliefs of SA, thus leading to a poor image of the profession. Almutairi et al. (2015) reported that the status of a nurse is similar to that of a maid, primarily because a nurse's role can include taking orders from physicians and having to attend to the constant demands of patients.

As nurses must follow the orders of physicians, they are viewed as second-class citizens in a culture where honour is strongly linked to status (Carty et al., 1998). This is a major barrier that prevents SA high school students from studying nursing (Al-Dossary, 2018; Al Thagafi, 2006; Al-Omar, 2004). In addition to society's negative view of nurses, other healthcare professionals such as physicians and pharmacists also have a poor image of nurses; they see them as inferior, because their role is limited to being an extension of the physician (El-Sanabary, 1993; Schwirian & Moloney, 1998). This has led to a concern that nurses might not be proud of their profession, and this may affect their decision to leave it (Al-Omar, 2004).

Additionally, the working hours (night shifts, weekends and public holidays) are core issues that make nursing an undesirable career choice, particularly for the SA female nurses, whose key role is considered to be that of a wife, mother and homemaker. The clash between cultural beliefs and nursing responsibilities can result in family conflict and interfere with a female's family responsibilities, causing nurses to leave the profession (Aboshaiqah, 2016; Abu-Zinadah, 2004; Alotaibi et al., 2016; Al-Sa'd, 2007; Gazzaz, 2009; Mansour, 1992; Miligi & Selim, 2014). Thus, young females are discouraged by their families from becoming nurses. Moreover, SA female students are frequently pressured into abandoning their nursing education (Al-Johari, 2001; Lamadah & Sayed, 2014), while qualified SA nurses are pressured into moving from

clinical roles to non-clinical ones (such as those in healthcare administration; Almadani, 2017; Gazzaz, 2009).

2.4.3.2. Expatriate nurses in Saudi Arabia

SA's heavy reliance on expatriate nurses (Al-Ahmadi, 2006; Almalki et al., 2011b; MoH, 2016, 2017, 2018) is one of the main reasons for the nursing shortage in SA, as many of the expatriate nurses will eventually leave SA (Al-Ahmadi, 2006; Almalki et al., 2011b; MoH, 2016, 2017, 2018).

The cultural beliefs and values of expatriate nurses are very different from those of the SA population (Aboul-Enein, 2002). This creates challenges for the expatriate nurses, as most of the patients are SA and Arabs (Demographics of Saudi Arabia, 2019) who are Muslim (Aldossary et al., 2008). This cultural conflict, caused by both the inflexible religious-cultural framework of the SA population and the fact that many expatriate nurses have insufficient knowledge about it, can affect the expectations of patients and their families (Almutairi et al., 2015; Halligan, 2006; Mitchell, 2009; Van Rooyen et al., 2010). For example, expatriate nurses may disregard the patients' Islamic beliefs and values, which can lead to conflict while providing nursing care (Aboshaiqah, 2016; Aboul-Enein, 2002; Aldossary et al., 2013; Aldwin, 2004; Alghamdi & Urden, 2016; Alhusaini, 2006; Almajwal, 2016; Almutairi et al., 2013; Almutairi & McCarthy, 2012; Andrews & Friesen, 2011).

Nurses who practice a non-Islamic religion also face a specific challenge in terms of their own faith, as Islamic law in SA forbids the public or group worship of any other religion (Almalki, 2012). Another challenge that expatriate nurses may face because of the practice of male-female segregation in SA culture is that social interaction and

social events are limited, especially for individuals without family ties in SA (Almalki, 2012).

A further challenge for expatriate nurses is communication between them and patients and their families (the majority of whom are SA, with Arabic as their native language). As most expatriate nurses do not speak Arabic well, this difficulty in communication can impede the nursing care they provide (Aboul-Enein & Ahmed, 2006; Aldossary et al., 2008; Al-Harasis, 2013; Simpson et al., 2006). Especially when the patient wishes to be involved in decision-making processes around their healthcare, this disparity in communication can be challenging (Halligan, 2006).

In addition to the culture conflicts and communication barriers with patients and their families that expatriate nurses face, a lack of familiarity with and knowledge of SA religion and culture, particularly Islam and the Arabic language, can result in frequent workplace misunderstandings (Aboshaiqah, 2016). This can also lead to a greater sense of isolation and a consequential lack of job satisfaction for expatriate nurses (Aldossary et al., 2008; El-Gilany & Al-Wehady, 2001).

In conclusion, considering the rapidly growing population in SA, particularly the increase in the number of children, there is a clear need to attract and retain more nurses in SA. This problem is even more serious now with the expansion of the SA healthcare system. The nursing shortages affect the workplace environment of nurses, including their ability to provide high-quality nursing care and to develop professionally. It also decreases the likelihood of nurses remaining in their nursing posts (Dana, 2005). Additionally, the shortage of nurses results in an increased workload, longer working hours and increased workplace stress for the nurses who do remain (Aboshaiqah, 2016; Buchan & Calman, 2004; Mesmeh et al., 2016; Shirey, 2006). It is thus essential to

manage the working environment in order to minimise the sources of workplace stress affecting nurses. An improved working environment, in turn, will help these healthcare professionals provide high-quality nursing care. Thus, a crucial part of the government's SA Vision 2030 is to increase the attractiveness of nursing as a career and to highlight the important role nurses play as part of the multidisciplinary healthcare team (Al-Dossary, 2018).

2.5. Summary of the chapter

This chapter has provided an overview of SA, its geography, demographics and cultural background. The chapter has also discussed the SA healthcare system and nursing workforce. Moreover, it illustrated how cultural factors in SA contribute to the shortage of SA national nurses and how those factors challenge the expatriate nurses working within the SA healthcare system.

This chapter identified the researcher's reasons for focusing on the government healthcare sector (specifically public hospitals). The settings of this research study (the cities of Riyadh and Dammam) were also presented.

The next chapter will review the current literature in two separate sections. The first part will focus on an overview of global workplace stress among those in the nursing workforce, including nurses in PICUs. The second section presents a systematic literature review of SA national literature to explore workplace stress among nurses in SA in different nursing units as well as the potential consequence of it on the quality of nursing care.

Chapter Three: Literature Review

3.1. Introduction

As this research study is the first to investigate workplace stress among nurses in SA PICUs, this chapter will first provide a critical review of the globally available literature relating to stress, workplace stress, specifically in nursing, as well as the consequences of these kinds of stress. In addition, it highlights the relationship between workplace stress and coping strategies as well as social support. The literature pertaining to stress is vast and well documented; in particular, there is clarity in terms of the definition of stress as well as sources and consequences of workplace stress within a nursing context. The researcher, with the support of the UH Learning Resource Information Manager and her supervision team, conducted a series of literature searches that utilised electronic databases to facilitate the retrieval of relevant research papers and associated articles. These databases included the Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed and Scopus, search engines such as Google Scholar, Google and WHO. In addition, a snowballing approach was used whereby the reference lists at the rear of every article were examined for any papers that could have been missed. The search strategies utilised a range of terms such as ‘nursing staff’, ‘nurse’, ‘nurses’, ‘healthcare workers’, ‘registered nurse’, ‘nurse staff’, ‘nursing’, ‘healthcare provider’, ‘RN’, ‘job stress’, ‘work stress’, ‘stress in the workplace’, ‘occupational stress’, ‘workplace stress’, ‘stress’, ‘distress’, ‘stressors’, ‘stress source’, ‘sources of stress’, ‘job distress’, ‘work distress’, ‘burnout’, ‘burn out’, ‘intensive care unit’, ‘critical care unit’, ‘ICU’, ‘acute care unit’, ‘critical care’, ‘paediatric intensive care unit’, ‘paediatric critical care unit’, ‘pediatric intensive care unit’, ‘pediatric critical care unit’, ‘PICU’, ‘acute care unit’ and ‘critical care’. Search terms were used with Boolean operators, with or without asterisks, to include all the derivatives. The researcher

searched for work written in English and conducted within the past 20 years (the articles selected were dated from 1999 to 2019). On a few occasions, because of the relevant nature of the paper, earlier studies (prior to 1999) were considered and used in the literature review. The initial aspect of the literature review discusses global stress specifically related to nurses in their workplace and has an international focus (to demonstrate the global issue of workplace stress among nurses in acute and critical units, including PICUs). The subsequent section in this chapter includes a systematic literature review that focuses on studies conducted in relation to workplace stress among nurses in different nursing units in SA. The chapter concludes by identifying the ‘gaps’ in knowledge as well as a discussion on the relevance of this literature review to this research study.

3.2. Defining stress

Rees and Redfern (2000) assert that there is no universally accepted definition of the term stress. The earliest definition of it dates back to 1864, a time when scientists were focusing on physiological functions and a new-found knowledge of the body’s functions (Cantor & Ramsden, 2014). Approximately 60 years later, American physiologist Cannon (1929) introduced the concept of ‘homeostasis’, a state where the internal conditions of the body are maintained in equilibrium. This enabled an understanding of the way stress can affect the internal balance of the body. The concept of stress was seen as a relationship between physical and physiological aspects and their desired state of equilibrium.

The American Institute of Stress is a proponent of the definition proposed in 1950 by Selye, defining stress as the “*non-specific response of the body to any demand*” for change (Selye, 1976, p. 15). Selye’s use of the word stress concentrated on undefined

reactions, the neither negative nor positive non-specific responses of the body; however, other studies disputed this stance (Lazarus & Folkman, 1987; Mason, 1971). Lazarus and Folkman (1987) as well as Broverman and Lazarus (1958) suggest that the stress that an individual experience takes on a positive or a negative value depending on the responder's perception of that stress.

Stress, according to Lazarus (1969), is a "*circumstance external to a person and which makes unusual or extraordinary demands on him, or threatens him in some way*" (p. 164). In this definition, the external or situational aspect of stress is emphasised. Levine and Scotch (1970) point out that various situations are not physically objectively stressful but can be socially or psychologically defined by individuals in terms of social and cultural norms.

Stress can also be defined as the "*relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being*" (Lazarus & Folkman, 1984, p. 19). While the authors' stance can be seen as a new way of considering stress, the basic components of their definition are not dissimilar to that of Michie (2002) who found that stress is the consequence of the individual's resources not being sufficient to cope with the demands of a situation. As a result, stress is more likely to be present in some situations or for some individuals than in other situations or individuals. As such, stress can undermine the achievement of goals both for an individual or an organisation.

In fact, stress has been accepted as an essential element of humanity and life. Beheshtifar and Nazarian (2013) support this notion stating that stress has become universal, a part of every individual's life and not only related to workplace.

Whether stress is seen as a positive or negative element of life, it may be viewed differently depending on the individual's background or environmental context,

causing the individual to view stress differentially. Unfortunately, there are no definitions that focus specifically on stress in the context of SA and reflect the SA individual perception of it. As a result, it is important to contextualise the concept of stress rather than simply define it.

3.3. Stressors

Stressors are “*conditions of threat, challenge, demands, or structural constraints that, by the very fact of their occurrence or existence, call into question the operating integrity of the organism*” (Wheaton & Montazer, 2010, p. 173). Stressors can be divided according to the period of time, i.e., long- and short-term stressors, or according to whether stressors are positive or negative in nature (Rout & Rout, 2007; Selye, 1976).

3.3.1. Long- and short-term stressors

The effects of long-term or chronic stressors are experienced over a prolonged period of time (Baron et al., 2009; Pender et al., 2013). Long-term stressors have been defined as lasting anywhere from four weeks (Brown & Harris, 1978), to six months (Dougherty et al., 2004) to 12 months (McGonagle & Kessler, 1990). This can include events such as the death of a relative, ongoing sleep disorders, marital problems, divorce, and challenges with children in the home. Such events are constantly at the forefront of the mind and result in a feeling of stress, which can result in health problems (Baron et al., 2009). These stressors can negatively affect the cardiovascular system through raising blood pressure, thus increasing cardiac effort, damaging arteries, and increasing the risk of atherosclerosis (Pender et al., 2013). Overall body function and the immune system can also be affected (Pender et al., 2013).

Short-term stressors are also referred to as day-to-day stressors. They can be caused by normal, everyday life events (Rout & Rout, 2007). These can be the result of pressure

at work, disagreements with friends, lack of time, and an overload of responsibilities. Beginning a new work role, for example, creates multiple short-term stressors (Pender et al., 2013). These authors further explain that such short-term stressors can have a negative effect on day-to-day health, leading to ailments including headaches, back pain, and fatigue. They also point out that while short-term stressors have the capacity of being resolved quickly, they can lead to chronic illness if not dealt with. Though short-term stressors are less impactful than long-term ones, they can still have a huge consequence on an individual's health depending on how effectively they are addressed (Piazza et al., 2013).

3.3.2. Positive and negative stress

There are two kinds of stress, according to Selye (1976): Eustress and distress. These can be seen as subjective perceptions, and therefore the same stressor can be classed either as eustress or distress depending upon an individual's reaction to it (Mathney & Kolt, 2003). Drawing on positive emotions such as hope, optimism, and gratefulness when reacting to stressors, means that eustress is experienced. Eustress tends to lie between too little and too much stress (Mathney & Kolt, 2003). As such, eustress becomes a beneficial stress that motivates an individual to achieve an objective without creating a physical, psychological, or social burden (Donovan et al., 2013). Similarly, Rout and Rout (2007) describes it as a positive force which can result in improvement to an individual's work. This type of stress is easily managed without affecting an individual's overall wellbeing.

Distress, on the other hand, can be damaging to an individual's physical and psychological wellbeing. It is experienced when an oft-repeated stressor leads to exhaustion (Donovan et al., 2013). Any stress can be classed as distress when the body

fails to maintain a state of homeostasis. As per Mathney and Kolt (2003), symptoms include anger, feelings of revenge, hopelessness, sadness, while McEwen and Lasley (2003) add depression to that list, explaining that long-term distress can lead to a number of illnesses, particularly cardiovascular disease and obesity (the latter being due to feelings of despair leading to inactivity and comfort eating). They also highlight the fact that distress can also be responsible for the development of autoimmune problems which can lead to a range of infections. Additional ailments connected to distress include diabetes, colitis, chronic fatigue syndrome, fibromyalgia, eczema, and ulcers (McEwen & Lasley, 2003).

3.4. Workplace stress

3.4.1. Definition

Workplace stress has drawn increasing attention from public health organisations and a number of differing definitions of it have arisen over recent decades. The National Institute for Occupational Safety and Health (NIOSH) in USA defines workplace stress as *“the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker”* (NIOSH working group, 1999, p. 6). Relying on an older definition of workplace stress, Beehr and Newman (1978) explored the topic of workplace stress in relation to issues that can either enhance or disrupt physiological or psychological conditions for the individual at work. Here, workplace stress develops as a result of pressures placed on an individual, which may yield either a positive or negative result. The Yerkes-Dodson law suggests that very high or low levels of workplace stress decrease the individual’s productivity (Benson & Allen, 1980; Cleland, 1965).

Over time, the view of workplace stress has changed to accentuate the difference between stressors and an individual's ability to withstand them or environmental demands (Ornelas & Kleiner, 2003; Topper, 2007; Varca, 1999; Vermunt & Steensma, 2005). Levels of workplace stress are influenced by an individual's skills meeting the demands of specific tasks or additional tasks that create an increased workload. Senior and skilled individuals may often experience high levels of workplace stress because of the demands of their work responsibilities that cannot be tolerated by them.

More recently, The Health and Safety Executive (2019, p. 3) defined workplace stress in the UK as "*the adverse reaction people have to excessive pressures or other types of demand placed on them at work*". The authors argue that individuals should match demands to their skills and knowledge-this implies that the preferred option is skill mapping and matching the right workers with the right tasks rather than blaming victims for being stressed because they do not have the required skills and knowledge to complete their works.

3.4.2. Levels of workplace stress

Levels of workplace stress can vary depending on the nature of the work. Cox et al. (1996) asserts that workplace stress often occurs where there are low levels of supervision, support and control. It is not surprising, then, that on average, those working in the healthcare sector experience higher levels of workplace stress than other professionals (Lowe, 2006). Ângelo and Chambel (2015) suggests that this is due to healthcare professionals having intense and continuous interactions with patients through the medical and nursing care they provide. Nurses in particular are exposed to a higher level of workplace stress than physicians (Al-Turki et al., 2010; Dagget et al., 2016; Fiabane et al., 2013; Hughes, 2008; Orzechowska et al., 2008). Not only do they

spending prolonged periods of time with patients, but they also frequently witness the pain and distress experienced by patients and their families (Stranks, 2005).

A study conducted by Chan et al. (2000) compared sources of workplace stress among a cross-section of professionals in Singapore (Table 3.1). Using a 5-point Likert scale, this showed that sources such as poor relationships with supervisors and colleagues, levels of bureaucracy, work-family conflict, pressure placed on performance, and employment/career prospects were factors that affected the professionals' level of workplace stress. This study showed that nurses tend to experience workplace stress to a higher level (2.08) than physicians (1.5) and most other non-healthcare professionals, this only being surpassed by lawyers and teachers.

Table 3.1: Comparison of sources of workplace stress comparison among different professionals in Singapore (Chan et al., 2000)

Sources of workplace stress	Nurses	Physicians	Engineers	Insurance Agents	Lawyers	Teachers	All
Poor relationship with supervisor	6.29	1.78	5.42	2.86	3.37	4.86	4.74
Bureaucracy constraints	6.24	2.13	5.92	3.48	3.35	5.11	4.91
Work-family conflict	5.85	4.99	6.32	4.73	4.92	8.05	5.78
Poor relationship with colleagues	8.26	3.29	5.93	3.46	4.77	6.17	6.16
Performance pressure	10.72	6.61	9.71	6.89	10.73	10.51	9.78
Poor job prospects	8.99	2.15	5.91	4.39	2.76	4.88	6.03
Overall workplace stress	2.08	1.50	2.05	1.81	2.12	2.29	2.04

3.5. Workplace stress in nursing

A study from Nigeria which compared workplace stress among nurses and non-nursing colleagues similarly found that nurses encountered appreciably more workplace stress specifically in terms of workload than their non-nursing colleagues (Effionm et al., 2007). Over the last twenty years, many global studies have been conducted in relation

to workplace stress and have revealed that it is a major problem for nurses (Abdollahi et al., 2014; Al Shehri et al., 2012; Chang et al., 2005; Gelsema et al., 2006; Watson et al., 2008; Xianyu & Lambert, 2006).

Workplace stress in nursing was first assessed in 1960 when Menzies identified four sources of anxiety among nurses: Patient care, decision making, taking responsibility, and change. McVicar (2003) emphasises that workplaces stress among nurses is “*a subjective phenomenon based on individual perceptions, producing positive (eustress) and negative (distress) perspectives*” (p. 640).

Workplace stress occurs when demands that are placed upon an individual exceed the available resources the individual has access to in order to manage them (Lambert et al., 2003). Add to that the demanding daily routines, schedules, and responsibilities of nurses, all of which are known to contribute substantively to nurses’ levels of workplace stress (Bahnassy et al., 2014; Fore & Sculli, 2013; Lim et al., 2010; Milutinović et al., 2012; Saksvik-Lehouillier et al., 2016; Sharma et al., 2014; Shields & Wilkins, 2006; Väänänen et al., 2012; van Wyk & Pillay-Van Wyk, 2010; Watson et al., 2008; Yau et al., 2012).

Nurses provide a wide range of care. They observe and record patients’ conditions, they liaise with physicians and specialists to create, evaluate, and adjust care plans; in addition, they provide emotional support for patients and their families (Sahraian et al., 2013). Nurses can also be responsible for the provision of care in medical emergencies, preparing patients for operations, discussing health needs and overall management with patients and their families, assisting surgeons during operations, and overseeing every aspect of a patient’s care. These responsibilities mean that nurses are crucial to the healthcare team as well as to the patients (Cox et al., 1996; Sahraian et al., 2013).

As a profession, nursing presents many challenges, requiring flexibility and vigilance. However, the context of the nursing care unit may lead to a considerable variance in the source and levels of workplace stress. Unfortunately, limited studies exist that compare workplace stress across cultures and within different work environments (Lambert et al., 2004a; Sahraian et al., 2013).

Different sources of workplace stress can include conflict with physicians, poor preparation, conflict with colleagues and/or supervisors, discrimination, fear of providing incorrect treatment, frequent exposure to death and dying patients, dealing with patients and their families (McVicar, 2003), an overall shortage of nurses and constant turnover of nurses (Gherardi-Donato et al., 2015; Lim et al., 2010; Roberts & Grubb, 2014).

3.5.1. Further sources of workplace stress in different nursing units

These aforementioned sources of workplace stress can be categorised as being organisational, relational, professional, and/or emotional. Researchers have classified workplace stress based on these areas. One of the sources of workplace stress categorisation that can lead to burnout is associated with the individual, the type of work and the organisation (De Silva et al., 2009). These can be further classified according to personal characteristics such as demographic factors and the presence of a resilient nature, job characteristics (including workload) and organisational characteristics related to policies and procedures. These also include being underappreciated as well as confusion around expectations and priorities, not to forget the workplace stress and the anxiety associated with job security. In the field of nursing, a similar relationship could be drawn to the sources of workplace stress in terms of personal, job and organisational characteristics among nursing in acute and critical care units.

3.5.1.1. Personal characteristics

Demographic factors are personal characteristics which are directly associated with the experience of workplace stress; these include gender, age, marital status, level of education and training, years of experience [or lack of it] (De Silva et al., 2009; Letvak & Buck, 2008; Moreira et al., 2009). Additionally, the ability to cope with adversity and the presence of a resilient nature can also determine the level of workplace stress that an individual experiences (Chesak et al., 2015; Matos et al., 2010; Rushton et al., 2015; Tugade & Fredrickson, 2004).

A range of authors have provided descriptions for the effects of age on levels of workplace stress. For example, Hayes and Bonnet (2010), Purcell et al. (2011), Mosadeghrad (2013), and Higazee et al. (2016), all showed that nurses identified that age is inversely related to levels of workplace stress experienced: Younger nurses had more workplace stress than older nurses, just as older nurses, with more years of nursing experience, had less workplace stress than their younger nurses' colleagues.

Conversely, studies by Nabirye et al. (2011) who studied nurses working in different acute nursing units, Quaicoe (2018) who undertook study with mental health nurses and Vahedian-Azimi et al., 2019 whose participants were critical care nurses, identified that levels of workplace stress increased with age. According to Hansson et al. (2001), older workers exhibit a considerable capacity to manage and cope with the workplace stress and environmental demands but at some point, many can become overwhelmed and find themselves at increased risk for health consequences, injury, disability, and diminished productivity. However, Donnelly (2014) did not find any relationship between age and workplace stress among acute and critical care nurses in an acute hospital in Ireland and concluded that age had no influence on workplace stress.

In addition to age, marital status can have an impact on workplace stress. Married nurses tend to suffer more from workplace stress than those who are single owing to challenges at work as well as family responsibilities, such as being a parent (Hashemian et al., 2015; Higazee et al., 2016; Mosadeghrad, 2013; Vahedian-Azimi et al., 2019).

A study by Nabirye et al. (2011) focussing on workplace stress among nurses in different acute nursing units and identified that levels of workplace stress were directly related to the number of children these nurses had. The more children, the more workplace stress the nurse experienced compared to those who had fewer or no children.

Moreover, gender has been identified as having an impact on workplace stress. Female nurses reported higher workplace stress than male nurses in a haemodialysis nursing unit (Hayes & Bonnet, 2010). However, a national cross-sectional study among 17,414 critical care nurses in Iran revealed that male nurses experienced higher levels of workplace stress than female ones (Vahedian-Azimi et al., 2019). This was consistent with a study among 3,043 Iranian nurses in critical wards that also indicated that male nurses had higher levels of workplace stress than their female colleagues (Hashemian et al., 2015).

Some studies indicate a relationship between the level of workplace stress and level of education. Lee and Wang (2002), Higazee et al. (2016), and Rahmani et al. (2013), all of who study nurses in different acute and critical nursing units, found that workplace stress increased alongside the level of nursing education. However, the finding by Chatzigianni et al. (2018) highlighted that nurses, in a range of units, who had higher levels of education had lower levels of perceived workplace stress. It has been suggested that the nursing knowledge and skills associated with a lower academic nursing qualification influence nurses' levels of confidence and hence leads to greater

workplace stress (Brown & Edelman, 2000; Chatzigianni et al., 2018). However, more recent studies among nurses in critical care units did not find any statistically significant relationships between level of workplace stress and academic nursing qualification (Christopher et al., 2019; Faraji et al., 2019).

In a study among ICU nurses in Malaysia, Raja et al. (2007) identified that nurses who underwent post-ICU qualification training had lower levels of workplace stress compared to those who had not undergone a similar programme of study. The latter found the work in the ICU very stressful due their lack of knowledge. A post-qualification training can be beneficial for nurses working in specialised nursing units such ICU as those units require high levels of knowledge and skill (Kelly & Cross, 1985; Sawatzk, 1996). The study by Burgess et al. (2010) did not find any significant difference in further training and levels of workplace stress among ICU nurses; however, this is potentially because the majority of nurses in the study held post-ICU qualifications. This finding was similar to that of Donnelly (2014) who did not find any correlation between levels of workplace stress among acute and critical nurses and post-nursing qualifications or lack thereof.

According to Guo et al. (2019), for nurses in their early nursing profession (i.e., the first five years of nursing experience), levels of workplace stress increased with time. However, Raja et al. (2007), Hashemian et al. (2015), and Vahedian-Azimi et al. (2019) all found that the more experience nurses had in critical care units, the less workplace stress they felt. However, the ability to cope with adversity and the presence of a resilient nature can determine the level of workplace stress that an individual may experience (Chesak et al., 2015; Rodríguez-Rey et al., 2017; Rushton et al., 2015; Tugade & Fredrickson, 2004).

3.5.1.2. Job characteristics

Job characteristics relate to role conflict, workload, and role ambiguity, all of which can lead to workplace stress among nurses (Cheng et al., 2008; Owolabi et al., 2012).

In McVicar's (2003) literature review of workplace stress, he identified that emotional labour and an excessive workload were the main sources of workplace stress over a long period of time. Workload can be a contributing factor to a sense of frustration and exhaustion, both during and after work (De Silva et al., 2009; Raja et al., 2007). The emotional labour was described as having to continually deal with sick and dying patients and their families, something that is particularly relevant to the critical care environment. Beyond emotional sources of workplace stress felt by nurses, there is also the physical source, including constantly being on their feet, which can lead to physical leg pain (Jennings, 2008; Stranks, 2005).

It should be noted that acute and critical nursing units have their own specific demands, procedures and processes. As a result, higher levels of workplace stress have been observed in nurses who constantly work in a life-or-death environment, such as in an ER and ICU as opposed to those in acute nursing units (Hays et al., 2006; Qin et al., 2016; Sharma et al., 2014).

ICUs are viewed as stressful environments owing to the nature of the work (Mokhtar et al., 2016). One study identified nurses as being more stressed than physicians in an ICU (Kumar et al., 2016). Nurses working in ICUs experience workplace stress from a variety of sources such as workload followed by caring for critically ill patients and death as well as dealing with patients and their families (Milutinović et al., 2012; Mohamed et al., 2011; Mohamedkheir et al., 2016; Othman & Shalaby, 2014; Saini et al., 2011; Vahedian-Azimi et al., 2017).

The workload as a source of workplace stress is associated with the nature of the tasks carried out by nurses in ICUs (Mealer et al., 2007). Working in such a fast-paced and reactionary environment, where everyone involved is carrying out a potentially life-saving role, can increase levels of stress (Gurses, et al., 2009; Mealer et al., 2007). This is exacerbated if the ICU is poorly equipped when the situation becomes more stressful owing to the need for direct and intensive care (Gurses et al., 2009).

Furthermore, ICU nurses frequently have to cope with large numbers of patients arriving at the same time as well as sudden changes in patients' conditions and the presence of family who themselves are suffering from high levels of anxiety (Gholamzadeh et al., 2011).

Specifically, the contact with patients' families is a principal stress component that emotionally affects ICU nurses. Roberts (1986) points out that while a patient arrives at an ICU during a physiological crisis, their families arrive in a psychological one. As a result, nurses are faced with increased demands from both the patient and family, having to emotionally support both while being sensitive, tactful and reassuring. In addition, during this time nurses are required to constantly perform critical clinical tasks to the patients-all of this can lead to emotional and psychological overload (Efstathiou & Clifford, 2011; Roberts, 1986; Tinker & Zapol, 1992).

Additionally, ICU nurses are subject to higher-than-normal levels of workplace stress as they are frequently confronted with death, ranging from infants in crisis to the elderly (Cronqvist et al., 2006; Fogaça et al., 2008; Foglia et al., 2010; Milutinović et al., 2012). However, the nature of nursing work in an adult ICU differs from that to nursing critically-ill children in PICUs (Foglia & Milonovich, 2011). Nursing in PICUs is tailored to the child's developmental stage and age and there tends to be more family involvement as parents are involved in decision-making processes with medical and

nurses in PICUs (Baider, 2011; Brenner et al., 2018; Brooks et al., 2013; Egilson, 2011; Elias & Murphy, 2012; Geere et al., 2013; Lin et al., 2016; McCann, 2015; McDonald et al., 2007; Spratling, 2015; Ward et al., 2015; Ziviani et al., 2014).

Crowe et al. (2017) as well as Stayer and Lockhart (2016) showed that the PICU environment can have a negative consequence on nurses' feelings. Nurses working in such units are consistently working in an emotionally demanding environment and are frequently exposed to traumatic events and stressful situations where both the critically ill children and their families are suffering; the result can be increased workplace stress (Crowe et al., 2017; Colville et al., 2009; Stayer & Lockhart, 2016).

Nurses in PICU care and perform procedures on a daily basis for children who are already in pain and this can further exacerbate their workplace stress (Johnston et al., 2016; Valizadeh et al., 2012). Not only are nurses in PICU expected to attend to the physical and emotional welfare of the children in their care, they frequently have to provide emotional support to the patient's parents as well as other family members (Betz, 2006; Colville et al., 2009; Foglia et al., 2010).

When a child dies in PICU, it can create overwhelming emotional workplace stress, especially after an emotional bond has been formed. A sense of helplessness and sadness is associated with those situations but, these nurses need to deal with their own grief when a child dies to care for other patients in PICU, increasing their level of workplace stress (Johnston et al., 2016; Kim & Sekol, 2014; Stayer & Lockhart, 2016; Valizadeh et al., 2012).

In addition, like adult ICU nurses, PICU nurses face heavy workloads during long shifts in which they are involved in emergency responses and care, caring for terminally-ill children and dealing with death; all requiring a wide range of skills (Gallagher & Gormley, 2009; Johnston et al., 2016; Lin et al., 2016).

3.5.1.3. Organisational characteristics

Organisational characteristics may include the political climate and internal structures and cultures (Cooper et al., 2001). Nurses in acute and critical nursing units are more susceptible to workplace stress when working in a complicated system which has multiple interacting parts (Hamaideh & Ammouri, 2011; Sundin et al., 2011). A lack of proper work organisation can lead to an increase in workload which can lead to, for example, missing or postponement of nurses' lunch breaks (Selberg, 2013). A shortage of nurses can also add to organisational factors that contribute to workplace stress for nurses in different units (Goh & Lopez, 2016; McVicar, 2003).

Workplace stress can also be indirectly created through a lack of support from superiors or colleagues, through a lack of career structure, unclear expectations, a lack of performance feedback, limited opportunities for promotion (owing to a lack of educational resources) and a lack of recognition and appreciation from superiors (Bakker et al., 2005; De Silva et al., 2009; Raja et al., 2007; Tajvar et al., 2015).

Furthermore, being transferred between different nursing departments to help other nurses leads to a sense of frustration for not being able to perform at their best and so their level of workplace stress increases (Donnelly, 2014; Thomas, 2009).

Researchers have identified organisational factors that contribute to workplace stress for nurses in acute and critical nursing units. These include difficult inter-professional relationships; conflict with physicians, colleagues and nursing management; as well as discrimination (Baptiste, 2015; De Castro et al., 2008; French et al., 2000; Hayes & Bonnet, 2010; Huntington et al., 2011; McVicar, 2003; Raja et al., 2007; Sarafis et al., 2016; Sharma et al., 2014; Zhang et al., 2016).

Nurses in critical nursing units are especially subjected to verbal or physical abuse from colleagues (such as physicians or nursing management) as a consequence of conflict

between them and the nurses; alternatively, this abuse can come from patients' or their families, who are themselves experiencing stress (Gates et al., 2011; Gholamzadeh et al., 2011; Healy & Tyrrell, 2011; Lancman et al., 2013; Sarafis et al., 2016; Yuwanich et al., 2016). In these situations, sources of workplace stress are varied, and it is the responsibility of the organisation to counter these sources of workplace stress (Yuwanich et al., 2016).

Moreover, self-rated health is measured by a balance between efforts and rewards. If there is an imbalance between effort and reward (high effort and low reward), this leads to a sustained sense of workplace stress from the organisation (i.e. hospital) (Mosadeghrad, 2013; Weyers et al., 2006; Yingchun, 2009). For example, an unfair reward system, and insufficient pay and benefits is one of the main sources of organizational workplace stress (Cho et al., 2006; Dewanto, 2018; Huntington et al., 2011; McVicar, 2003; Mosadeghrad et al., 2011; O'Brien et al., 2010).

3.5.2. Consequences of workplace stress in nursing

Today, workplace stress remains a significant problem in nursing that has many potential negative consequences (Happell et al., 2013) such as an impact on physical and psychological wellbeing, the quality of patient care, and overall job satisfaction (Aiken et al., 2013; Flynn et al., 2010; Jennings, 2008; Kramer et al., 2011; Largo-Wight, 2011; Lowe, 2006; McCalister et al., 2006; Nahrgang et al., 2011; Shields & Wilkins, 2006).

Michie (2002) separates negative consequences of workplace stress into four groups: Cognitive, emotional, physical, and behavioural, while recognising that these factors can have a compounding effect.

In the field of nursing, a similar relationship could be drawn with the consequence of workplace stress among nursing in acute and critical nursing units. These will be discussed in the sections below.

3.5.2.1. Psychological symptoms (Cognitive and Emotional Symptoms)

Cognitive symptoms of workplace stress among nurses include memory problems, the inability to concentrate, poor judgement, and inability in decision-making (Billeter-Koponen & Fredén, 2005; Hogh et al., 2012; Mojinyinola, 2008; Sarafis et al., 2016; Severinsson, 2003)

Emotional symptoms related to workplace stress include a negative outlook, inability to relax, a sense of being overwhelmed, constant worrying, irritability and anxiety and depression (Gao et al., 2012; Gong et al., 2014; Maxwell et al., 2007; Rose & Glass, 2009; Traeger et al., 2013). Workplace stress among nurses can induce psychological problems (emotional symptoms) that can lead to mental health problems (cognitive symptoms) and, over a prolonged period of time, lead to physical illness (Cohen et al., 2007; Grønkjær, 2013; Lim et al., 2010; Rana & Upton, 2013).

3.5.2.2. Physical symptoms

Physical symptoms of workplace stress among nurses can manifest themselves in the form of headaches, dizziness, back pain, chronic fatigue, and gastrointestinal disorders (Cavalheiro et al., 2008; Hogh et al., 2012; Kibria, 2018; Lee et al., 2011; Mojinyinola, 2008; Severinsson, 2003). In addition, hypertension, along with increased heart and respiration rate, have been connected with workplace stress (Cavalheiro et al., 2008; Grønkjær, 2013; Owolabi et al., 2012).

3.5.2.3. Behavioural symptoms

Behavioural symptoms include a change in eating habits, distancing and isolating themselves from their colleagues, absenteeism and frequent sick days, detrimental effects on relationships with friends and family (Alderson, 2008; Billeter-Koponen & Fredén, 2005; Grønkjær, 2013; Hogh et al., 2012; Lim et al., 2010)

Workplace stress also reduces a nurse's productivity, which can lead to the inability to provide high-quality nursing care (Berland et al., 2008; Elfering et al., 2006; Grønkjær, 2013; Moola et al., 2008; Murphy, 2004; Sun et al., 2012; Valizadeh et al., 2012).

Workplace stress also influences nurses' decisions to remain in nursing (Foglia et al., 2010; Hasselhorn et al., 2008; Sun et al., 2012). This is especially true where hospitals are susceptible to constant nurse shortages and turnover especially in areas such as ICU (Dewanto, 2018; Fogaça et al., 2008; Foglia et al., 2010; Khan et al., 2019; Lee et al., 2015; Mosadeghrad, 2013)

Recruitment of replacement nurses in different nursing units, along with associated training costs, depletes organisational budgets, which can ultimately affect the quality of healthcare provided. It also puts added pressure on nurses to perform at their best with limited resources, thus compounding the problem (AbuAlRub, 2004; Abualrub et al., 2009; Gasparino, 2014; Leiter & Maslach, 2009).

However, other studies have shown that some nurses thrive in a stressful environment, they are even attracted to it (Carter & Tourangeau, 2012; Cope et al., 2016). Eustress can motivate nurses to improve their skills and knowledge and to meet challenges head-on, which they then embrace both physically and psychologically (Carter & Tourangeau, 2012; Cope et al., 2016; De Cooman et al., 2008). Other nurses felt that despite all the stress in their work environment, they still felt rewarded when looking

after patients and their families. They knew they made a difference and what they did was worthwhile even if it was associated with workplace stress, especially as in the ICU nurses are involved in care on a one to one basis, providing a sense of fulfilment and excitement and reducing their level of workplace stress (Fiske, 2018; Tourangeau et al., 2010).

3.5.3. Coping with workplace stress among nurses

How individuals cope with workplace stress has been the subject of much research (Akbar et al., 2016; Ntuli et al., 2018; Tsaras et al., 2018). Lazarus' (1966) conceptual analysis of coping has been the basis of many studies. Lazarus and Folkman's (1984) Cognitive Theory of Stress stated that whether or not a stressful event contributes to a person's negative feelings is influenced by two appraisal processes: That of the threat, and that of how to respond. These interact with the individual's coping response execution (Lazarus & Folkman, 1984).

Coping is the cognitive and behavioural response when dealing with situations believed to have the potential to harm or induce stress (McElfrick et al., 2000). Lazarus and Folkman (1984) presented two principal categories of coping response: Problem-focused coping, the effort required to solve a problem or overcome a stressful situation; and emotion-focused coping, the attempt to reduce negative feelings associated with a perceived threat rather than trying to eliminate the threat. Emotion-focused coping also includes avoidance-coping, where an individual mentally withdraws from having to deal with a perceived threat or problem or diminishes the effects by using substances such as alcohol or drugs (Cohen et al., 2008).

Problem-focused coping is adopted when an individual sees the stressor as being within their power to change; an example is better performance in examinations or other

testing situations (Baggett et al., 1996). Emotion-focused coping is adopted when the stressor is seen as something that can only be endured; for example, a state of anxiety during examinations (Endler et al., 1994).

According to Lambert et al. (2004a), nurses who had revealed their intention to leave the profession found that avoidance-coping was their best strategy, involving simply eluding the sources of workplace stress. Avoidance, denial and distancing are frequently used by nurses to cope with emotionally challenging situations, such as posttraumatic stress disorder (McMeekin et al., 2017). Nurses in acute and critical nursing units use such strategies to cope with the daily rigours of work, which can potentially lead to workplace stress or conflict with colleagues, patients and families (Gutierrez, 2005; Li & Lambert, 2008; Martins & Robazzi, 2009). Many nurses choose not to express their concerns about stress in the workplace for fear of being judged and creating conflict (Verdon et al., 2008).

Evaluating coping outcomes is mainly subjective and difficult to quantify (Lazarus, 2000). Nurses' coping mechanisms usually depend on their situation, age and geography, as well as previous experiences and how they were dealt with (Laal & Aliramaie, 2010; Lambert et al., 2004b; Wakim, 2014). Coping strategies can differ between cultures, which further highlights the influence of it within healthcare systems (Lambert et al., 2004b). Different nursing units and different geographical areas also affect the coping mechanisms that nurses use to deal with workplace stress: In a survey of 1554 nurses, the coping strategies most used by nurses from the USA were problem-focused; however, nurses from Asian countries more frequently adopted emotion-focused strategies (Lambert et al., 2004a). A smaller, subsequent USA-based survey of 135 ICU nurses revealed an equal measure of problem-focused and emotion-focused coping strategies (Hays et al., 2006).

A study by Jannati et al. (2011), that researched Iranian clinical nurses in different nursing units, found that the nurses' religious beliefs were part of their emotion-focused coping strategies—these includes reading the Quran, praying and believing in God. A previous study also described religion and spirituality among nurses in different acute and critical nursing units in two public hospitals in Indonesia as a coping mechanism for dealing with workplace stress (Fathi et al., 2012).

This variation underlines the problems faced when studying coping mechanisms and shows why stress management needs to be tailored to different nationalities, as different cultures and nursing units have different ways of coping.

Prolonged workplace stress, without an effective coping strategy, will not only affect how a nurse perceives his or her working life, but is also likely to have a detrimental effect on his or her nursing skills (Fathi et al., 2012). Nurses who use effective coping strategies tend to enjoy their work and increased their job satisfaction (Welbourne et al., 2007). Furthermore, personal motivation has been closely associated with quality of work and is an important issue in job satisfaction (Mbindyo et al., 2009).

Numerous factors have been shown to affect the ability to cope. This can include an individual's personality traits, resilience as well as personal and professional experience (Ablett & Jones, 2007; Wakim, 2014), along with social and organisational support (Ekedahl & Wengstrom, 2006; Fitch et al., 2006). Thus, while some nurses can effectively cope with workplace stress, others are unable to do so (Akbar et al., 2017; Quattrin et al., 2006) as they do not have the necessary resources.

Individual personality traits, resilience and social support affect the ability to cope, along with the associated work efficiency and effectiveness (DeLongis & Holtzman, 2005), the perception of whether or not something is stressful (Gunthert et al., 1999),

and the ability to utilise specific coping strategies (David & Suls, 1999; DeLongis & Holtzman, 2005).

Several studies reveal that there are various personal characteristics that affect how individuals cope with workplace stress (DeLongis & Holtzman, 2005; McCrae & Costa, 1986); therefore, the ability to cope with an identical situation can vary between nurses. Problem-focused coping strategies that can lower levels of workplace stress include agreeableness, openness and extroversion (Chwaszcz et al., 2018; Xu et al., 2017). Individuals with these character traits report experiencing lower levels of workplace stress when dealing with challenging patients and that workplace stress has little effect on the standard of their work (Hudek-Knezevic et al., 2011). However, individuals prone to neuroticism tend to have greater workplace stress, for example, due to role conflict and workload (Gunthert et al., 1999; Hudek-Knezevic et al., 2011).

Effective coping with adversity is called resilience (Macedo et al., 2014; Tugade & Fredrickson, 2004). Resilience is characterised by the ability to absorb high levels of workplace stress without demonstrating dysfunctional behaviour (Werner, 2004). Resilience among nurses is seen to have a negative association with workplace stress and a positive association with job satisfaction (Ablett & Jones, 2007; Dagdeviren et al., 2015; Judkins & Rind, 2005; Kim et al., 2011; Tugade & Fredrickson, 2004). Resilience is recognised as having a positive correlation to a reduction in the propensity for anxiety and depression among nurses (Mealer et al., 2012). Certain individuals are naturally resilient as they have character traits that contribute to predictors of it (Leys et al., 2018; Oshio et al., 2018). Individuals who lack these traits have to develop their own coping mechanisms (Elqerenawi et al., 2017; Leys et al., 2018).

Social and organisational support have been shown to be beneficial to reducing the effects of stressful events and can lead to an improvement in an individual's health and

wellbeing (Jesse et al., 2014; Reeve et al., 2013); this can be provided by formal or informal social networks (Wedgeworth et al., 2017). Social support, such as positive interpersonal exchanges with immediate colleagues and supervisors, has been associated with providing a sense of enhanced security, mutual respect, job satisfaction, and organisational commitment, all factors linked to reducing workplace stress (Amarneh, 2017; Lambert & Hogan, 2009; Meng, 2005).

Oksuz et al. (2018) stated that social support is essential for nurses, as it enables them to turn to others to help deal with workplace stress and improve their performance. AbuAlRub (2004) examined the effect of workplace stress on nurses' performance and the effect of social support among 263 American hospital nurses and 40 non-American nurses. The findings revealed that the 'best performers' tended to have a greater level of workplace support and lower workplace stress. This is similar to another study among 365 Jordanian nurses which showed that workplace support has a positive effect on job performance (Amarneh, 2017).

Organisational support for nurses has been identified as a crucial factor for improving the overall quality of patient care (AbuAlRub, 2004; Aiken et al., 2011; Aiken et al., 2013; Amarneh, 2017). A study suggested that providing education on the benefits of and need for good teamwork, effective communication and workplace stress management reduced the levels of workplace stress and improved the nurses' performance in various nursing units, including the ICU (Al Marashi & Al Zghool, 2018; André et al., 2016; Ervin et al., 2018; Gluyas, 2015; Hamaideh & Ammouri, 2011). Good communication and effective collaboration have been associated with nurses' loyalty and attachment to their place of work and this improves nurse retention (Aiken et al., 2011; Aiken et al., 2013; Nicotera et al., 2015; Townsend-Gervis et al., 2014). Nurses who work in a hospital with a good work environment are

less likely to experience workplace stress and dissatisfaction with their work, and are less likely to leave their nursing position (Aiken et al., 2011). This may be particularly important in a healthcare system where cultural diversity is prevalent (Hunt et al., 2012).

3.6. Summary of the literature review

The first section of the chapter has reviewed the available literature on stress; it has a different meaning for different people under different conditions. The section then described stressors and how these can be divided according to the period of time of the stress or to the nature of it. The section then examined workplace stress, how levels of it can vary depending on the nature of the work and how nursing is a profession with higher levels of workplace stress than other professions, particularly among nurses who work in ICUs. Sources of workplace stress were identified, as well as the differences between adult ICUs and PICUs.

Furthermore, studies on the consequences of workplace stress in the field of nursing were explored, including the relationship between workplace stress and the quality of nursing care. The evidence suggests that the more nurses are stressed, the less effective they are. Workplace stress, in other words, can have an impact on the quality of the nursing care provided. However, studies that compare workplace stress across cultures and within different nursing units show differences in perspectives.

The conclusion of this section is that studies have been undertaken that outline coping mechanisms for nurses who have workplace stress. These studies show variations regarding coping mechanisms and why stress management has to be tailored to individual nationalities.

Despite these differences, the variations in the findings outlined in this literature review highlight the importance of studying such problems in SA. Stress may be seen in a different light, depending on the individual's background or environmental context. This may be particularly important in a healthcare system where cultural diversity is prevalent, such as among the nursing workforce in SA. Thus, the need for a systematic literature review related to workplace stress in SA was needed. The following section provides a synthesis of the studies relating to workplace stress in different nursing units in SA.

3.7. A systematic literature review of workplace stress among nurses in Saudi Arabia

Using a systematic approach, the researcher conducted a systematic review of nursing related to workplace stress studies in SA. This approach facilitated the consideration of the breadth of the topic, allowing the researcher to embrace different study designs whilst also adhering to the three principles of scientific practice — rigor, transparency and replicability — thus enhancing the quality and strength of the review (Arksey & O'Malley, 2005; Gough & Elbourne, 2002; Jahan et al., 2016; Mallett et al., 2012). In addition, conducting a systematic review enabled the focus to be firmly embedded in empirical evidence rather than preconceived knowledge (Mallett et al., 2012; Pae, 2015).

The aim of this systematic review was to identify and critically examine previous studies related to workplace stress amongst nurses in SA. The purpose was to synthesise the results in order to answer the following review question: Is there evidence of workplace stress amongst nurses in SA?

This systematic literature review helped to inform the research study from different nursing perspectives and highlight the ‘gap’ in knowledge, specifically in terms of nursing in PICUs in SA.

3.8. The methodology of the systematic literature review

The systematic literature review identified quantitative and qualitative studies using a search strategy based on clear inclusion criteria. As part of the review, relevant articles were assessed for quality, summarised and interpreted (Mallett et al., 2012).

3.8.1. Search strategy

Search terms related to the title of the present research study were entered into certain health-related databases, including CINAHL, PubMed and Scopus (Table 3.2). Relevant background reading was completed to facilitate the development of the search terms. With the help of an information manager at the UH, the search terms were discussed and edited to create a list of the most relevant ones for entry into the databases. As advocated by Grewal et al. (2016), a systematic literature review was conducted using the search term list using Boolean operators with or without asterisks to include all the derivatives of the terms. This search was an iterative process undertaken by the researcher throughout the PhD nursing programme. A summary of the search results has been tabulated in Table 3.2, including the number of ‘hits’ and the date range.

Table 3.2: Preliminary databases search results

Databases	Number of hits	Date range
The search terms included: ('nursing staff' OR 'nurse*' OR 'healthcare workers' OR 'registered nurse' OR 'nurse staff' OR 'nursing' OR 'healthcare provider' OR 'RN') AND ('job stress' OR 'work stress' OR 'stress in the workplace' OR 'occupational stress' OR 'workplace stress' OR 'stress' OR 'distress' OR 'stressors' OR 'stress source*' OR 'source* of stress' OR 'job distress' OR 'work distress' OR 'occupational distress') AND ('Saudi Arabia' OR 'SA' OR 'Saudi' OR 'KSA' OR 'Kingdom of Saudi Arabia').		1 May 2016–15 December 2019
CINAHL	101	
PubMed	356	
Scopus	350	
Total searched	807	

An additional search employed the snowballing technique to look at references from articles found in the database searches; in addition search engines including Google and Google Scholar as well as websites such as Saudi Nurses Association (King Abdullah University), and the UH online library, were employed to obtain other relevant articles and integrate them into the initial search results.

Another search was used to determine relevant MeSH terms. The abstracts and the titles of the articles identified in the databases, search engines and websites were processed via the MeSH thesaurus, produced by the USA National Library of Medicine, in order to keep the terminology standardised. This controlled vocabulary is used to index health-related documents. The MeSH generated terms from the abstract, titles and keywords of articles, and the vocabulary itself, had a hierarchical structure with different levels of specificity. The most general level had very broad headings, such as 'stress'. However, narrower levels of the hierarchy had more specific headings, such as 'burn out', 'professional', which corresponded to the broader headings (Table 3.3).

MeSH terms were used in PubMed and CINAHL databases; however, Scopus does not have a MeSH feature. Most databases will accept the symbol * as a truncation.

Table 3.3: Relevant MeSH terms used

MeSH Terms		
Nurse	Stress	Saudi Arabia
Nursing	Work stress	Kingdom of Saudi Arabia
Nursing staff	Workplace stress	SA
RN	Work-related stress	KSA
Registered nurse	Job stress	Saudi
Healthcare worker	Job-related stress	Arabia
Healthcare workers	Occupational stress	Arab
Allied healthcare workers	Occupational health services	Arabs
Allied healthcare professionals	Stress, psychological	Arabic
Health personnel	Professional stress	Middle East
	Burn out, professional	

Initially, in the search strategy for the systematic literature review, ‘PICU’ and related terms (such as ‘paediatric intensive care unit’, ‘paediatric critical care unit’, ‘pediatric intensive care unit’, ‘pediatric critical care unit’, ‘PICU’, ‘critically ill children’ and ‘child’) were included in the databases as well as the MeSH terms (including ‘PICU’, ‘paediatric intensive care’, ‘paediatric intensive care unit’, ‘pediatric intensive care’, ‘pediatric intensive care unit’, ‘intensive care’, ‘intensive care unit’, ‘critical care’, ‘child’, ‘children’ and ‘humans’). As the literature search revealed that there was a distinct lack of studies related to workplace stress among PICU nurses in SA, the researcher decided, after discussion with a UH Learning Resource Information Manager and her supervision team, that the systematic literature review should explore the studies available that related more generally to workplace stress among nurses in SA. This facilitated a clear understanding of the situation and confirmed the need for PICU related study. Accordingly, this was the aim of the systematic literature review.

3.8.2. Inclusion and exclusion criteria

After recording the number of articles in each database, relevant articles were evaluated according to the inclusion and exclusion criteria. The following criteria were used to determine the inclusion of articles:

- The sample population of articles included male or female nurses who were either from SA or who were expatriates and worked in direct contact with patients on different nursing shifts.
- Research papers with mixed healthcare professional samples, such as nurses and physicians, if the professional groups were analysed and presented separately.
- The sample population environment was defined to include nurses working in hospitals in different SA healthcare sectors and in all types of nursing units in SA.
- Only peer-reviewed research articles, published between 2009 and 2019 were included. The nursing experiences within this date range were expected to be comparable because there were no major changes in terms of the medical environment or medical advancements.
- Only peer review articles written in English were selected-medical and nursing journals published in SA are all written in English.

Table 3.4 summarises the inclusion and exclusion criteria used for the selected articles.

Table 3.4: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Population	
<ul style="list-style-type: none"> • Nurses in direct patient care working in different nursing shifts • Nurses from SA or expatriates • Male or female • If the sample was mixed with other healthcare professionals, such as nurses and physicians, the article was included if the authors analysed group each separately 	<ul style="list-style-type: none"> • Healthcare professionals other than nurses • Nursing students • Nurses who only performed administrative duties, such as charge nurses or nurse supervisors or who performed administrative tasks with being involved with patient care. • Nurses who permanently work on one nursing shift • Nurses who work in PHCC or the Outpatient Department (OPD)
Environment and setting	
<ul style="list-style-type: none"> • Hospitals only • All hospitals in different healthcare sectors • All nursing units • Any city in SA • If the sample was mixed with countries other than SA, the article was included if the authors analysed each country separately 	<ul style="list-style-type: none"> • Nurses who worked outside hospitals, such as in a community setting or at a PHCC • Countries outside of SA
Publication date and characteristics	
<ul style="list-style-type: none"> • Published between 2009–2019 • Free to UH or could be requested via the British Lending Library • Peer reviewed 	<ul style="list-style-type: none"> • Abstract only • Unpublished • Not free to UH–i.e. there was a charge to the researcher • Incompletely published • Dissertation
Language	
<ul style="list-style-type: none"> • English 	<ul style="list-style-type: none"> • Languages other than English

In Figure 3.1 below, the PRISMA flow diagram shows the selection and extraction process for the relevant articles.

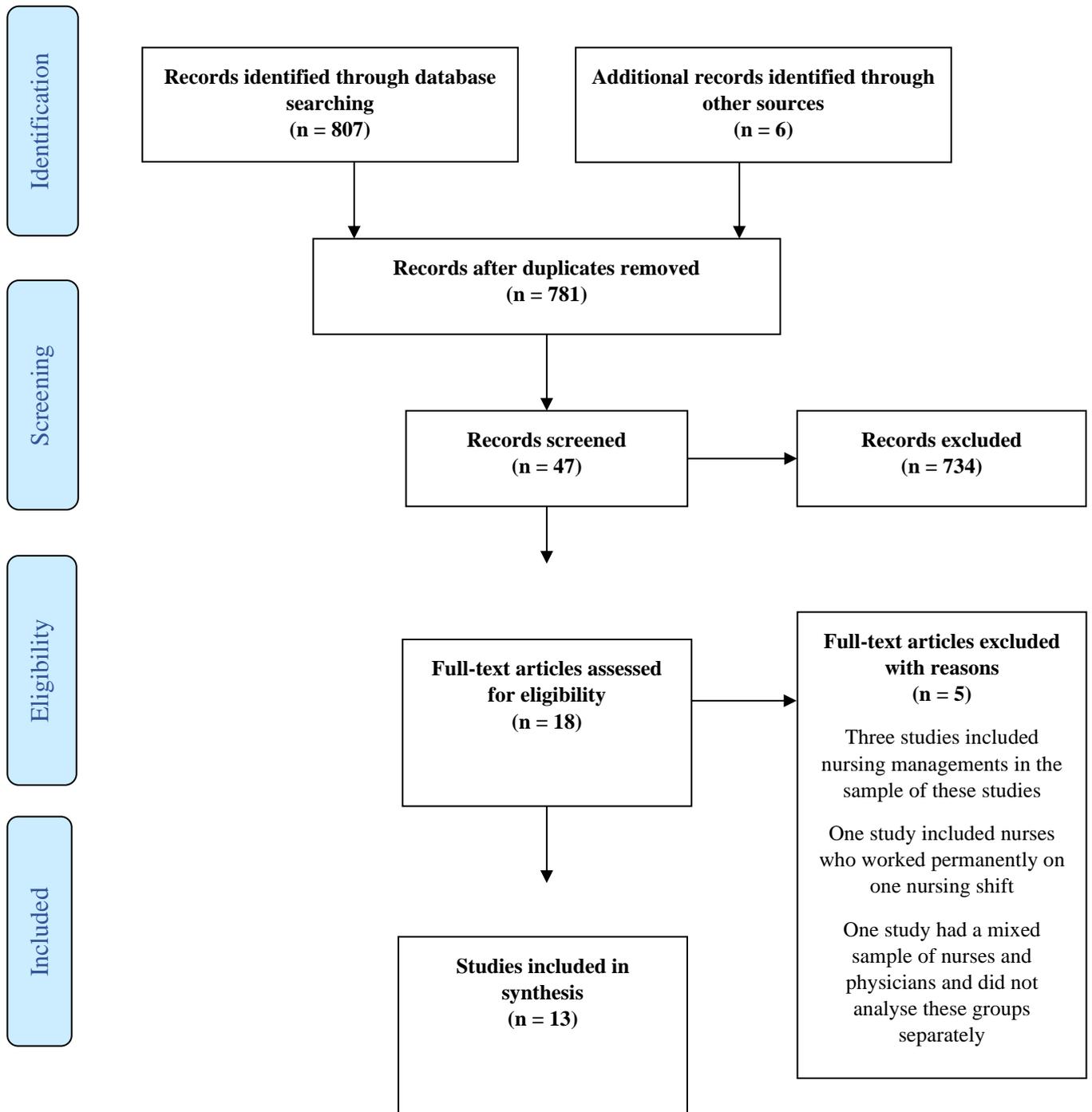


Figure 3.1: PRISMA 2009 flow diagram of the process of study selection for the systematic literature review

3.8.3. Outcomes

As a result of the selection and extraction process, 13 relevant articles were selected to answer the systematic literature review question. The primary database searches yielded seven articles relevant to the research study topic, while the remaining six were retrieved from the additional search engines (i.e. Google Scholar).

3.8.4. Quality assessment

Firstly, based on the inclusion criteria, the selected articles were appraised for quality using the Critical Appraisal Skills Programme (CASP) checklists. These tools are used to determine the structure of an article's methodology, such as the qualitative or cohort checklist (to account for cross-sectional or qualitative studies; Singh, 2013). Secondly, each article was assigned a quantitative value and classification using the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields checklist (Kmet et al., 2004). This tool provides a standard reproducible criterion for simultaneously critically appraising articles within the health sciences and allowing for the generation of a quantitative summary score value to facilitate quality comparisons between studies. The checklist assessment included 14 questions addressing topics ranging from the study objective to the conclusion. Responses of 'yes', 'partial', 'no' or 'not applicable' were assigned scores of 2, 1, 0 or 'not applicable' respectively. The 'not applicable' scores were excluded from the calculation of the summary score. A summary score for each paper was generated using an equation: $(\text{number of yes responses} \times 2) + (\text{number of partial responses} \times 1) = \text{Total sum}$, $28 - (\text{number of not applicable responses} \times 2) = \text{total possible sum}$, then calculate the summary score = $\text{total sum} / \text{total possible sum}$. This provided a comparative indication of individual article quality, with scores closer to one indicating a higher

degree of quality. The results of the quality assessment indicated that all studies were of similar credibility (Table 3.5).

After evaluating the articles for quality, the papers were synthesised by a single reviewer, i.e. the researcher. This interpretation of the studies is discussed in the following section, and highlights the knowledge ‘gap’ as well as the need for this research study.

Table 3.5: Quality assessment ratings for the relevant articles included in the systematic literature review

Author and year		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Summary Score
1	Alomani (2016)	Red	Yellow	Red	Yellow	Red	Red	Red	Green	Red	Yellow	Red	Red	Yellow	Yellow	0.25
2	Al Hosis et al. (2013)	Green	Green	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Yellow	Red	Yellow	Yellow	0.39
3	Muhawish et al. (2019)	Yellow	Green	Green	Yellow	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Green	0.46
4	Mansour et al. (2014)	Green	Green	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Yellow	Red	Red	Yellow	Yellow	0.39
5	Wazqar (2018)	Green	Green	Green	Green	Red	Red	Red	Green	Yellow	Yellow	Red	Red	Green	Green	0.57
6	Alharbi and Alshehry (2019)	Green	Green	Green	Green	Red	Red	Red	Green	Green	Green	Yellow	Red	Green	Green	0.68
7	Humaida (2012)	Green	Green	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Yellow	Red	Red	Yellow	0.36
8	Karkar et al. (2015)	Green	Green	Yellow	Yellow	Red	Red	Red	Green	Yellow	Yellow	Yellow	Red	Green	Yellow	0.50
9	Rayan et al. (2019)	Green	Green	Green	Green	Red	Red	Red	Green	Green	Yellow	Yellow	Red	Yellow	Green	0.61
10	Sayed and Ibrahim (2012)	Green	Yellow	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Yellow	Red	Yellow	Yellow	0.36
11	Kamal et al. (2012)	Green	Yellow	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Yellow	Red	Yellow	Yellow	0.36
12	Saleh et al. (2013)	Green	Yellow	Green	Yellow	Red	Red	Red	Yellow	Yellow	Red	Yellow	Red	Yellow	Yellow	0.39
13	Al-Homayan et al. (2013a)	Red	Yellow	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Red	Red	Red	Yellow	0.21

Note: Colours relate to the yes (green), partial (yellow) and no (red) classifications of the tool.

3.9. Description of the relevant studies included in the systematic literature review

Eleven articles were quantitative cross-sectional studies (Alharbi & Alshehry, 2019; Al-Homayan et al., 2013a; Humaida, 2012; Kamal et al., 2012; Karkar et al., 2015; Mansour et al., 2014; Muhawish et al., 2019; Rayan et al., 2019; Saleh et al., 2013; Sayed & Ibrahim, 2012), and two were qualitative studies (Alomani, 2016; Wazqar, 2018). All 13 investigated workplace stress among nurses in different nursing units; however, five focused on speciality nurses' perspectives of workplace stress, including ICU (Alharbi & Alshehry, 2019; Muhawish et al., 2019; Sayed & Ibrahim, 2012), oncology (Wazqar, 2018) and haemodialysis (Karkar et al., 2015) nurses. Some of the studies focused on the relationship between workplace stress and job satisfaction (Kamal et al., 2012; Mansour et al., 2014; Muhawish et al., 2019; Saleh et al., 2013) and some identified the consequences of workplace stress on nurses' health and the quality of nursing care related to job performance (Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Humaida, 2012; Karkar et al., 2015; Kamal et al., 2012; Wazqar, 2018). Two of the studies mentioned coping methods for workplace stress in the context of haemodialysis nurses (Karkar et al., 2015) and ICU nurses (Alharbi & Alshehry, 2019).

All 13 included studies were conducted in SA in different cities and regions across SA, including one in the Al-Qassim region (Al Hosis et al., 2013), four in the Makkah region (Kamal et al., 2012; Rayan et al., 2019; Sayed & Ibrahim, 2012; Wazqar, 2018), one in the Northern region (Humaida, 2012) and two in the Eastern region (Karkar et al., 2015; Saleh et al., 2013). The remaining five studies took place in the Riyadh region (Alharbi & Alshehry, 2019; Al-Homayan et al., 2013a; Alomani, 2016; Mansour et al., 2014; Muhawish et al., 2019).

3.9.1. Description of participants' characteristics

A total of 1663 nurses participated in the 13 studies investigating workplace stress in different acute and critical nursing units and its consequences on nurses' health and performance. They were the sole participating healthcare professional group in all studies. Of the 13 studies, 10 were conducted among nurses in public hospitals in acute and critical nursing units, including ICU (Alharbi & Alshehry, 2019; Al-Homayan et al., 2013a; Alomani, 2016; Humaida, 2012; Kamal et al., 2012; Karkar et al., 2015; Mansour et al., 2014; Rayan et al., 2019; Saleh et al., 2013) and one (Sayed & Ibrahim, 2012) compared nurses' perspectives in the ICU between public and private hospitals. Two studies were conducted in OGA hospitals and aimed to identify the perspectives of nurses towards workplace stress in ICU and oncology units (Muhawish et al., 2019; Wazqar, 2018). Table 3.6 provides a summary of the specific details of studies used in the systematic literature review, including samples and their settings.

3.9.2. Description of instruments used to measure workplace stress

The following instruments were used in the quantitative, cross-sectional studies included in the systematic literature review to measure workplace stress, as shown in table 3.7:

- Three studies used a questionnaire developed by the authors
- One study used the Nursing Stress Scale (NSS; Gray-Toft & Anderson, 1981)
- Three studies used the Expanded Nursing Stress Scale (ENSS; French et al., 2000)
- Two studies used the Perceived Stress Scale-10 (PSS-10; Cohen et al., 1983)
- One study used the occupational stress scale (Mersal, 2002)
- One study used the Health Professions Stress Inventory (HPSI; Wolfgang, 1988)

The two qualitative studies included in the systematic literature review included semi-structure questions developed by the authors.

Table 3.6: Description of relevant included studies in the systematic literature review

Author/year	Study aim	Sample and setting	Methodology	Main observations and findings	Quantities study	Qualitative study	Focus on nursing specialty
1. Alomani (2016)	Identify the primary sources and effect of workplace stress among medical and surgical ward nurses in SA public hospitals.	15 nurses in three public hospitals in Riyadh city.	Semi-structured interviews.	The majority of the nurses expressed high levels of workplace stress, and the major sources of workplace stress were workload, emotional demands and work-home conflict. The majority of nurses stated that workplace stress had a statistically significant negative impact on their mental health and increased their intention to leave their job.		✓	
2. Al Hosis et al. (2013)	Explore the effects of workplace stress on the physical and mental health of SA nurses working in public hospitals in Al-Qassim region of SA.	152 SA nurses working in four public hospitals in Burida city in Al-Qassim region.	A cross-sectional study used nurses' socio-demographic characteristics, work characteristics, occupational stress scale and work Stress Symptom Scale.	The most common sources of workplace stress for SA nurses was due to job pressure, followed by poor rapport with managers. Workplace stress had a statistically significant relationship between it and mental problems and physical problems and marital status of SA nurses. The majority of SA nurses suffered from a low level of workplace stress.	✓		
3. Muhawish et al. (2019)	Identify the different sources of workplace stress in a hospital that affects nurses' job satisfaction and examine how these two variables are correlated with each other.	150 SA and expatriate nurses in an ICU in one OGA hospital located in Riyadh city.	A cross-sectional study used nurse demographic form and ENSS and the Job Satisfaction Scale (JSS).	A high level of workplace stress, and the most sources of workplace stress included criticism and conflicts and discrimination, which negatively affected job satisfaction (low job satisfaction was a result of high workplace stress among nurses).	✓		✓ (ICU)

4. Mansour et al. (2014)	Investigate the presence of workplace stress and its impact on nurses' job satisfaction.	100 SA and expatriate nurses in two public hospitals in Riyadh city.	A cross-sectional study used demographic questions, NSS and the JSS.	The majority of nurses perceived their work from occasional to frequently stressful. Authors found a statistically significant relation between level of perceived workplace stress and level of job satisfaction.	✓		
5. Wazqar (2018)	Explore and understand workplace stress and its sources among oncology nurses in a SA university teaching hospital.	14 SA and expatriate nurses working in oncology in OGA hospital in Jeddah city.	Semi-structured Interviews.	Nurses expressed high levels of workplace stress. Sources of workplace stress included workload and nurses shortage, emotional demands, lack of social support, language barriers, lack of respect from patients and family members and cultural differences.		✓	✓ (Oncology)
6. Alharbi and Alshehry (2019)	Examine perceived workplace stress and coping behaviours among nurses in ICU in SA and the influence of coping mechanisms on workplace stress.	154 ICU nurses from two public hospitals in Riyadh city.	A cross-sectional study used demographic form, PSS-10 and the Brief COPE Inventory.	The majority of the nurses reported a medium level of workplace stress. Nurses in cardiac ICU (CICU) indicated higher levels of workplace stress compared to those in surgical ICU, and the relationships were statistically significant different between workplace stress and type of ICU. Religious and faith was the most common coping behaviour among nurses in ICU.	✓		✓ (ICU)
7. Humaida (2012)	Examine the relationship between workplace stress and psychosomatic complaints among nurses in Tabarjal hospital in SA.	56 nurses in a public hospital (Tabarjal Hospital) in the Northern region.	A cross-sectional study used a self- developed questionnaire.	The results revealed that nurses have suffered from high levels of workplace stress, and there was a statistically significant different between workplace stress and psychosomatic complaints among nurses.	✓		
8. Karkar et al. (2015)	Determine the type and level of workplace stress and the amount of burnout among haemodialysis nurses and evaluate the managing skills and the impact of workplace stress on their work performance.	93 SA and expatriate nurses in a haemodialysis unit in one hospital in Dammam city.	A cross-sectional study used modified stress and burnout questionnaires.	Majority of nurses experienced a low level of workplace stress. The most common source of workplace stress was technical breakdowns of machines and job insecurity and demanding patients. As a consequence of workplace stress, nurses were frustrated and had increased sick leaves. The most utilized coping skill was relaxation methods.	✓		✓ (Haemodialysis)

9. Rayan et al. (2019)	Identify the sources of workplace violence, examine the relationship between burnout in nurses and the sources of workplace stress and workplace violence and identify the measures of nurses to effectively handle and mitigate these issues during Hajj season.	118 SA and expatriate nurses in a public hospital in Makkah city.	A cross-sectional study used demographic questionnaires, PSS 10, the Maslach Burnout Inventory and the modified version of the Joint Programme on Workplace Violence in the Health Sector.	Participants reported high levels of workplace stress and burnout. Nurses identified violence as a source of workplace stress among nurses.	✓		
10. Sayed and Ibrahim (2012)	Determine sources of workplace stress among ICU nurses in governmental and non-governmental hospitals.	70 SA and expatriate nurses working in ICU from a government (public) hospital in Makkah city and non-government (private) hospital in Jeddah city.	A cross-sectional study used an assessment sheet for demographics and HPSI.	This study revealed that working in the ICU at a governmental (public) hospital is more stressful than at a non-governmental (private) hospital. Additionally, a lack of professional recognition and inadequate work conditions were the most common sources of workplace stress among nurses.	✓		✓ (ICU)
11. Kamal et al. (2012)	Determine the primary perceived sources of workplace stress of nurses and their relationship with job satisfaction in Taif public hospitals in SA.	148 nurses in three public hospitals in Taif city.	A cross-sectional study used demographic sheet, ENSS and JSS.	The majority of nurses suffered from occasional to frequently workplace stress. Dealing with patients and their families followed by workload were the highest sources of workplace stress. Nurses with high workplace stress suffered from low job satisfaction, and the relationship was statistically significant between both.	✓		
12. Saleh et al. (2013)	Determine the main sources of workplace stress affecting nurses and their relationship with job satisfaction.	213 SA and expatriate nurses in a public hospital in Dammam, Eastern region.	A cross-sectional study used demographic sheet, ENSS and JSS.	The majority of nurses were suffering from occasional to frequently levels of workplace stress. The highest source of workplace stress for nurses was death of patients. There was a statistically significant relationship between workplace stress and job satisfaction among nurses at this hospital.	✓		
13. Al-Homayan et al. (2013a)	Evaluate the mediating effect of workplace stress on the relationship between job demands, resources and nurses' performance.	380 nurses in a public hospital in Riyadh city.	A cross-sectional study used questionnaires.	There was a statistically significant relationship among the job demands and nurses' job performance.	✓		

3.10. Synthesis of relevant studies

The review includes a synthesis of the relevant studies and provides information about workplace stress prevalence, its source, personal characteristics of nurses in relation to workplace stress and the consequences of workplace stress among nurses in SA. In addition, ways of how nurses in SA manage or cope with their workplace stress.

3.10.1. Prevalence of workplace stress among nurses in Saudi Arabia

Among the studies included in this systematic literature review, that have evaluated the prevalence of workplace stress among nurses in the SA vary across existing SA studies, with results affirming that the majority of nurses experience a medium to a high level of workplace stress. The majority of nurses reported medium levels of workplace stress (Kamal et al., 2012; Mansour et al., 2014; Saleh et al., 2013). Similarly, in studies specific to the ICU setting, most nurses reported medium levels of workplace stress (Alharbi & Alshehry, 2019; Sayed & Ibrahim, 2012), while other studies found high levels of workplace stress among nurses in nursing units, including specialty areas such as oncology and ICU (Alomani, 2016; Humaida, 2012; Muhawish et al., 2019; Rayan et al., 2019; Wazqar, 2018); however, only two studies from this review, identified that nurses experienced a low level of workplace stress, and none included ICU nurses (Al Hosis et al., 2013; Karkar et al., 2015). No studies reported a majority of no workplace stress amongst nurses working in SA in acute or critical nursing units. It is important to note that many studies on which these findings are based measure prevalence of workplace stress in a range of units/departments and healthcare settings.

3.10.2. Source of workplace stress among nurses in Saudi Arabia

It is evident that workplace stress for nurses working in SA is multi-faceted and stems from organisational to individual origins that have integral influence on the perceived

levels of workplace stress experienced by nurses in SA (Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Kamal et al., 2012; Karkar et al., 2015; Muhawish et al., 2019; Rayan et al., 2019; Saleh et al., 2013; Sayed & Ibrahim, 2012; Wazqar, 2018). In terms of an individual origin of workplace stress in the SA healthcare system, several studies reported sources of workplace stress that included dealing with high dependency, high demands and difficult patients as well as their families-this included ICU nurses (Alomani, 2016; Kamal et al., 2012; Karkar et al., 2015; Muhawish et al., 2019; Sayed & Ibrahim, 2012). A lack of respect from patients and their families towards nurses could lead to violence and abuse toward nurses, which was a source of workplace stress that included ICU nurses (Alomani, 2016; Muhawish et al., 2019; Rayan et al., 2019; Wazqar, 2018). Another key attributor was caring for critically ill and dying patients (once again, this included ICU nurses) (Al-Homayan et al., 2013a; Alomani, 2016; Muhawish et al., 2019; Saleh et al., 2013; Sayed & Ibrahim, 2012; Wazqar, 2018).

In contrast to an individual origin, the organisational and/or environmental factors (i.e. the hospital) was suggested to have an integral influence on the perceived level of workplace stress. Several studies reported a shortage of nurses and workload (this included ICU; Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Kamal et al., 2012; Muhawish et al., 2019; Sayed & Ibrahim, 2012; Wazqar, 2018). Other key contributors were interpersonal conflict, (such as a lack of nurse managerial support and conflict with physicians, both within and outside of the ICU environment; Al Hosis et al., 2013; Muhawish et al., 2019; Sayed & Ibrahim, 2012; Wazqar, 2018). Furthermore, some studies revealed that sexual harassment as well as position discrimination were key contributors to workplace stress-this included ICU nurses (Kamal et al., 2012; Muhawish et al., 2019; Saleh et al., 2013). Only one study

suggested that, when working in the oncology nursing unit, the cultural difference was a contributor to workplace stress for expatriate nurses (Wazqar, 2018).

3.10.3. Personal characteristics of nurses in relation to workplace stress in Saudi Arabia

Based on the systematic literature review, it is clear that there is a varied association between perceived workplace stress and nurses' personal characteristics in SA. For instance, studies that reported an association between gender and levels of workplace stress were inconsistent in their findings; levels of workplace stress have no statistically significant difference between male and female nurses (Alharbi & Alshehry, 2019; Al Hosis et al., 2013; Saleh et al., 2013; Sayed & Ibrahim, 2012); however, in the ICU, females had higher levels of workplace stress than males (Sayed & Ibrahim, 2012); similar to Kamal et al.'s (2012) study identified a statistically significant difference between gender and level of workplace stress among nurses in different acute and critical nursing units in which females had higher workplace stress than males.

It has been previously suggested that older nurses have years of experience that may increase their familiarity in the working environment and may improve their competence in delivering nursing care (Campbell et al., 2004); however, this systematic literature review revealed no statistical significance between age and workplace stress, including for ICU nurses (Alharbi & Alshehry, 2019; Mansour et al., 2014). Whether older nurses experience less workplace stress than their younger peers or whether it is the same, irrespective of age, has not been identified. Regarding nationality and whether SA national nurses experience greater levels of workplace stress when compared to their expatriate nurse colleagues (or the opposite) has not been demonstrated in this systematic literature review.

In comparison to gender, age and nationality, academic nursing qualification did not have a statistically significant relationship with workplace stress in different nursing units (Al Hosis et al., 2013; Saleh et al., 2013), including for ICU nurses (Alharbi & Alshehry, 2019). However, studies have shown that a statistically significant relationship exists between academic nursing qualification and workplace stress among nurses, including those who work in an ICU, indicating that nurses with a Diploma in Nursing have higher levels of workplace stress than those with a BSN (Kamal et al., 2012; Sayed & Ibrahim, 2012).

In terms of years of work experience and workplace stress, there was no statistical relationship (Alharbi & Alshehry, 2019; Al Hosis et al., 2013; Karkar et al., 2015; Sayed & Ibrahim, 2012); however, findings from this systematic literature review suggest a relationship between marital status and levels of workplace stress for nurses working in the SA. Married nurses experienced higher levels of workplace stress, and there was a statistically significant relationship in comparison with their unmarried colleagues (single or widowed; Al Hosis et al., 2013). In relation to environment, this systematic literature review indicated that levels of workplace stress may also be related to the type of unit within which a nurse works. For example, in the ICU setting, it is suggested that nurses working in CICU experience higher levels of workplace stress when compared to surgical ICU settings; the relationship was statistically significant between the type of ICU and level of workplace stress (Alharbi & Alshehry, 2019).

Similarly, a higher level of workplace stress was found among nurses working in a critical nursing unit, such as ER and ICU units, than medical or surgical nursing units, and the difference was statistically significant between the type of unit and the level of workplace stress (Kamal et al., 2012). Conversely, the relation between nursing units

and workplace stress among nurses was not identified between ICU and obstetrics/gynaecology nurses (Mansour et al., 2014).

In addition, the type of hospital had a correlation with the level of workplace stress with a study reporting higher levels of workplace stress among nurses working in the ICU in government (public) versus non-government (private) hospitals. The difference was statistically significant (Sayed & Ibrahim, 2012).

3.10.4. The consequences of workplace stress among nurses in Saudi Arabia

The findings from this review indicated that workplace stress can have numerous negative consequences for both the individual (i.e. nurses) and the workplace/organisational environment (i.e. hospital). On an individual level, it is well-understood that workplace stress has detrimental consequences for both physical and psychological health (Ganster & Rosen, 2013). Indeed, several studies included in this systematic literature review reported various physical health problems, such as back pain, high blood pressure and stomach aches (Al Hosis et al., 2013; Humaida, 2012; Wazqar, 2018).

Similarly, the workplace stress of nurses working in SA can have negative consequences on psychological health. The studies reviewed demonstrated that nurses with higher workplace stress reported higher levels of tiredness, exhaustion, frustration and ability to disconnect from work (Al Hosis et al., 2013; Alomani, 2016; Karkar et al., 2015; Wazqar, 2018).

In addition to the negative consequences on the physical and psychosocial health of nurses, studies reported the negative consequences affecting behavioural health, such as isolation from family, irritation and severe nervousness (Al Hosis et al., 2013; Alomani, 2016). In these studies, it is suggested that nurses with higher workplace

stress are also likely to have more negative effects on their behaviour health, when compared to their less-stressed peers. Nurses with high workplace stress are more likely to report not wanting to chat with their own families and wanting to be isolated. Some reported being irritated and nervous. These consequences lower nurses' family satisfaction.

Based on the systematic literature review, it is evident that at an organisational level, workplace stress amongst nurses working in SA has serious consequential effects for both SA and expatriate nurses, including increased absenteeism and sick leave, increased intention to resign, increased turnover and reduced task and nursing performance (Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Karkar et al., 2015; Wazqar, 2018). Studies have shown a statistically significant relationship between levels of workplace stress in terms of volunteering for additional duties and co-ordination of patient care (Al-Homayan et al., 2013a). Furthermore, it is evident that the negative consequences of workplace stress feed into factors that are considered sources of workplace stress. For example, increased intention to resign and absenteeism from work, secondary to workplace stress, results in nursing shortages, which is in itself a commonly identified factor of workplace stress (Kamal et al., 2012; Wazqar, 2018).

No positive consequence of workplace stress on nurses' health or their performance from the systematic literature review was found.

3.10.5. Job satisfaction

Defined as a positive feeling or attitude towards various aspects of an individual's work or role (Lu et al., 2005), job satisfaction for nurses has been positively associated with patient outcomes and quality of patient care (Adams & Bond, 2000) as well as reduced nursing turnover (Nabirye et al., 2011). The findings from this systematic literature

review consistently demonstrated a negative correlation between workplace stress and job satisfaction amongst nurses working in various nursing units in SA, including the ICU; the difference was statistically significant (Kamal et al., 2012; Mansour et al., 2014; Muhawish et al., 2019; Saleh et al., 2013). Thus, high workplace stress contributes to low job satisfaction among nurses. It is also evident that the sources of workplace stress, such as relationships with supervisors and colleagues as well as workload, play a direct role in the level of workplace stress and thus have a direct consequence on the job satisfaction for nurses working in SA (Kamal et al., 2012; Mansour et al., 2014; Muhawish et al., 2019; Saleh et al., 2013).

Furthermore, while levels of workplace stress may vary according to the personal characteristics of nurses, this review did not reveal any statistically significant relationship between personal characteristics and the degree of job satisfaction. To conclude, the findings from this systematic literature review suggested a relationship between job satisfaction and workplace stress in nurses working in SA.

3.10.6. Coping behaviour

Interestingly, two studies (Alharbi & Alshehry, 2019; Karkar et al., 2015) in this systematic review mentioned managing and coping with workplace stress in the context of haemodialysis nurses; the most utilised coping strategy was relaxation methods (Karkar et al., 2015). For ICU nurses, a study revealed that belief in religion was the most common coping behaviour, while the use of substances was the least common (Alharbi & Alshehry, 2019).

3.10.7. Summary of the main findings of the systematic literature review

The 13 studies included in the systematic literature review demonstrated that examining workplace stress among nurses working in SA is important because there is a need for

further exploration in this field of study. Based on the systematic literature review, it is clear that there is a varied association between perceived workplace stress and nurses' personal characteristics, including gender, academic nursing qualifications and marital status. Also, the type of nursing units resulted in differences in the level of workplace stress. ICU nurses tend to experience higher workplace stress than those in other nursing units, such as medical and surgical areas. The complex work required of nurses working in the ICU makes it an inherently stressful environment.

In addition, this systematic literature review found that the majority of nurses in SA experience a medium to high level of workplace stress. It is important to note that of the three studies that measured the prevalence of workplace stress for nurses working in the ICU, two reported that ICU nurses suffer from a medium level of workplace stress (Alharbi & Alshehry, 2019; Sayed & Ibrahim, 2012) while the other study indicated that ICU nurses suffer from high levels of workplace stress (Muhawish et al., 2019). These studies, however, did not identify whether the ICU units were for adult or paediatric patients. As a result, an accurate estimate of the prevalence of workplace stress among nurses working in the PICU or the adult ICU setting remains unclear. Based on this systematic literature review, it is evident that workplace stress for nurses can be both individual and organisational in nature, and the differences are primarily due to the type of nursing unit in which the nurse works. While there is an overlap of themes within the systematic literature review in terms of the sources of workplace stress, it is worth noting that the ICU nurses in the studies reported on all former sources of workplace stress, including individual and organisational stressors. Both Karkar et al. (2015) and Alharbi and Alshehry (2019) explored ways nurses can manage or cope with their workplace stress, with the former focusing on ICU nurses specifically.

In addition, workplace stress is associated with negative consequences on nurses' health and performance. However, none of the ICU studies in SA examined the consequence of workplace stress on nurses' health or performance and the quality of their nursing care.

The majority of the studies were of poor scientific quality; many were cross-sectional and descriptive in design, thus making an inference of causality impossible (Al-Homayan et al., 2013a; Al Hosis et al., 2013; Kamal et al., 2012; Karkar et al., 2015; Rayan et al., 2019; Saleh et al., 2013; Sayed & Ibrahim, 2012). There were also several heterogeneities in the valid tools used to assess workplace stress. Furthermore, three studies utilised invalidated tools, such as researcher-designed questionnaires (Al-Homayan et al., 2013a; Humaida, 2012; Karkar et al., 2015).

In addition, it was not clear whether the data referred to adult ICUs or PICUs. Thus, whether workplace stress differs between nurses working in these environments remains unclear. It is difficult to draw firm conclusions from these findings regarding ICU nurses as these may include, but are not solely specific to, nurses working within the adult ICU or PICU setting.

3.10.8. Problem statement

Several knowledge 'gaps' emerged as a result of undertaking this systematic literature review. One key area is the few studies related to nurses working in SA in terms of their experiences regarding workplace stress (Alharbi & Alshehry, 2019; Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Humaida, 2012; Kamal et al., 2012; Karkar et al., 2015; Mansour et al., 2014; Muhawish et al., 2019; Rayan et al., 2019; Saleh et al., 2013; Sayed & Ibrahim, 2012; Wazqar, 2018). This lack of studies suggests that scholars have been slow to recognise workplace stress as experienced by nurses in

SA. For the majority of those studies, a quantitative approach was employed, despite including nurses' perspectives toward workplace stress in the SA healthcare system, these few studies did not provide an in-depth understanding of workplace stress among nurses.

Another omission that was revealed through this systematic literature review was that only five studies reported having a specific focus on workplace stress experienced by specialist nurses in SA. One of these studies focused on haemodialysis unit nurses (Alomani, 2016), one looked at oncology nurses' perspectives toward workplace stress (Wazqar, 2018) and three studies focused on workplace stress among ICU nurses (Alharbi & Alshehry, 2019; Muhawish et al., 2019; Sayed & Ibrahim, 2012). None of these studies specifically focussed on PICU nurses. While the review of the literature denotes the prevalence and sources of workplace stress as well as the influence of personal characteristics on nurses in the ICU, it is not associated with nurses working solely in the PICU.

While workplace stress within the ICU in SA had been considered in this systematic literature review (Alharbi & Alshehry, 2019; Muhawish et al., 2019; Sayed & Ibrahim, 2012), interestingly, none of the studies examined the consequence of workplace stress on ICU nurses' health, or on their performance and the quality of care they provided. However, one study examined the consequences of workplace stress on job satisfaction among ICU nurses and reported that a high level of workplace stress is associated with low job satisfaction.

The PICU is a completely different environment, and thus it warrants further exploration in its own right. Providing nursing care to adults is very different from caring for critically ill children. For instance, the breadth of children's developmental spectrum and age range as well as the range of health needs frequently requires a higher

complexity of care. In addition, nurses are expected to care for their young patients as well as support parents and families, calming their anxieties and attending to their needs.

3.10.9. Relevance of the systematic literature review

While the focus of this research study was on determining the workplace stress experienced by PICU nurses in the context of SA, it was imperative to first examine all studies that measured the workplace stress that all nurses in SA typically experience and this was done by undertaking the systematic literature review; evidence in this area is still lacking. Only three of the reviewed articles assessed workplace stress within SA's ICU setting, (Alharbi & Alshehry, 2019; Muhawish et al., 2019; Sayed & Ibrahim, 2012), none of these considered the prevalence of workplace stress and sources or consequences of it in specific relation to the PICU setting. Therefore, the systematic literature review identified an important field of study that required further exploration. Earlier work concerning the manifestations of workplace stress among nurses, particularly those who work in ICUs, provided an understanding of the problems that nurses face when working in these units. These studies also gave a rudimentary understanding of the potential sources of workplace stress that affect nurses who work in ICU and which may be related to nurses caring for critically ill children in the PICU setting. However, the PICU setting itself has not yet been investigated.

In considering the methodology for this research study, the literature review revealed that most studies were cross-sectional and descriptive in design. Some used valid tools to assess workplace stress. Specifically, three studies used the ENSS to study the perception of workplace stress among nurses in both acute and critical nursing units, including ICUs (Kamal et al., 2012; Muhawish et al., 2019; Saleh et al., 2013). Thus,

this was used in Phase 1 of this empirical research study to collect the quantitative data. However, it was recognised that a cross-sectional design would make it impossible to draw inferences of causality of workplace stress among nurses in various nursing units in SA, and thus it was decided that this research study would follow a mixed-methods design using both quantitative and qualitative approaches.

3.11. Summary of the chapter

The systematic literature review showed that workplace stress for nurses is multifactorial in nature; differences are based on the nursing unit, and are usually associated with negative consequences. Studies conducted internationally revealed sources of workplace stress, the impact on nurses' health and the consequences of it on the quality of nursing care. ICU nurses have higher workplace stress than other acute nursing units, however, different ICU units have different sources and challenges for nurses working there. PICU is an inherently stressful environment, however, different cultures have an impact on nurse's perspectives of workplace stress.

The systematic literature review was important in that it identified this research study 'gap' in the SA context and as such it provided a guide for this empirical research study that was the first to examine workplace stress among nurses in the PICU and its consequences on the quality of nursing care.

In the next chapter, the overall methodology used to answer the research study questions is discussed.

Chapter Four: Methodology of the research study

4.1. Introduction

Chapter Four outlines the design of this mixed-methods research study. It begins with a discussion of the philosophical views underpinning the research study and then outlines the sequential explanatory design adopted. Subsequently, the research study setting is described along with the ethical processes undertaken. The chapter discusses Phase 1 (quantitative phase) of the research study, which is followed by an overview of Phase 2 (qualitative phase). Sample sizes, measurement instruments, and testing procedures, together with a rationale for each phase, are explained. The data collection and analysis methods are described, and the issues of validity and reliability, as well as the relevance of these terms to each phase, are considered. The chapter concludes with a discussion of the challenges encountered by the researcher.

4.2. Philosophical foundations

The term ‘paradigm’ was described by Smith (1991) as a group of beliefs, values, and techniques that influence how a given research phenomenon is approached. This is similar to that proposed by others that a paradigm is a group of basic beliefs regarding the principles of the social world and nature (Denzin & Lincoln, 2018). In order to appreciate the design of a given study, therefore, it is necessary to understand the researcher’s beliefs regarding the nature of reality and knowledge and how it can, and should, be assessed.

The philosophical stance adopted in this research study is pragmatism, which is a ‘flexible’ worldview that can help both overcome the weaknesses and utilise the strengths of the contrasting philosophies of positivism and constructivism. Positivists

believe that; *“knowledge about the social world can be obtained objectively: what we see and hear is straightforward perceived and recordable without too many problems”* (Thomas, 2017 p. 108). In their view, scientific, rigorous methods should be used to assess a reality that is a relatively ‘stable’, external, and objective construct independent of individuals’ perceptions. For this reason, positivists usually adopt deductive reasoning, in which a theory or hypothesis, usually based on observable and ‘universal’ knowledge, is tested. Constructivists, on the other hand, believe that realities are multiple, changing, and highly dependent on individuals’ perceptions, or ‘constructions’, of them. To understand the world, therefore, it is necessary to thoroughly investigate these individual perceptions. Constructivists usually adopt deductive reasoning, which involves making inferences and conclusions based on observed or investigated data.

Pragmatism was the dominant paradigm underlying the current research study, as it provides a flexible balance between the contrasting views of constructivism and positivism and reflects the researcher’s beliefs regarding (and approach to investigating) reality. Pragmatism understands reality as being constructed by individuals and gives importance to empirical observations; yet, it still relies on the researcher’s interpretation of the data. Within the pragmatic approach, the existence of certain established social structures are acknowledged, with the recognition of individuals’ role in their construction (Bazeley, 2013; Charmaz, 2014). Thus, pragmatism is a balanced philosophical stance that draws on different data collection methods, such as, in this research study, interviews and questionnaires. Moreover, this approach recognises assumptions in terms of understanding the phenomena, thus enabling them to be linked to more flexible constructivist theories. This is because it is

‘practice-oriented’ and concerned with applying ‘what works’ to achieve the aims of the study, rather than focussing on just one approach or belief (Creswell, 2013, p. 28). These views were evident in the design of this research study, in which questionnaires (Phase 1) and semi-structured interviews (Phase 2) were adopted as the methods of data collection. Therefore, although the pragmatic view of reality being largely constructed by individuals was considered (which is reflected in the selection of the qualitative interview method to gain a more in-depth understanding of the topic), it was also believed that even these ‘subjective’ perceptions are, ultimately, a ‘reconstruction of something that exists’ (Bazeley, 2013, p. 22) and could, therefore, to a certain extent, be assessed through the quantitative methods of Phase 1. In addition, although the researcher recognised that there are certain established structures in the investigated reality that are mostly stable and not dependent on individual points of view and perceptions, even these structures were originally established by individuals. Considering the above views, it was felt that the most effective research design for the purpose of investigating this complex reality was a mixed-methods approach.

4.3. Mixed-methods research

As noted above, mixed-methods research was believed to be an approach that would enable the researcher to effectively investigate reality as it is understood using a pragmatic approach of philosophical pragmatism. The mixed-methods design is known to acknowledge the existence and importance of the physical, natural world as well as the importance of reality and the influence of human experience (Johnson & Onwuegbuzie, 2004). This design served as the overall framework for this research study, encompassing quantitative and qualitative data collection, measurement

instrument selection, and data analysis (Alexander et al., 2008; Cooper & Schindler, 2013; Zikmund et al., 2013).

According to Johnson et al. (2007, p. 123), “*mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration*”.

In other words, in the mixed-methods approach, both quantitative and qualitative methods are combined, and the limitations of one method are addressed by the strengths of the other. This combination of methods provides different perspectives, leading to a more in-depth understanding of a given phenomenon (Creswell & Plano Clark, 2018; Parahoo, 2014). The mixed-methods philosophy and purpose aims to achieve the following: ‘complementarity’, ‘triangulation’, ‘development’, ‘initiation’ and ‘expansion’ (Greene et al., 1989).

The mixed-methods design applied in this research study was based on the premise that neither a quantitative nor a qualitative method alone could sufficiently answer the research study aim and questions. A questionnaire and subsequent face-to-face, semi-structured interviews were used to collect the quantitative and qualitative data, respectively.

Both quantitative and qualitative approaches held equal priority and weight in answering the research study questions and understanding the phenomenon of workplace stress among nurses in PICU in SA. The quantitative method was used to determine the prevalence and sources of workplace stress in the nurses as well as to examine the relationships between the independent and dependent variables. The

qualitative method was used to both assist the explanation and interpretation of the quantitative results and to capture the participants' perceptions of workplace stress sources and their potential consequences on the quality of nursing care. However, in terms of proration and the wordage given in the thesis, the qualitative results (Chapter Six) utilise a larger amount of space to explain the process as well as the results than is allotted for the quantitative results (Chapter Five), which have a more diagrammatic presentation via tables and figures.

The research study process was organised sequentially. First, the quantitative data was collected and analysed (Phase 1), followed by the collection and analysis of the qualitative data (Phase 2). In Phase 2, an iterative approach was used to analysis the qualitative data because the qualitative data analysis begun before the data collection was completed. This kind of mixed-methods design is known as an 'explanatory sequential design' (Creswell & Plano Clark, 2018, p. 77). Here, 'explanatory' refers to the purpose of using qualitative data to further examine the quantitative results, refining and explaining the statistical results of workplace stress by exploring participants' subjective views of it (see Figure 4.1).



Figure 4.1: Sequential explanatory design (adapted from Creswell, 2009)

Although the explanatory sequential mixed-methods design was appropriate to answer the research study questions, it also posed certain challenges. Thus, both its strengths and weaknesses, as applied to this research study, are presented in Table 4.1.

Table 4.1: Strengths and challenges of explanatory mixed-methods design (Creswell & Plano Clark, 2018).

Strengths	Challenges
Phase 1 provided results that provided a good insight into workplace stress amongst PICU nurses in SA.	Each data collection and analysis phase was lengthy, especially during Phase 2 (the qualitative phase).
It was conducted in two sequential phases.	Obtaining ethical approval was time-consuming because the explanatory design was divided into two phases. Moreover, during the qualitative phase, the data collection method was not fully developed until after the quantitative data analysis was accomplished. Based on the quantitative results, the participants in the qualitative phase were identified, and the qualitative method for data collection was identified. It was not until this time that the researcher was able to apply for ethical approval for Phase 2.
The results were presented in two sections, quantitative then qualitative, to help facilitate the reader's understanding of the results.	The researcher could not identify which quantitative results to further investigate in the qualitative phase until quantitative data collection and analysis had been accomplished.
The method applied in Phase 2 was based on the quantitative results. Thus, the explanatory design lent itself to the development of the methods used in the qualitative research study phase.	The researcher's careful consideration was needed to identify the criteria for participant inclusion in Phase 2.

Another important concept that needs to be considered in mixed-methods research is the mixing, combination, and integration of the quantitative and qualitative results (Creswell, 2012; Creswell & Plano Clark, 2018; Ivankova et al., 2006; O’Cathain et al., 2010; Zhang & Creswell, 2013). In this research study, after the quantitative and qualitative data sets had been analysed separately, both results were combined and analysed together. According to Fetters and Freshwater (2015, p. 116), integrating qualitative and quantitative results helps “*produce a whole through integration that is greater than the sum of the individual qualitative and quantitative parts*”. In addition, when results are based on more than one data set, the credibility of the study findings increases (Creswell, 2012; Fetters et al., 2013; Ingham-Broomfield, 2016; Parahoo, 2014).

4.4. Setting

The largest cities in two of the major regions of SA were selected: Riyadh in the Riyadh region and Dammam in the Eastern region. Large cities in SA have a greater number of PICUs and critically ill children in both rural and urban areas; in SA, they are referred to as big-city PICUs. They also employ the highest amount of nurses in both their PICUs and other nursing units. As another aspect of the setting, the type of healthcare sector hospital was considered—this was based on the high percentage of advanced health care services provided at no cost by the government healthcare sector compared with other OGA and PHCS (Almalki et al., 2011a; MoH, 2017). Therefore, the present research study was purposefully conducted in all public hospitals in Riyadh and Dammam that were run by the government healthcare sector and had PICUs.

The six participating PICUs (see Figure 4.2) had similar bed capacities, ranging from 12 to 17 beds; each employed 40 to 65 nurses and supported multicultural and multilingual environments for healthcare professionals. Medical services and intensive nursing care were provided 24 hours a day to child patients within an age range of one day to 14 years in all the PICUs included in the research study. These PICUs cared for critically ill children who had sustained traumatic injuries and/or who had undergone a range of complex progressive medical and surgical procedures.

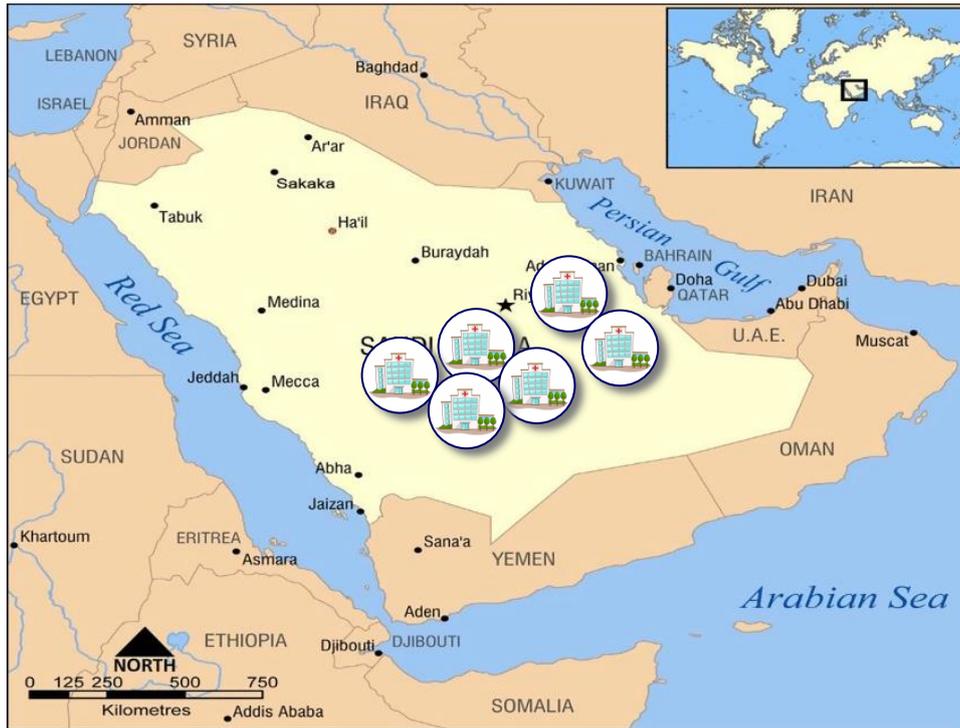


Figure 4.2: Research study settings (adapted from Wikimedia Commons, 2017)

4.5. Ethical approval

Before testing the measurement instruments in the pilot work and applying them in the main research study, the researcher obtained official ethical approval to conduct this research study and collect the data. The researcher contacted the chair of the Health, Science, Engineering and Technology Ethics Committee with a Delegated Authority of the UH in the UK as well as at the MoH Institutional Review Board (IRB) in SA and then submitted the required ethics application. Permission for the quantitative (Phase 1) was granted by the UH on 7th February 2017, and permission for the qualitative (Phase 2) was granted by the UH on 17th October 2017, with the protocol number cHSK/PGR/UH/02682 (see Appendix H). The SA MoH granted permission for both phases on 16th December 2016, with the reference number 16-452E (see Appendix H).

Section 4.8 in this chapter further details the specific ethical considerations and procedures applied in this research study.

4.6. Quantitative phase

4.6.1. The sample

Phase 1 of the data collection involved gathering the quantitative data from participants who met the inclusion criteria and who were selected through a purposive non-probability sample technique. To determine the sample size for Phase 1, the G*Power analysis tool (version 3.1.9.2 beta; Universität Düsseldorf) was used to establish a model fit for the regression with the predictor variables needed to answer the research study questions. Additionally, the power calculation in G*Power was used to estimate the number of participants (i.e. sample size) to avoid type I or type II errors (Jones et al., 2003).

This estimated sample size identified the power of the research study in terms of identifying and detecting statistically significant differences between the groups. This significance is related to the probability of making type I (α) or type II (β) errors. Type I (α) errors, or false positives, indicate the risk of rejecting a null hypothesis that should be accepted (which means that an effect is found where there is no genuine effect); type II (β) errors (or false negatives) indicate the risk of accepting a null hypothesis that should be rejected-meaning that an effect is rejected when it actually exists (Field, 2009; Hair et al., 2014, Kline, 2011). In this research study, regression tests at an alpha significance level of 0.05 were applied and it was determined that a total sample size of 139 nurses would be needed to produce data with an adequate statistical power (0.95) and a medium size effect (f^2 : 0.15; Soper, 2014). In case there was a low response rate relative to the sample size, the researcher included all PICUs in Riyadh and Damman.

Hence, nearly 90% more questionnaires than the minimum sample size estimated were distributed, and a total of 260 nurses working in the six PICUs in public hospitals in both Riyadh and Dammam city were given the questionnaire. This was done to enhance the generalisability of the research study results (Nieswiadomy, 2013).

Potential participants were included in this phase of the research study if they met the following selection criteria at the time of data collection—nurses who:

- Male or female SA or expatriate of any age working as a nurse in one of the selected PICUs on alternating nursing shifts, in which they independently (i.e. without supervision) provided direct care to critically ill children aged one day to 14 years (There were no criteria for the nurses' academic qualifications or for years of PICU work experience in and/or previously outside of SA).
- Had completed the orientation period specified by the hospital to ensure competent performance and familiarity with the workplace environment and that any initial workplace stress, related to a new setting, was not a factor impacting on the results.
- Held an active registered licence from the SCFHS as a nurse in a PICU, meaning that a nurse is eligible to care for child patients at a competent level and is legally authorised to practice in SA.
- Confirmed their ability to read and speak English, which was the prevalent language in the research study setting, so they could appropriately participate without linguistic difficulties.
- Were willing to participate in the research study.

The potential participants were excluded from the research study if they met any of the following exclusion criteria—nurses who:

- Were a charge nurse (i.e. manager), nurses' supervisor, or was otherwise primarily engaged in non-clinical duties in the PICU. These participants were excluded because of the nature of their work, as their sources of workplace stress would be related to non-clinical work responsibilities (different to the sources related to the nature of clinical nurses' work).

- Were not identified as a nurse within a multidisciplinary healthcare professional team.
- Newly recruited in the orientation period at the time of data collection
- Had not yet independently cared for child patients in the PICU.
- Did not have an active registered licence from the SCFHS to work as a nurse in a PICU in SA.
- Did not speak and read English.
- Was permanently on one nursing shift (e.g. only worked morning nursing shifts or only worked evening nursing shifts), so he or she was not familiar with different nursing shift tasks.
- Were on annual leave.
- Were not working as a nurse in the PICU of the selected hospital or working as a nurse outside of the selected setting (i.e. a PICU in public hospitals).

4.6.2. Data collection method

A correlational research study design was used to collect the quantitative data in Phase 1 (De Vaus, 2014; Hair et al., 2014); a questionnaire was chosen as the data collection method to understand workplace stress in this context and the relationships between the participants personal characteristics and workplace stress.

The questionnaire was in English and efforts were made to ensure that the terms used in the questionnaire were understood by the participants. For example, it was written in uncomplicated, clear English, which suited the multinational and multicultural group of nurses working in PICUs in SA, most of whom spoke English as a second language.

The first part of the questionnaire collected the participants' background characteristics, including gender, nationality, academic nursing qualifications, as well as years of PICU work experience in SA and, previously, outside SA (See Phase 1 participants package, Appendix C). Gathering this kind of information is essential in order to develop sample

characteristics (Burns & Grove, 2001). These questionnaire items were derived from the SA literature that examines workplace stress (e.g. Kamal et al., 2012; Saleh et al., 2013; Sayed & Ibrahim, 2012). The items were then formulated by the researcher using a combination of close-ended and open-format (i.e., fill-in-the-blank) questions.

The main body of the questionnaire was comprised of the ENSS (French et al., 2000) (See Phase 1 participants' package, Appendix C). The ENSS is a standardised scale (see Appendix B) that measures workplace stress among nurses and has previously been successfully applied in similar nursing studies in different acute and critical nursing units throughout the world, including in SA (e.g. Al Rasasi et al., 2015; Alsaqri, 2014; Kamal et al., 2012; Saleh et al., 2013; Sarafis et al., 2016).

Permission to use and adapt this tool in the current research study was obtained from the primary author of the original ENSS (see Appendix A). Before applying for ethical approval or conducting the pilot research study, the researcher made a minor modification to the ENSS based on her perception of how to most clearly communicate the questions to the participants. Firstly, the researcher added specific phrases, such as 'paediatric intensive care unit' and 'paediatric patients', to make ENSS specifically relevant to the research study participants (i.e. nurses in PICUs in SA). Also, the term 'sex' was changed to 'gender' to make the wording more culturally appropriate. Additionally, the print layout and scoring structure were edited for clarity and accessibility. The primary ENSS author approved these changes, and after adding the first part of the questionnaire, the ethics application was submitted to the UH ethics committee and the MoH IRB.

All 57 questions in the ENSS section were related to stressful workplace situations and linked to different sources of workplace stress, according to the following nine

subscales: 'Death and dying', 'conflicts with physicians', 'inadequate emotional preparation', 'problems relating to peers', 'problems relating to supervisors', 'workload', 'uncertainty concerning treatment', 'patients and their families' and 'discrimination'. The participants were asked to consider each question as it applied to their work in the present PICU and respond using a six-point Likert scale: 0 = 'Never happened'; 1 = 'Never stressful'; 2 = 'Occasionally stressful'; 3 = 'Frequently stressful'; 4 = 'Extremely stressful', 5 = 'Does not apply'. Thomas (2017, p. 222) identified the use of a Likert scale as a suitable method to measure 'attitudes beliefs or characteristics'. In addition, Likert scales are believed to be visually attractive and straightforward for participants to complete (Neuman, 2011; Robson, 2002). Critics of the Likert scale argue that giving participants too many options can be confusing (De Vaus, 2014) because they may struggle to decide on what level of agreement to select (McDonough, 1997). However, this was less applicable the ENSS six-point Likert scale because it includes four different levels of stress ratings with no mid-point, as well as another two points that relate to the item never happening and that it was not applicable- the researcher felt this would reduce confusion. Table 4.2 outlines the questionnaire's structure.

Table 4.2: Questionnaire structure

Part	Domain	Instrument and author/s	Items
One	Demographic data form, which includes demographic profile and employment background characteristic questions	Developed by the researcher to investigate the relationship between workplace stress, demographic profile data, and employment background characteristics	Five closed questions or ‘fill-in-the-blank’ questions were addressed:
			1. Gender: Dichotomous
			2. Nationality: Multiple choice
			3. Academic nursing qualifications: Multiple choice
			4. Years of PICU work experience in SA: Free text
5. Years of PICU work experience previously outside SA: Free text			
Two	Workplace stress	ENSS (French et al., 2000) to identify sources of workplace stress among nurses in PICU settings in SA	Six Likert-type scale items were used to measure 57 questions under nine subscales
			1. ‘Death and dying’: 7 items
			2. ‘Conflict with physicians’: 5 items
			3. ‘Inadequate emotional preparation’: 3 items
			4. ‘Problems relating to peers’: 6 items
			5. ‘Problems relating to supervisors’: 7 items
			6. ‘Workload’: 9 items
			7. ‘Uncertainty concerning treatment’: 9 items
			8. ‘Patients and their families’: 8 items
9. Discrimination: 3 items			

In addition, the questionnaire asked participants if they were willing to participate in Phase 2 of the research study—to facilitate this they were asked to provide their personal contact information (i.e. name, and contact number and/or email).

4.6.3. Measurement instrument testing

Prior to the main research study, a reference group comprising of five expert nurses (see Section 4.6.3.1) was consulted, and a pilot research study was conducted with 50 nurses (see Section 4.6.3.2) in order to identify potential problems that could arise in the implementation of the main research study. Both the reference group and pilot research study participants had similar characteristics to those of the participants in the main research study. While the former two groups were excluded from the main research study, their feedback helped guide the researcher in testing the feasibility and clarity of the measurement instruments prior to the actual data collection (Zikmund et al., 2013).

4.6.3.1. Reference group

In December 2016, before applying for ethical approval, a group of five expert nurses of different nationalities and backgrounds working in a PICU in a public hospital in SA were contacted by the researcher via personal contact. They were asked to complete the Phase 1 participant package, consisting of the questionnaire and participant information sheet (see Appendix C). The researcher asked the nurses to report any issues related to the clarity of the participant package, such as unclear phrases, professional terminology, or ambiguity. The participant package was revised based on this feedback. For example, one nurse asked why the questions in Section Two of the questionnaire (the ENSS) were not organised under subscales (so that each question would be under a related subscale). Although this feedback was taken into consideration, it was concluded that such an arrangement could cause the participants to assign equal weight to all the questions within a given subscale. The questions in the ENSS are not categorised so as to assign different levels of importance to its nine subscales. Thus, no changes were

made in relation to this. Another nurse suggested that the response ‘Never happened’ (recorded as 0) should be highlighted and included in the score box in each page as an option, as it was written only in the first paragraph of Section Two of the questionnaire (the ENSS section) and, therefore, could be missed by participants. This suggestion was implemented with all response score options, ranging from 0 to 5, being recorded inside the score box on the top of each page. The final observation was that the nurses completed the questionnaires (both Sections One and Two) in 15 to 20 minutes, which was faster than the 30 minutes originally predicted in the participant information sheet. In order to encourage potential respondents, the estimated time for questionnaire completion was altered to 20 minutes. All amendments were made prior to applying for ethical approval.

4.6.3.2. Pilot research study

After the experts had reviewed the questionnaire, and ethical approval was obtained from the UH and MoH IRB (see Appendices H), in March 2017, a pilot research study was conducted. Random sampling was implemented to recruit 50 SA and expatriate nurses working in a PICU. They were based in the same public hospital that was used at the reference group stage, which was a different hospital than that in the main research study. The aims of the pilot research study were to ascertain the clarity and applicability of the measurement instrument, the time taken to complete it, assess the process of quantitative data collection and to identify potential challenges that could arise during the main research study.

Two weeks after distributing the participant package, the researcher posted a reminder poster in the PICU, including deadline and researcher contact information in order to enhance the response rate and create an opportunity to informally communicate with

the nurses in case they had questions. The researcher received 28 completed questionnaires, which constituted a response rate of 56%. According to the collected feedback, all participants found the questionnaire to be clear and understandable, and no changes were required.

4.6.4. Data collection procedures

After the pilot research study, access to the main research study participants was negotiated with the relevant gatekeepers (e.g. hospital managers, PICU consultants, nursing managers, and medical affairs officers) at each hospital. The details of the research study were outlined for these gatekeepers in face-to-face meetings. Next, their written consent was obtained and forwarded to the PICU in order to initiate the data collection by the researcher.

The nurse supervisors assisted the researcher in identifying the number of the potential participants who met the inclusion criteria. They also provided consent to place A4 posters (see Appendix D) in each PICU to advertise the research study.

Subsequently, to get a good attendance with the help of the nurse supervisors, the researcher scheduled an introductory recruitment meeting with potential participants at their respective PICUs, which usually took place during the last 10 minutes of a staff meeting. During these meetings, which were held in English, the researcher introduced herself and the details of the research study, including the purpose, study design, and participant selection criteria. The researcher also discussed anonymity, the issues of confidentiality and answered the potential participants' questions; participant packages (comprising of an invitation, participants information sheets and the questionnaire-see Appendix C) were distributed by the researcher to those who met the selection criteria.

Two weeks after the introductory recruitment meeting, a reminder in the form of a A4 poster (see Appendix D) was placed by the researcher on each PICU bulletin board in the nurses' pantry (i.e. a walk-in food storage cupboard) and in the nursing station to prompt potential nurses to participate in the research study, if interested.

Each completed questionnaire was placed in an envelope that was provided by the researcher, sealed, and then returned to a locked drop-off box that was situated in the PICU and labelled 'workplace stress questionnaires'. Two weeks after the reminder posting (one month after the introductory recruitment meeting), the researcher collected all questionnaires, and posted a note of appreciation on the bulletin boards in the different PICUs, acknowledging the nurses' participation in the research study (see Appendix G).

An additional meeting was held for potential participants who could not attend the first introductory recruitment meeting due to illness, annual leave, or other reasons-the same data collection process was applied. During quantitative data collection, the questionnaires were collected from all six PICUs over a period of three months from 1st April 2017 to 30th June 2017. Figure 4.3 illustrates the data collection procedures used in Phase 1 of this research study.

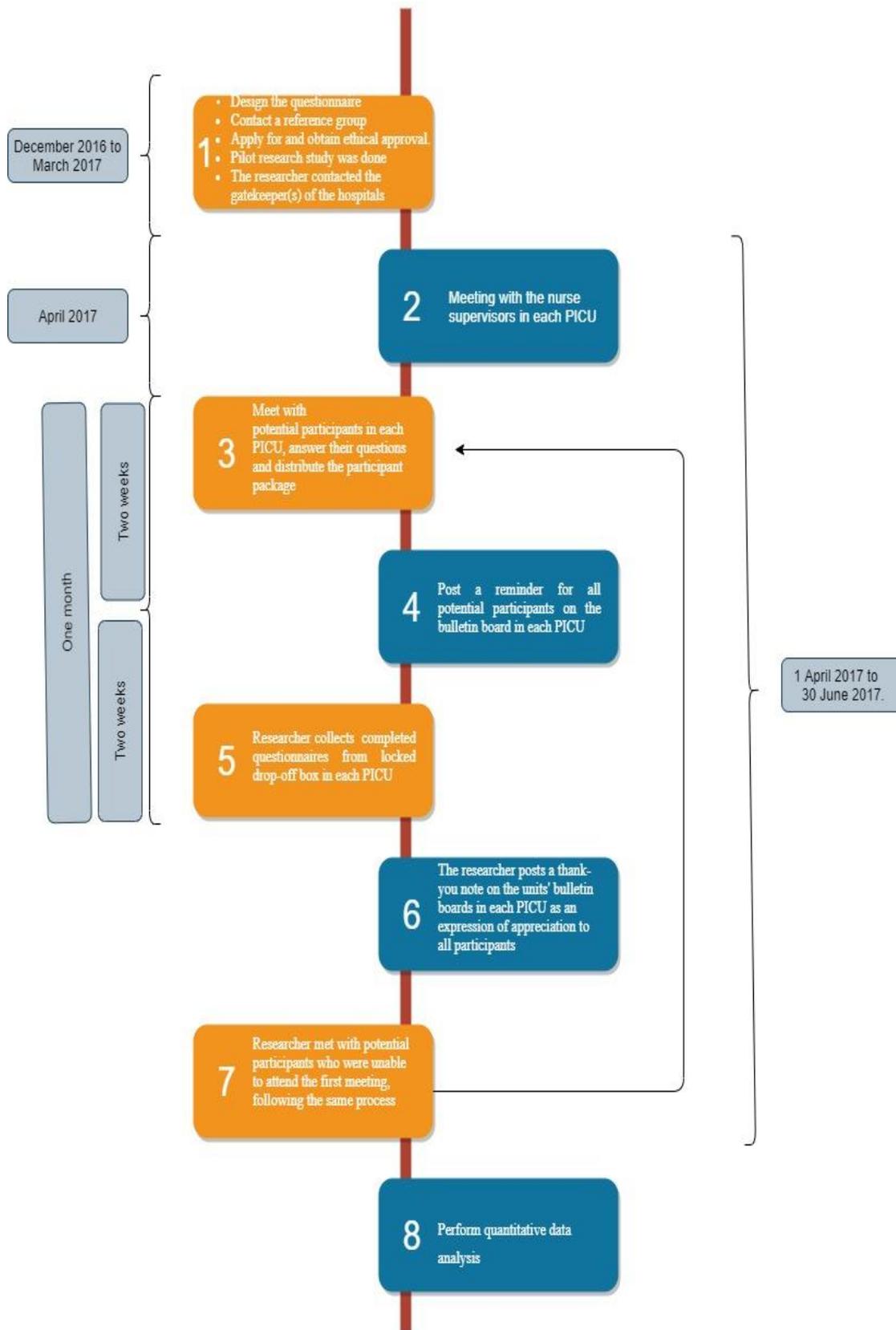


Figure 4.3: Flow diagram of Phase 1 procedures

4.6.5. Securing a high response rate

A high response rate (66.1%) was obtained, as 172 out of 260 questionnaires were returned; this is considered a response rate within a reasonable range (Campbell & Swinscow, 2009). In order to facilitate a high number of returned questionnaires, the following steps were taken.

Firstly, it was believed that organising the face-to-face introductory recruitment meeting and distributing a paper copy of the questionnaire would be more effective than sending an introductory email and asking the participants to fill out online questionnaires. It was thought the participants would be more likely to commit to the research study after they had engaged in personal meetings with the researcher, and, similarly, would be more likely to complete a hard copy of the questionnaire rather than accessing it online. In general, electronic communication is not considered efficient in most SA healthcare systems, especially in public hospitals (Al Asmri et al., 2019); this was also the case in this research study. Healthcare professionals prefer to communicate via memos or other written materials, phone calls, or face-to-face interactions. The researcher therefore decided that an online questionnaire was not practical as a means of quantitative data collection, nor would an introductory email have been so effective.

Secondly, the design of the questionnaire was also believed to play a role. The questionnaire was brief, included plain terminology and well-phrased questions to avoid any participant misunderstanding. The structure of the questionnaire was also made clear to the participants, as it informed them of its length, number of sections, pages, and the expected response format. In addition, the questionnaire was printed single-sided to ensure that no questions were missed. At the end of the questionnaire,

the participants were thanked for their time and instructed where to leave their completed questionnaire.

Thirdly, the participants were aware that participation was voluntary and they were given a considerable amount of time to decide whether they wanted to participate. Following the introductory recruitment meeting, they had one month to consider their participation in the research study and return the questionnaire. It was believed that giving this time, rather than expecting them to make up their minds quickly, may have also resulted in the high response rate.

Finally, while collecting the quantitative data, the researcher posted reminders on the PICUs' bulletin boards. This reminder encouraged the participants to complete the questionnaire before the deadline. On that day, the researcher made herself available in the PICU pantry to answer any additional questions and informally discuss the purposes of the research study and its phases (i.e. the questionnaire and interviews) which overall created greater social transparency. Furthermore, the researcher brought donaata and/or homemade cakes to the nurse's pantry and posted reminders on the donaata and cake boxes, which included the research study title, the researcher's contact information, and the deadline. These treats served as reminders for potential participants who did not attend the pantry while the researcher was present. This informal interaction may also have encouraged the participants to take part in the research study, although it is recognised that this may have also posed a risk of respondent bias during Phase 2 of the research study, as the participants may have provided certain responses to 'please' the researcher due to the development of a 'friendly' relationship between them (Lincoln & Guba, 1985). As Section 4.7.6 demonstrates, however, various steps were taken to reduce threats to validity, including respondent bias.

4.6.6. Quantitative data analysis

4.6.6.1. Preparing the data for analysis

The raw data (from both the first and second sections of the questionnaire) were extracted from the 172 questionnaires and imported into the Statistical Package for Social Science (*SPSS*) version 24 (see Appendix C).

Initial inspection revealed no missing data and no questions received more than one response from any of the participants. Subsequently, each participant's response was assigned a unique participant code number, before coding the data itself (see Table 4.3). The researcher checked all the hard-copy questionnaires against the data entered in *SPSS*. Any data entry errors were edited to clean the data before analysing it.

4.6.6.2. Data analysis procedures

Descriptive, bivariate and multiple regression analyses of the quantitative data were performed (see Table 4.4 for the summary of each). The results were categorised and tabulated using Microsoft Office to produce tables and figures that visualised the data (see Chapter Five for the results of this analysis). Values of $p < 0.05$ and 0.01 were considered statistically significant, and a p value < 0.001 was considered highly statistically significant. For more detailed information about the quantitative data analysis, see Appendix I.

Table 4.3: Coding the quantitative variables

Variables	Code and justification	
Gender	0 = male 1 = female	
Nationality	1 = SA 2 = Indian 3 = Filipino 4 = South African 5 = North American 6 = Australian 7 = British 8 = Malaysian 9 = Egyptian 10 = Jordanian 11 = Pakistani	
Academic nursing qualification	1 = Certificate level program 2 = Diploma in Nursing 3 = BSN 4 = MSc in Nursing 5 = PhD in Nursing 6 = Other	
Years of PICU work experience in SA	1 = 0–10 years 2 = 11–20 years 3 = 21–30 years	The 10-year categories of PICU work experience were developed based on two directives: 1) division of the years of work experience into categories broad enough not to replace an undescriptive linear variable, and 2) division of the years into categories based on the minimum and maximum values of the original variable. In this case, the division into allocations of 10 years allowed for three broad categories that included the entire sample of the research study.
Have you ever worked in a PICU elsewhere?	0 = No 1 = Yes	
Years of PICU work experience previously outside SA	1 = 0–10 years 2 = 11–20 years 3 = 21–30 years	
Total years of PICU work experience (in SA and previously elsewhere); this was calculated by the researcher.	1 = 0–10 years 2 = 11–20 years 3 = 21–30 years	
Scale used for each question in the ENSS	0 = Never happened 1 = Never stressful 2 = Occasionally stressful 3 = Frequently stressful 4 = Extremely stressful 5 = Does not apply	

Table 4.4: Statistical methods used in the quantitative analysis

Statistical Methods	Description
Descriptive statistics	Frequencies, percentages, mean values, standard deviations (SD), minimum and maximum mean.
Bivariate statistics	Frequencies, percentages, mean values, and SD, <i>t</i> -test, analysis of variance (ANOVA), chi-square test, correlation coefficients, and correlation matrix.
Multiple regression analyses	Linear regression analysis and multinomial logistic regression analysis.

4.6.7. Reliability and validity

Reliability refers to the consistency and dependability of a measurement instrument. If a measure is reliable, all items in the measurement instrument perform consistently, and if the measurement instrument is used again with the same participants, the findings will be the same (Griffiths & Murrells, 2010; Tappen, 2011). Validity, in turn, indicates the overall quality of such measures (Bell, 2005) and whether the measurement instruments applied are appropriate for the intended measure.

The original internal reliability of the ENSS that studied workplace stress among 2,280 nurses working in different settings in Ontario, Canada, was measured by identifying its Cronbach's coefficient alpha, which showed an internal consistency and reliability of 0.96 for the total ENSS, ranging from 0.65 to 0.88 for the nine subscales (French et al., 2000).

These subscales included 'death and dying' ($\alpha = 0.84$), 'conflict with physicians' ($\alpha = 0.78$), 'inadequate emotional preparation' ($\alpha = 0.74$), 'problems relating to peers' ($\alpha = 0.70$), 'problems relating to supervisors' ($\alpha = 0.88$), 'workload' ($\alpha = 0.86$), 'uncertainty concerning treatment' ($\alpha = 0.83$), 'patients and their families' ($\alpha = 0.87$), and 'discrimination' ($\alpha = 0.65$), with a total ENSS $\alpha = 0.96$ (French et al., 2000, p. 172).

In this research study, the Cronbach's coefficient alpha was calculated to determine the reliability of the subscales of ENSS and the total ENSS (See section 5.2.2.3 in Chapter Five). The alpha scores ranged from 0.60 to 0.87, with a total ENSS alpha of 0.97. In addition, the reliability of the questionnaire was addressed by taking measures to avoid a biased response by not categorising the questions into themes and by using numbers

for items that reflected both negative and positive wording (Croasmun & Ostrom, 2011).

The validity of the questionnaire was considered through its careful design, piloting the research study and, previously, addressing the reference group's feedback. The ease of implementation of the questionnaire was also tested before the data was collected. Face validity, which refers to the clarity of the questionnaire in terms of language and structure, was achieved. Content validity, which refers to the questionnaire's content being compatible with the aim of the research study and the research study questions (Oppenheim, 1992; Rattray & Jones, 2007) was also assured.

4.7. Qualitative phase

4.7.1. The sample

All participants from the quantitative phase (Phase 1) were invited to take part in the qualitative phase (Phase 2) of the research study. This was done to facilitate Phase 2 data collection and to ensure that enough participants were recruited. Thus, 72 of 172 nurses who participated in Phase 1 expressed a willingness to take part in Phase 2 of the research study.

From this sample, interview participants were purposively selected based on their Phase 1 questionnaire responses in order to complete categories corresponding to their level of workplace stress (low, medium and high), academic nursing qualifications, and years of PICU work experience in SA (see Table 4.5 in the following page and Tables 6.1 and 6.2 in Chapter Six for the participants' personal characteristics and their criteria categories).

Another aim was to include a similar number of nurses from each of the six PICUs- these were merged as one sample set in order to obtain balanced views from several contexts to obtain a deeper understanding of workplace stress. Initially, a sample of 12 participants was recruited with the idea that more would be if the analysis of this data did not produce sufficient and in-depth insight. While selecting the participants for this stage, SA participants and male participants were prioritised because they were minority group and, at the same time, few were interested in participating in the qualitative research phase (this could have been due to scheduling conflicts, cultural influence, an unwillingness to have their voices recorded, or not having understood the benefits of the research study for their work setting). Therefore, the researcher was keen to identify this sample subgroup’s perceptions of workplace stress. Although the number of SA and male nurses was small, this corresponded to the relatively small proportion of SA and male nurses in the SA healthcare system at large as discussed in Chapter Two.

Table 4.5: Number of participants in each criteria category in the qualitative phase

Years of PICU work experience in SA	Academic nursing qualification	Level of workplace stress		
		Low	Medium	High
0–10 years	Diploma in Nursing	Three participants	Three participants	Two participants
	BSN	Three participants	Three participants	Three participants
11–30 years	Diploma in Nursing	Two participants	Three participants	One participant
	BSN	-	-	One participant

Subsequently, as the interview data was being analysed (see Section 4.7.5.2 for details of Phase 2 data analysis), several more participants for Phase 2 were being recruited to

reach theoretical saturation, or “*the point at which gathering more data (...) reveals no new properties nor yields any further theoretical insights*” (Charmaz, 2014, p. 345) into the topic. In this current research study, this saturation point occurred after 24 transcripts had been analysed.

Although some potential participants who had not been involved in Phase 1 expressed willingness to participate in the interview, they were not included, as they had not completed the questionnaire in Phase 1. Additionally, some who had expressed a willingness to participate in Phase 2 were on annual leave during the qualitative data collection period and thus were also excluded. However, the researcher acknowledged all interested parties and expressed her thanks to them.

4.7.2. Data collection method

Phase 2 comprised of face-to-face individual interviews; these were chosen because the research study concerned a sensitive topic and it was felt that the interviewee might not like to express their feelings in a group setting (Mack et al., 2005). An interview has been defined as “*a guided conversation whose goal is to elicit from the interviewee rich, detailed materials that can be used in quantitative analysis*” (Lofland & Lofland, 1984, p. 12). Burgess’s (1984) term “*conversations with a purpose*” captures this rather well (p. 102).

Semi-structured interviews combine the characteristics of both structured and unstructured interviews (Gillham, 2000). They are “*usually organized around an aide memorie or interview guide [interview schedule]*” (Mason, 2004, p. 1020). Semi-structured interviews have an “*informal style*”; however, they are highly dependent on “*the interactional exchange of dialogue*” between the researcher and the interviewee (Mason, 2004, p. 1020).

Eliciting information from the interviewee is facilitated by a schedule that addresses the study questions (Mason, 2018). Silverman et al. (2013) and Seale et al. (2013) state that an interview schedule is a prepared set of questions that guide and provide the key structure of the interview conversation. The schedule does not strictly adhere to a defined agenda but provides the freedom to include follow-up points as necessary (Burns & Grove, 2005), thus allowing more flexibility because the researcher can go from one question to another to follow up on the interviewee's responses in order to clarify incomplete or unclear data responses (Bowling, 2014; Gay & Airasian, 2000; Seale et al., 2013; Silverman et al., 2013).

The “*open, flexible and interactive*” structure (Mason, 2004, p. 1020) of the semi-structured interview encourages the interviewees to openly discuss the phenomenon under investigation and allows the researcher to explore or probe into the issues that interviewee raises (Mason, 2004; Pope & Mays, 2020). This agrees with the logic of data collection explored by Kvale (1996) that found that the semi-structured interview approach interactively generated data.

Mason (2002, 2018) suggested that an interview should take a theme-centred, topic-centred or narrative approach and should be designed to have a flexible structure that starts with a set of questions for discussion. This allows both the researcher and the interviewee to develop unexpected themes or the themes that they would like to cover.

The semi-structured interview helps the researcher “*to gather contrasting and complementary talk on the same theme or issue*” (Silverman et al., 2013, p. 18). Therefore, conducting semi-structured interviews requires more time than other types of interviews to allow the interviewee to speak and reflect (Pope & Mays, 2020).

A face-to-face semi-structured interview was therefore considered the most appropriate Phase 2 qualitative data collection method for this research study; the aim was to gain insight into the experiences of nurses in PICU and their perspectives of workplace stress. The semi-structured mode helped the researcher to achieve this by offering the opportunity for in-depth explanation and clarification of the Phase 1 research study results (Gillham, 2005; Tashakkori & Teddlie, 1998).

The interview schedule was developed by the researcher after the quantitative data were collected and analysed (see Interview Schedule, Appendix F). Similar to the questionnaire in Phase 1, and based on both the pilot research study and the reference group's feedback, the language of the interview was English. The researcher considered the possibility that the participants' various cultural and linguistic backgrounds might present obstacles to comprehension. Therefore, based on the reference group's feedback (see Section 4.7.3.1), several terms initially used in the interview were removed.

Prior to the interview, the researcher set up an audio-recorder on the table close to the participants and informed them of their rights concerning confidentiality, privacy and the voluntary nature of the research study as well as the purpose of conducting the interview (Silverman et al., 2013).

Then, signed informed consent forms were collected from those who had not yet submitted them. Subsequently, a semi-structured audio-recorded interview that lasted for 35–50 min was conducted. The participants were asked general questions about workplace stress and their opinions on it by the researcher. The interview then focussed on more specific questions about the main sources of workplace stress that had been identified in the quantitative results as well as a number of follow-up questions specific

to the participants' accounts. Finally, the participants were asked if there was anything they would like to add before the recording ended.

After the participants left the meeting room, the researcher reflected on the interview in a diary and kept notes about the progress of the interview; this was useful in assessing the progress of the interviews, capturing the context of the setting and the participant as well as the researcher's initial thoughts relating to analysis and emerging themes/sub-themes (Pope & Mays, 2020). Silverman (2017) found that taking notes and tracking the development of the researcher's thinking when conducting a study has substantive benefits in the later stage of writing the study.

4.7.3. Testing the data collection method

4.7.3.1. Reference group

Prior to applying for ethical approval, in September 2017, the interview schedule (see Appendix F) and Phase 2 participant package (see Appendix E) were sent to three SA and expatriate nurses who participated in reference group in the previous phase of the research study. These nurses offered their expertise to assess cultural sensitivity to both SA and expatriate nurses, the appropriateness and relevance of the participant package, the interview schedule, and the clarity of the professional terminology used in the interview questions. Based on their feedback, several interview questions were combined and professional terms that the group deemed confusing were changed (e.g. children and young people was altered to paediatric). Their feedback informed the design of the qualitative research study in terms of adjusting the participant package and interview schedule.

4.7.3.2. Pilot research study

The pilot of Phase 2 of the research study was conducted in November 2017 with two nurses (a SA national and an expatriate) in a PICU in SA to assess the interview process; they were not included in the main research study. The interviews were digitally audio-recorded to capture any challenges that could arise during the main research study interview. This pilot work also helped the researcher assess the clarity of the interview schedule and the professional terminology used in the questions, identify the time it would take participants to complete the interview and determine whether any questions could cause discomfort or stress. Finally, it helped the researcher practice her interviewing skills and gain confidence conducting the subsequent main research study interviews.

4.7.4. Data collection procedures

The nurse supervisor in each PICU provided the researcher with the potential participants' nursing duty schedules. The researcher distributed participant packages, including a return envelope, to all interested potential participants based on their nursing duty schedules (see Phase 2 participants package in Appendix E). The researcher's contact information was also provided in case the participants wished to contact her to ask questions.

Approximately one week after receiving the participant package, the potential participants were asked to return their decision forms if they were still interested in participating. They provided their names, contact information, and a suitable time and date for an interview together with the signed informed consent form and submitted everything by the sealed envelope provided by the researcher through the drop-off box used in Phase 1.

The envelopes were collected by the researcher, and the potential participants' personal contact information was transferred to a Microsoft office in the researcher's password-protected computer. The potential participants were then categorised according to the criteria noted previously. The date and time of the interviews were agreed with the participants.

Three to four days prior to the interviews, and again 24 hours before the interview, the researcher sent reminder text messages to the potential participants. Any changes in the participants' personal circumstances were discussed with the researcher and agreed for rescheduling the interview. The researcher adjusted all the interview appointments to accommodate both the participants' needs and the researcher's interview schedule.

The data collection process was completed within three months, from 1st November 2017 to 30th January 2018. Following the completion of the interviews, and once data saturation had been achieved, the researcher sent a text to all who had expressed interest in participating in the interviews but were not selected, thanking them for their interest and advising them that no additional participants were required. Those who participated in Phase 2 received a thank-you letter (see Appendix G) and a five-pound coffee gift card (funded by the researcher) as a token of appreciation for their participation in the research study directly after each interview. Figure 4.4 illustrates the procedures followed in Phase 2 of this research study.

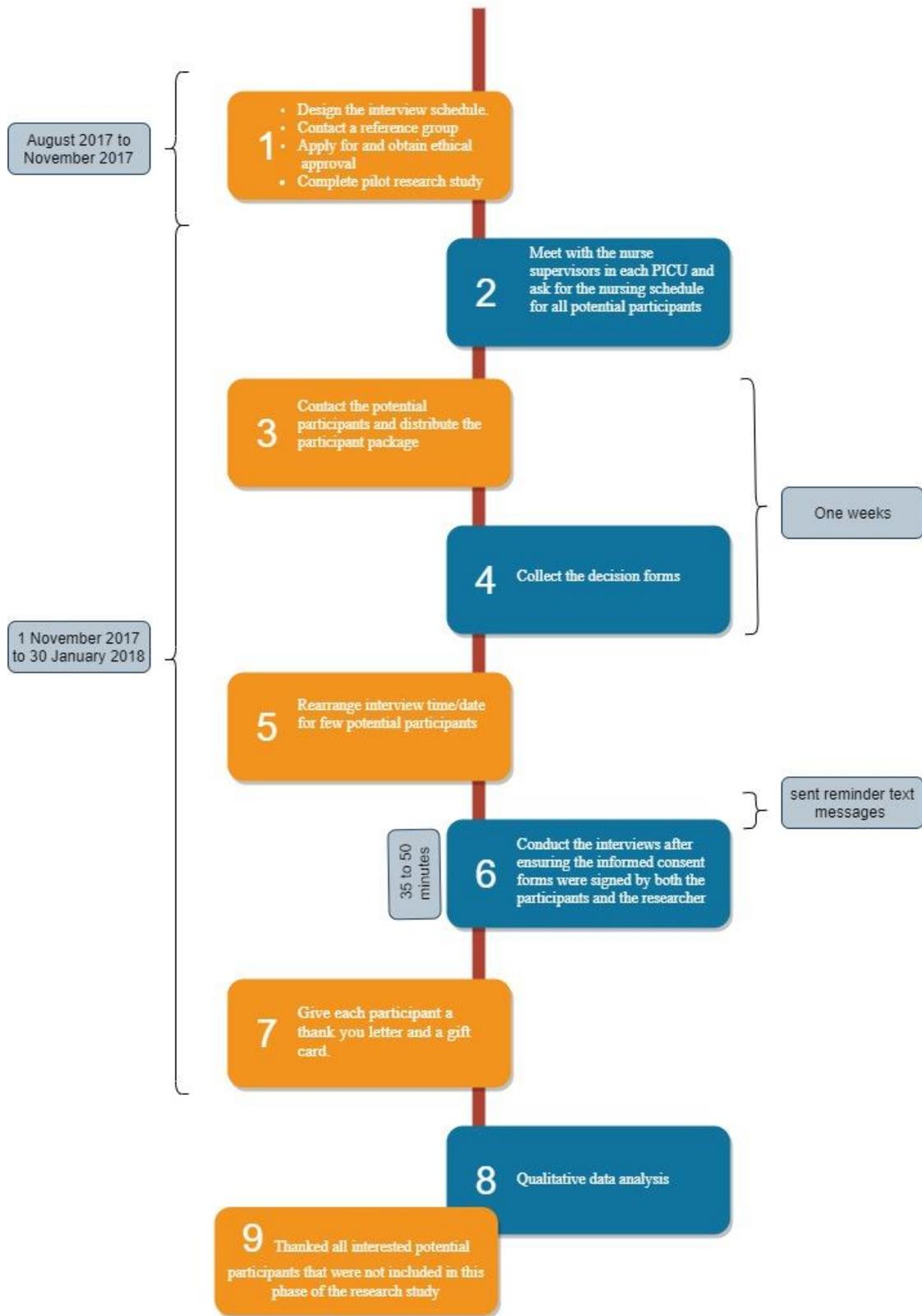


Figure 4.4: Flow diagram of Phase 2 procedures

4.7.5. Qualitative data analysis

4.7.5.1. Preparing the data for analysis

After each interview, the researcher recorded notes in a researcher diary regarding initial observations and impressions as well as potential key areas that could later be explored during the data analysis process. The researcher also listened to the audio-recordings several times (before personally transcribing them) to clarify any possible misunderstandings or ambiguities in the participants' expressions; however, none were detected. The audio-recordings were transcribed by the researcher into a Microsoft word document. The first few transcripts were discussed with the UH supervision team, who provided feedback before the subsequent interviews were conducted.

In preparation for the main data analysis, the transcriptions were read several times by the researcher and the post-interview personal reflections in the researcher diary were reviewed to develop theoretical sensitivity in reading the interview transcripts (Charmaz, 2014). Initial analytic observations were written down, which helped the researcher further engage with the data.

The transcripts were then imported into a qualitative data analysis computer software package produced by QSR International (*NVivo* 11, arguably the most commonly used, recognised, and professional qualitative data analysis software (Bazeley, 2013; Bazeley & Jackson, 2013). The decision to use this was made as it was believed it would help the researcher categorise, organise, and analyse the data more effectively. Apart from having the option to code data and subsequently easily and quickly assess any coded fragments of a text, *NVivo* 11 has a range of options that enable the user to reorganise an emerging coding framework and visualise the effects of these changes in real time. The codes constituting the framework may, at any time, be moved around, deleted,

‘merged’, or joined together. Additionally, the software had a variety of options for organising the data (i.e. the interview transcripts) into categories and folders or to sort it according to certain attributes, values, or characteristics assigned to the transcript. Finally, several options were available to visualise the data in the form of charts and models. Although these were, in fact, quite basic in their design, they did make the task of understanding certain relationships within the data easier. Overall, the use of this software not only made the process of data analysis more enjoyable but, most importantly, more effective, enabling the researcher to consider details that could have otherwise been overlooked.

4.7.5.2. Data analysis procedures

4.7.5.2.1. Theoretical foundations of data analysis procedures

While some approaches to qualitative data analysis recommend collecting all the data prior to analysis (Miles et al., 2014), the procedure adopted in the current research study was more iterative and dynamic. It involved constant comparative methods (Glaser & Strauss, 1967) which involve making frequent comparisons both within and between each transcript, a process that is constantly repeated as new data is collected. The researcher also flexibly adopted ‘line-by-line coding’, which is a detailed approach to coding that involves, as the name suggests, coding each line of the text in the first several transcripts, before minimizing the number of codes and organizing them into groups of more abstract and inclusive themes (Charmaz, 2014). Although the present approach to data analysis involved some elements traditionally associated with grounded theory (e.g. initial, detailed line-by-line or sentence-by-sentence coding, the use of constant comparison), the researcher does not make claims that this was, in fact, a strictly grounded theory study or data analysis. The process of data analysis was much

more flexible and did not strictly follow the various stages of coding the advocates of grounded theory recommend (Strauss & Corbin, 1998), nor can it be argued the analysis was fully grounded in the data and not influenced by previous knowledge (Charmaz, 2014), since it followed the quantitative data analysis in Phase 1 of the research study. The overall approach to data analysis reflected the previously discussed pragmatism of the researcher, focusing on applying ‘what works’ (Creswell, 2013, p. 28) best in terms of analytic procedures.

However, both the detailed approach to coding and the use of constant comparative methods, both of which have traditionally been associated with grounded theory, were adopted in this research study and believed to help the researcher elicit information from the data more effectively and reduce the chance of her imposing her own assumptions onto the data analysis process (Strauss & Corbin, 1998). Both methods also helped identify broad categories and themes more effectively, since the process starts with detailed coding, which made it less likely for the researcher to miss important information.

4.7.5.2.2. Data analysis

As previously noted, the analysis was conducted in *NVivo 11*, and the first step involved reading the interview transcripts and applying detailed codes to segments of the text. The transcripts were carefully read several times, word-by-word, line-by-line, and-sentence-by sentence, with codes being applied to most sentences. These highly descriptive, detailed codes resembled what traditional grounded theory refers to as ‘open coding’ (Alasuutari et al., 2008, p. 472) and constructivist grounded theorists call initial coding (Charmaz, 2014). This detailed coding procedure was applied to the first few transcripts (n = 6), and, after this point, no new codes were created because

subsequent transcripts could be coded with the extensive coding framework that had already emerged. At this stage, 169 codes had been established after the first few transcripts, such as too many procedures, shortages of nurses, handling two patients at once, parents' attitudes, patient death, previous nursing education, good teamwork and unfair nursing schedules.

Additionally, by this point, certain codes started to be used more than once, which provided an early indication of potential themes that later started to emerge from this framework.

At this stage, memos were also created in *NVivo* that included all the researcher's emerging thoughts, ideas, and working theories that resulted from engagement with the data. These memos were later regularly updated and referred to at various stages to investigate certain leads or simply inspect whether the emerging insights were in line with the initially recorded observations and thoughts. One of the options of *NVivo*, which was particularly useful, is the ability to directly link memo entries to the data so that one can instantly see which segment of the text resulted in a given observation, thought, or conclusion. At this stage, the researcher also reviewed her diary to read her original comments and observations that emerged after each interview. These observations were compared to both the emerging coding framework and the observations written down in the electronic memos. This repetition in identifying codes and systematic searching for data is believed to increase the quality of data analysis (Riley, 1990).

Before the remaining transcripts were coded, the existing coding framework was reviewed with the aim of reducing the number of codes. Each code (and the content it covered) was re-read, and, initially, the main aim was to delete duplicates or codes that

had different wording but covered the same kind of content and organise the remaining codes into some general categories that would make it easier to inspect. In this stage, the codes were reduced to 114 and placed into categories, such as management issues, nursing tasks, patient deaths, problems with physicians, positive consequences, negative consequences, critical patients' issues, nursing education, previous and recent work experience, support and teamwork, patient recovery and parents' attitudes.

The content of these categories, or, in *NVivo* terms, the 'child nodes' (the sub-codes) of the 'parent nodes' (the main category codes), were reviewed again and, wherever possible, joined together. The researcher selected, simplified, and abstracted the codes, and similar data was identified and clustered.

At this point, the original, descriptive, 'open' or 'initial' codes were becoming more inclusive and abstract, resembling what may be referred to as either axial (Glaser & Strauss, 1967) or focused (Charmaz, 2014) coding. These codes were being applied to the re-reading of the transcripts with the process gradually becoming increasingly interpretive and analytic as the codes were becoming more abstract and inclusive due to their number being reduced. Similar codes were being merged into categories and sub-themes were formulated by the selected codes for each theme, reflecting the contexts of similar codes that were manifested across the transcripts of the interviews (Strauss & Corbin, 1998). The researcher also used memos and diagrams to explore further ideas and relationships shared between the emerging themes.

The previously mentioned constant comparison was evident throughout this process, although it intensified at later stages, as an increasing number of transcripts were being covered with the emerging themes and sub-themes. Comparisons were made both within each transcript (e.g. to see whether a given participant's conceptualisations of

workplace stress was consistent throughout the interview) and between all transcripts (Clarke & Braun, 2013). Therefore, this process involved a mixture of so-called within- and cross-case comparisons (Miles et al., 2014), and the latter served the purpose of developing the themes and sub-themes for the analysed data.

Finally, as all 24 transcripts had been coded and covered the emergent six themes and 21 sub-themes, it was concluded that, since the analysis of the final transcripts did not yield new information or insights that could contribute to understanding the investigated topic, the data was sufficient and theoretical saturation was considered reached (Watling & Lingard, 2012). The six themes and 21 sub-themes linked all the data together and constituted an explanatory scheme that comprised of a set of concepts and a logical pattern of connectivity as discussed in Chapter Seven (Birks & Mills, 2015). It was concluded, therefore, that there was no need to recruit more participants for Phase 2 of the research study.

4.7.6. Reliability and validity

The issues of reliability and validity were addressed separately for the quantitative (see Section 4.6.7) and qualitative data sets. The notion of reliability is hardly ever discussed in relation to qualitative research, since, due to the subjective and personal nature of qualitative research and its subsequent data analysis, it is not realistic to expect qualitative findings to be replicable. Thus, reliability, which often referred to as ‘trustworthiness’ (e.g. Punch & Oancea, 2014) in qualitative research, is believed to mostly relate to “*being thorough, careful and honest in carrying out the research*” (Robson, 2002, p. 176). In the present research study, the researcher aimed to increase reliability by transcribing the audio-recordings herself and by including everything expressed by participants during the interviews, including pauses and overlaps

(Silverman, 2013). The first few transcripts, as well as the initially developed codes, were shared with the UH supervision team and discussed; a number of subsequent meetings took place to ensure that correct procedures were being applied in analysing the qualitative data set.

With regard to validity, Creswell (2015) classifies validation strategies in qualitative research into those related to researchers', participants', and reviews' lenses, explaining that at least two validation strategies are recommended for a given study to maximise its validity. In this current research study, Creswell's (2015) validation strategies were applied.

4.7.6.1. Researcher's lens

A researcher's lens refers to recognising and addressing various roles and positions assumed by the researcher to reduce bias and ensure analytical accuracy (Creswell, 2015). The validation strategies that were used in this research study were methodological triangulation and addressing researcher bias, as well as engaging in reflexivity.

First, threats to validity can be addressed by means of data triangulation, which involves collecting data from different sources and using multiple instruments (Bazeley, 2013; Glesne, 2016). The current research study adopted a mixed-methods approach, which included collecting both quantitative and qualitative data. Thus, methodological triangulation was applied by gathering data through questionnaires and interviews. The results were, thus, based on the analysis of more than one data set, which increased validity of the results.

Addressing researcher bias and engaging in reflexivity entails the researcher recognising, understanding, and acknowledging his or her position in the study, as well

as his/her possible influence on it and the participants; this should be communicated clearly (Merriam & Tisdell, 2015). The clarification/reflexivity process in terms of how the researcher's diary was implemented in the present research study is explained in Chapter Eight, Section 8.3 in which biases are identified as limitations.

A researcher's positionality can affect the study process. As asserted by Foote and Bartell (2011, p. 46), "*the positionality that researchers bring to their work, and the personal experiences through which positionality is shaped, may influence what researchers bring to research encounters, their choice of processes, and their interpretation of outcomes*". In the present research study, validation strategies relevant to positionality were used by the researcher, who was aware she belongs to the community that was the focus of the research study. She acknowledged the connections that emerged from her past experience that could help her understand the participants' perception about their workplace. Such experience includes her professional field in both Riyadh and Dammam cities in SA, in which she worked as a PICU nurse and nursing lecturer. The researcher's familiarity with these cities and their healthcare facilities helped her identify public hospitals with PICUs that would be relevant to this research study. Moreover, the fact that the researcher is from SA motivated some of the SA and expatriate participants to freely express their opinions because they likely viewed her as an interested and caring individual who came from their country. Thus, they may have thought that the researcher might report their views to higher MoH authorities to potentially minimise workplace stress in PICUs, provide support for both SA and expatriate nurses and improve the quality of nursing care that is provided in SA.

In addition, being from SA prepared the researcher for this research study in terms of her familiarisation with SA culture (which affected the work environments of which

the participants were a part). The researcher's ability to communicate in Arabic and English, as well as her awareness of SA culture and understanding of the nursing communication system, enhanced her ability to build trustworthy relationships with the MoH IRB personnel and gatekeepers. The networks she created prior to her research study facilitated her access to hospitals in SA. As previously stated, the researcher could be perceived as an insider, thereby potentially increasing the validity of this research study; however, she has recognised certain limitations of her positionality in Chapter Eight, Section 8.3.

4.7.6.2. Participant's lens

Participants play a major role in validation, and this role is related to the strategies of prolonged involvement and member checking (Robson, 2002). Prolonged involvement refers to time spent in the field gaining familiarity with the participants and environment, including its cultural and social characteristics and subsequently making field-based decisions (Robson, 2002). The prolonged observation of the PICU setting, through the researcher's occupation, prior to the initiation of the research study, was supported by the valuable connections the researcher formed with other scholars within the nursing field in SA. These exchanges assisted her in identifying the challenges that previous researchers faced in addressing issues relevant to conducting studies within the SA nursing context.

The researcher further continuously immersed herself, prior to data collection, by meeting with potential participants, engaging in informal discussions, and distributing the participant packages herself. This prolonged involvement helped the researcher build trusting relationships with both the SA and expatriate nurses in the PICUs as well as the gatekeepers and nurses' supervisors. Such familiarity enabled comfortable

conversations between the participants and the researcher during data collection, thereby encouraging the participants to share their perspectives honestly.

Member checking can contribute to validity by enabling the testing of emergent findings and it can also increase the rationality of findings (Lincoln & Guba, 1985). An example of member checking is contacting participants to gather feedback on interview transcripts periodically throughout data collection and analysis (Carlson, 2010). Another approach is to endeavour to grasp participants' views of interview analyses to ascertain whether they feel any familiarity with the emergent themes and sub-themes (Curtin & Fossey, 2007).

Member checking in this research study would have been a challenging process as it would have involved presenting the transcripts or results to all the participants. To this end, the researcher met with the reference group who participated in Phase 1 and 2 of this research study to gather feedback and carry out expert validation of the interpretation of the results. They were provided with a summary of the results including the six themes and 21 sub-themes in writing, which the researcher also explained in person. The panel were asked to reflect on the accuracy of the results based in their work experience in PICU in Public hospital in SA. The nurses agreed with the outcomes presented, stating they considered the results reflected their current situation in the PICU. They found no substantive differences between the account the researcher provided and the actual circumstances they experienced. This process did not fully validate the qualitative results (Silverman, 2011), but it confirmed that the researcher's interpretations were acceptable to nurses working in PICUs in public hospital in SA. It also helped regulate the influence of the researcher's knowledge and assumptions on her interpretations of the emerging data (Thomas & Magilvy, 2011).

4.7.6.3. Review's lens

This category refers to individuals other than the researcher and participants and is addressed through peer debriefing and maintaining an audit trail. Peer debriefing is a scheme that involves an individual external check by “*someone who is familiar with the research or the phenomena being explored*” (Creswell & Miller, 2000, p. 129).

In this research study, the researcher participated in peer debriefings with her nursing colleagues, as well fellow PhD students. These individuals acted as peer critics and discussed the research study process on an on-going basis. Ongoing support was received from the UH supervision team during regular meetings in-person and via email and Skype. The researcher also took advantage of opportunities to present and discuss her research study at conferences, the UH Researcher Development Programme and workshops in SA and the UK. Engaging in these discussions, while the data collection and analysis were in progress, enabled the researcher to obtain valuable critical feedback and suggestions for improvement and development. This, in turn, helped generate ideas and examine the researcher's approach and progress from a critical perspective. Finally, the structure of the PhD programme, which involves assessment stages at the UH, facilitated critical scrutiny and assisted in minimising researcher bias (Polit & Beck, 2004).

With regard to an audit trail, the researcher has provided a complete and detailed explanation of the entire research study process, together with the rationale underlying each decision; these procedures would allow external personnel to fully understand each aspect of the research study (Bitsch, 2005; Merriam & Tisdell, 2015). The researcher also securely stored all the data, (including the *NVivo* files, audio-recordings,

researcher's diary, and any other relevant material) for easy access when needed as a reference throughout the course of the research study.

4.8. Ethical Considerations

During data collection, as agreed to by the UH ethics committee and MoH IRB, the following three ethics-related issues were addressed: informed consent and voluntary participation; anonymity, confidentiality, and privacy; and protection of participants from any distress or discomfort.

4.8.1. Informed consent and voluntary participation

Involvement in both phases of the research study was voluntary (Burns & Grove, 2005), and there was no penalty for withdrawal at any point; the participant information sheet supplied to the potential participants during Phase 1 clearly stated this in addition to detailing confidentiality assurances, the potential benefits and risks of participation, instructions for returning the questionnaire and the researcher's contact information.

The participants did not receive an informed consent form in their Phase 1 participant package because the completion of the questionnaire and the delivery of it to the drop-box served as implied consent (Burns & Grove, 2005). This was explained to participants orally during the introductory recruitment meeting as well as in the participants' package (See Appendix C).

Following the completion of quantitative data collection and analysis, the researcher contacted interested potential participants to ask if they were still interested to participate in the qualitative phase of the research study (i.e. a face-to-face semi-structured interview within a set timeframe). Those who chose to proceed were provided with a participant package that included an invitation letter, a participant

information sheet, an informed consent form, and a decision form (asking for their personal contact information and the selection of an appropriate time and date for an interview). The participant information sheet for Phase 2 detailed the same kind of information as that for Phase 1, explaining the notions of confidentiality and voluntary participation as well as the right to withdraw at any point.

The participants were also reminded of their rights at the beginning of the interview, and those who had not returned the signed informed consent form were asked to do so at that point. Both the researcher and the participants received a copy of the signed informed consent form.

4.8.2. Anonymity, confidentiality, and privacy

The researcher assured the participants that their personal information and their hospital affiliation (if they provided it in Phase 1 in terms of participating in Phase 2), as well as their responses, would remain confidential. However, if they did not provide this information and were not interested in participating in Phase 2, their personal information would remain anonymous to the researcher when they returned the questionnaire. The anonymity and confidentiality of the quantitative and qualitative data, as well as any personal contact information (name, phone number, and/or email), that was retrieved from the questionnaire or the interviews was protected by the researcher through the following steps:

To maintain these standards, the researcher included an envelope in the participant package so they could seal it after completing their questionnaires and then deposit it via the locked drop-off box the researcher rented specifically for this research study, to which only the researcher had access. This was located away from the nursing station

and nurse supervisor's office in each PICU to maintain the privacy and confidentiality of the participants.

In the qualitative phase of the research study, the potential participants were contacted by the researcher, and their interviews were held in a meeting room located some distance from the PICU to maintain privacy and confidentiality. The researcher kept hard copies of all the informed consent forms, the printed results including codes, her diary, the completed questionnaires and the personal contact information of the participants in a file kept in a locked filing cabinet in the researcher's home office. The key was kept in a safe place known only to the researcher.

The researcher transferred all potential participants' personal contact data, including name, contact information (phone number and/or e-mail) and hospital affiliation, extracted from the questionnaires of participants interested in being interviewed in Phase 2, into a Microsoft Word document, which was saved on the researcher's password-protected personal computer.

In both phases of the research study, each participant was assigned a unique numerical code that had no association with their name or hospital; this made it impossible to identify the source of individual responses. This code was linked to their questionnaire and included their personal characteristics and contact information (phone number and/or e-mail) as well as the participant's audio-recordings, researcher's diary, and the interview transcript.

Finally, as previously noted, all documentation related to the research study was stored securely in line with the UH ethics guidelines, the General Data Protection Regulation (Regulation [EU] 2016/679), and the Data Protection Act 2018 (Data Protection Legislation).

4.8.3. Protection from distress and discomfort

Involvement in this research study was non-invasive and deemed to be safe, presenting no appreciable risks to the physical or psychological well-being of the participants (Burns & Grove, 2005). However, being asked about workplace stress and its consequences on the quality of nursing care delivered to child patients could conceivably cause discomfort or distress to the participants by reviving memories of emotionally stressful events (Ford & Reutter, 1990). Thus, the researcher assured participants that they could decline to answer any question regardless of the reason; this demonstrated a sensitivity to their psychological well-being and acknowledged their autonomy (Burns & Grove, 2005). These needs were also considered in the consultation with the reference group, during the pilot research study, and with the support of the UH supervision team, who provided comments and suggestions.

In both phases of the research study, the researcher notified all participants that they could withdraw at any time and for any reason; they were made aware of the appropriate available resources and courses of action for support, if needed.

4.9. Challenges of the research process

4.9.1. Negotiating access to the hospitals and participants

Slight difficulties were experienced when negotiating access to the research study's participants, and the process varied between hospitals (Al Dalbhi et al., 2019; Al Suwaidan & Alsuwaidan, 2017; Alzahrani, 2011; Sheblaq & Al Najjar, 2019). There are currently no well-designed systems for gaining access to public hospitals or their PICUs nor any guidelines for how obtain access. However, the researcher overcame this challenge by contacting her colleagues who conducted previous studies in the

context of SA nursing. The researcher asked for clarification and recommendations from her colleagues and visited the hospitals in person many times in order to negotiate with the relevant gatekeepers about collecting the data for this research study.

4.9.2. Data collection

Conducting the interviews for Phase 2 required a considerable amount of planning and effort. Firstly, arrangements had to be made to ensure the cross-gender interviews took place in designated meeting rooms with windows and/or the door kept open; this is common practice in this gender-segregated context (Doumato, 2009). Secondly, the timing of the interviews had to be constantly re-negotiated due to the nurses' busy schedules. Occasionally, an interviewee would not arrive at the interview due to unexpected changes in his/her schedule. Participants often chose to be interviewed during nurses' night shift breaks; timing was unpredictable and interviews also sometimes occurred on the nurses' days off or during morning shift breaks—on occasions, the repeated re-scheduling presented difficulties for the researcher.

The researcher also faced challenges when conducting the interviews as a small number of participants repeated their answers or gave very simple replies that lacked detail. The researcher needed to re-phrase her questions to obtain more informative responses (the semi-structured interview approach allowed for this flexibility).

Most participants gave comprehensive responses because they enjoyed speaking about their experience. However, they also wanted to discuss other topics that were not related to the research study, such as societal changes in SA. When this happened, the researcher would gently re-direct the participants to answering the question they had been asked by repeating or re-phrasing it. In addition, during the interviews, if the

information provided by a participant was not clear, the researcher would ask the participant for clarification and to provide an illustration.

Some participants began the interview by saying they were not stressed, but they did seem a little worried about being audio-recorded. The researcher repeated the purpose of conducting the research study and stated that the interview was confidential and that their responses would be kept confidential. The researcher also spoke about herself and her role in the research study and assured the participants that their job would not be negatively affected by their involvement because they would only be identifiable through a code number that was only available to the researcher and her supervision team; confirmation was also provided that in the analysis and presentation of the results that no personal information or hospital affiliation would be identified. This reassurance helped the participants to feel comfortable in expressing their feelings and experiences of workplace stress in PICU while being audio-recorded. Finally, certain challenges were experienced in reaching the research study site due to the location of certain hospitals and heavy traffic, specifically in Riyadh city.

4.10. Summary of the chapter

In this chapter, the overall design of the research study, including the theoretical underpinnings, research methods, and methodology, were outlined. A number of procedures, such as testing the data collection methods, gaining access to the research site and participants, securing a high response rate and ensuring the research study was conducted according to the required ethical standards, were also discussed in detail alongside certain challenges faced by the researcher. The following chapter presents the results of the Phase 1 data analysis-the quantitative results.

Chapter Five: Quantitative results

5.1. Introduction

This chapter presents the research study results of the quantitative phase discussed in the previous chapter. 172 participants were recruited from six PICUs in Riyadh and Dammam in SA; a questionnaire consisting of questions related to the participants' personal characteristics (including demographic profile, employment background) was used to gather subset variables and an ENSS was administered to measure their workplace stress. The quantitative data were analysed using *SPSS* version 25 and involved three steps: (a) descriptive statistics and analysis, (b) bivariate statistics and analysis, and (c) multiple regression analysis.

5.2. Descriptive statistics analysis

Participants' personal characteristics (demographic profile and employment background) underwent descriptive analysis to identify the variables and their description, including sample size, frequency, percentage, and mean and SD. The data provided a descriptive analysis of the ENSS, sample size, frequency, percentage, mean and SD, and minimum and maximum mean score.

5.2.1. Variables of participants' personal characteristics

This section describes the participants' profiles, including the descriptive distribution of the participants as it pertains to their demographic profile and employment background characteristics.

5.2.1.1. Variables in demographic profile characteristics

5.2.1.1.1. Gender, nationality, and academic nursing qualification among participants

At the beginning of the questionnaire, participants were asked to select their gender (male or female), nationality (SA, Indian, Filipino, South African, North American, Australian, British, Malaysian, Egyptian, Jordanian, or other) and academic nursing qualification (certificate level programme, Diploma in Nursing, BSN, MSc in Nursing, or PhD in nursing). Table 5.1 and Figures 5.1–5.6 present the participants' gender, nationality, and academic nursing qualification.

Table 5.1: Distribution of the demographic profile variables (gender, nationality, and academic nursing qualification) among the participants

Variable	Definition	n	%
Gender	Male	7	4.1%
	Female	165	95.9%
Nationality	SA	26	15.1%
	Expatriates	146	84.9%
	Indian	76	44.2%
	Filipino	58	33.7%
	South African	0	0%
	North American	0	0%
	Australian	0	0%
	British	0	0%
	Malaysian	1	0.6%
	Egyptian	2	1.2%
	Jordanian	7	4.1%
Pakistani	2	1.2%	
Academic nursing qualification	Nursing certificate programme	0	0%
	Diploma in Nursing	73	42.4%
	BSN	99	57.6%
	MSc in Nursing	0	0%
	PhD in Nursing	0	0%
Total participants		172	100%

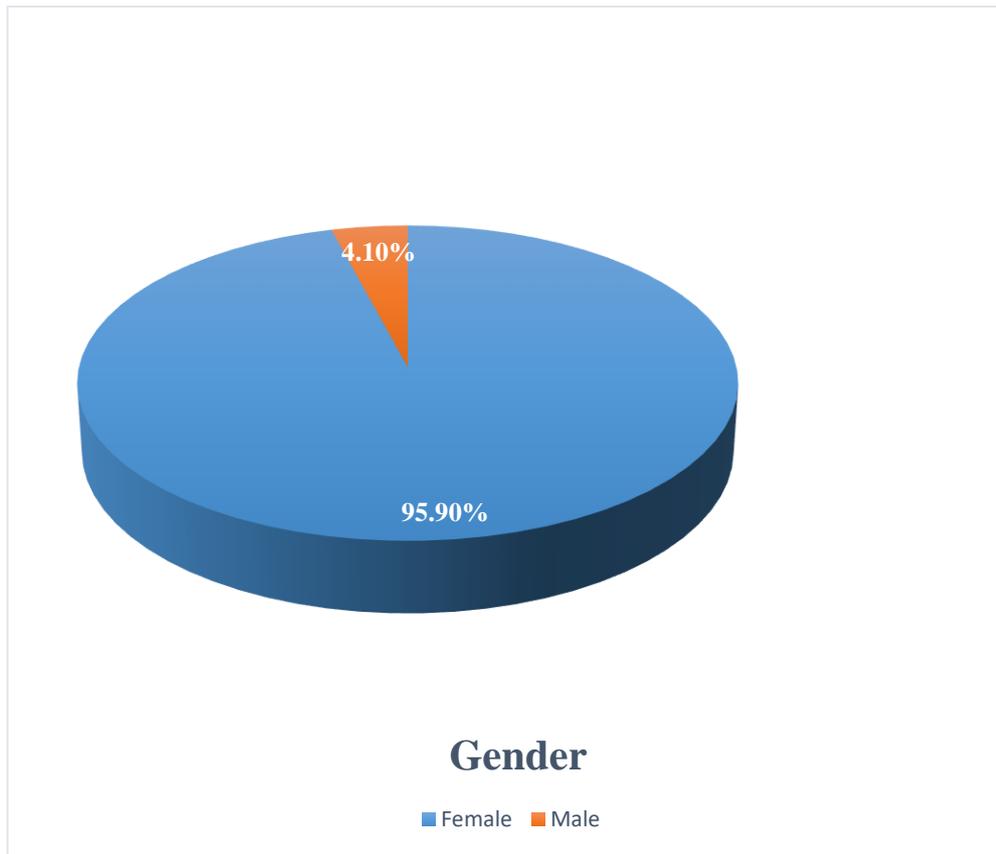


Figure 5.1: Gender of the participants in this research study

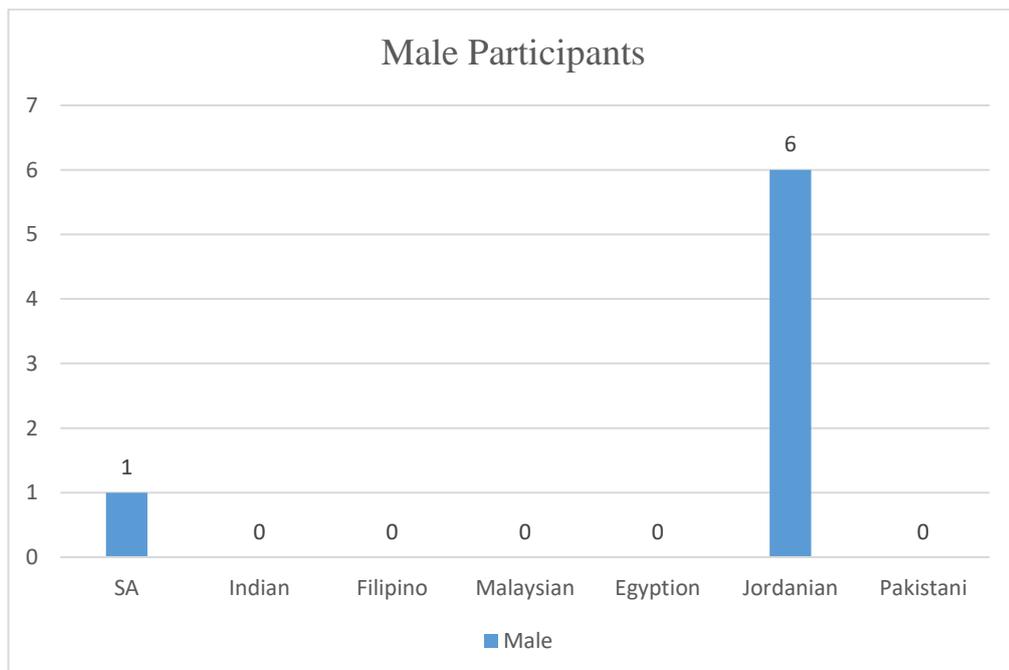


Figure 5.2: Distribution of male gender and nationality among the participants

Table 5.1 and Figure 5.1 show the distribution of the participants. Most participants (n = 165, 95.9%) were female, with a few being male (n = 7, 4.1%). Table 5.1 shows that males represented only seven (4.1%) of the participants, and Figure 5. 2 shows that only one of the seven male participants was SA nationality, while the other six were expatriates from Jordan.

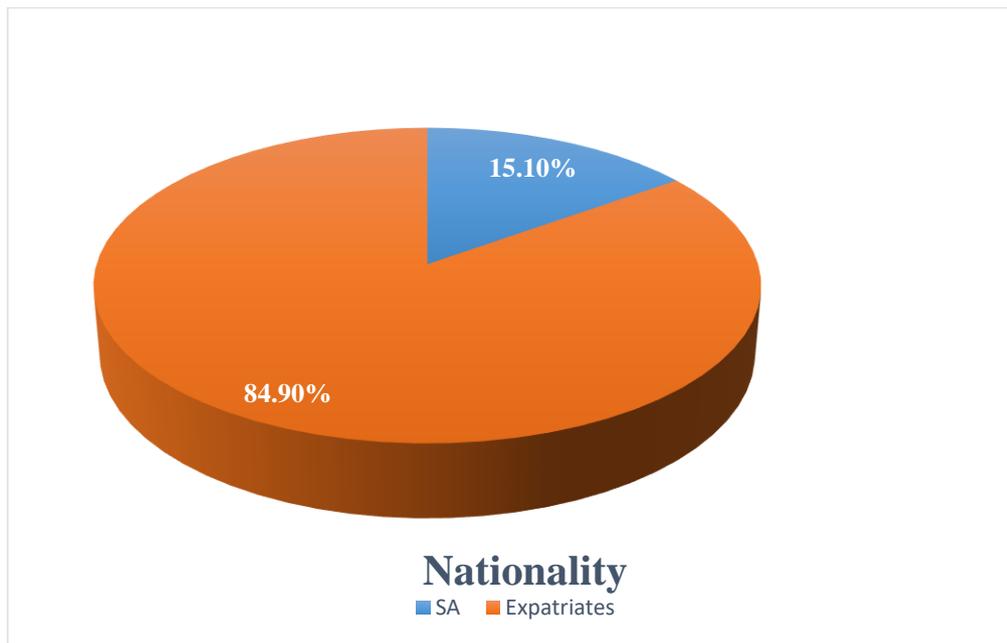


Figure 5.3: Nationality of the participants (Saudi Arabia vs expatriate)

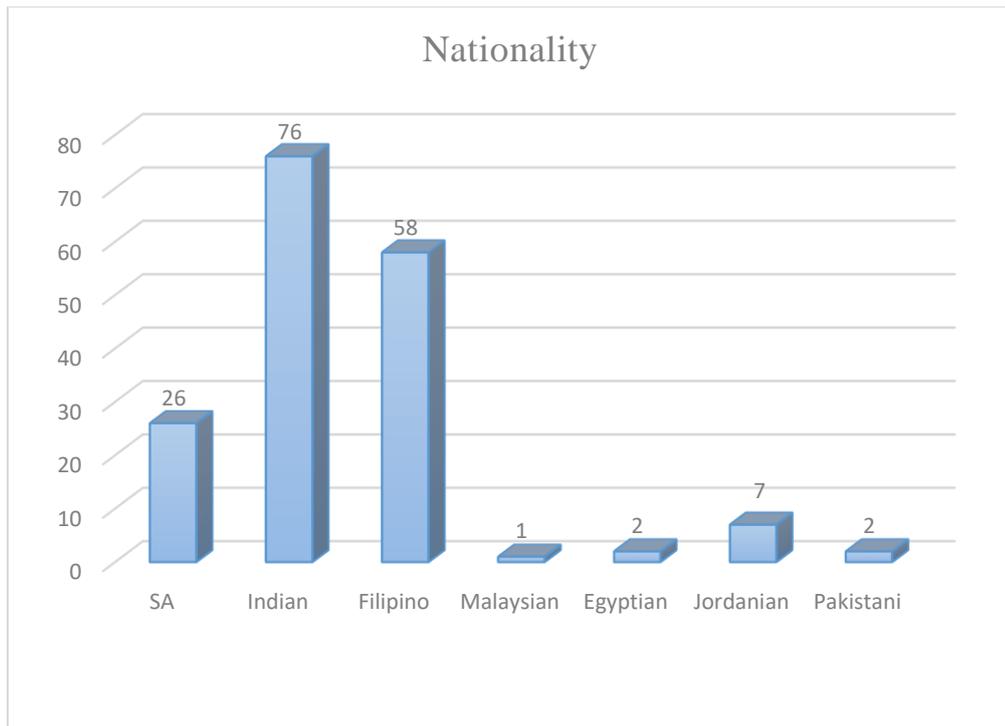


Figure 5.4: Distribution of nationalities among the participants

Table 5.1 and Figure 5.3 illustrate that there were fewer SA participants ($n = 26$, 15.1%) than expatriate participants ($n = 146$, 84.9%). Table 5.1 and Figure 5.4 show that a substantive number of expatriate participants originating from Southeast Asia (Indian and Filipino) represented the highest proportion of expatriate participants in this research study ($n = 76$, 44.2%, and $n = 58$, 33.7%, respectively). Jordanian participants represented a smaller proportion of expatriates ($n = 7$, 4.1%), and there was an equal sample of Pakistani and Egyptian participants (both were $n = 2$, 1.2%). The remaining nationality was Malaysian ($n = 1$, 0.6%). There were no participants with western nationalities.

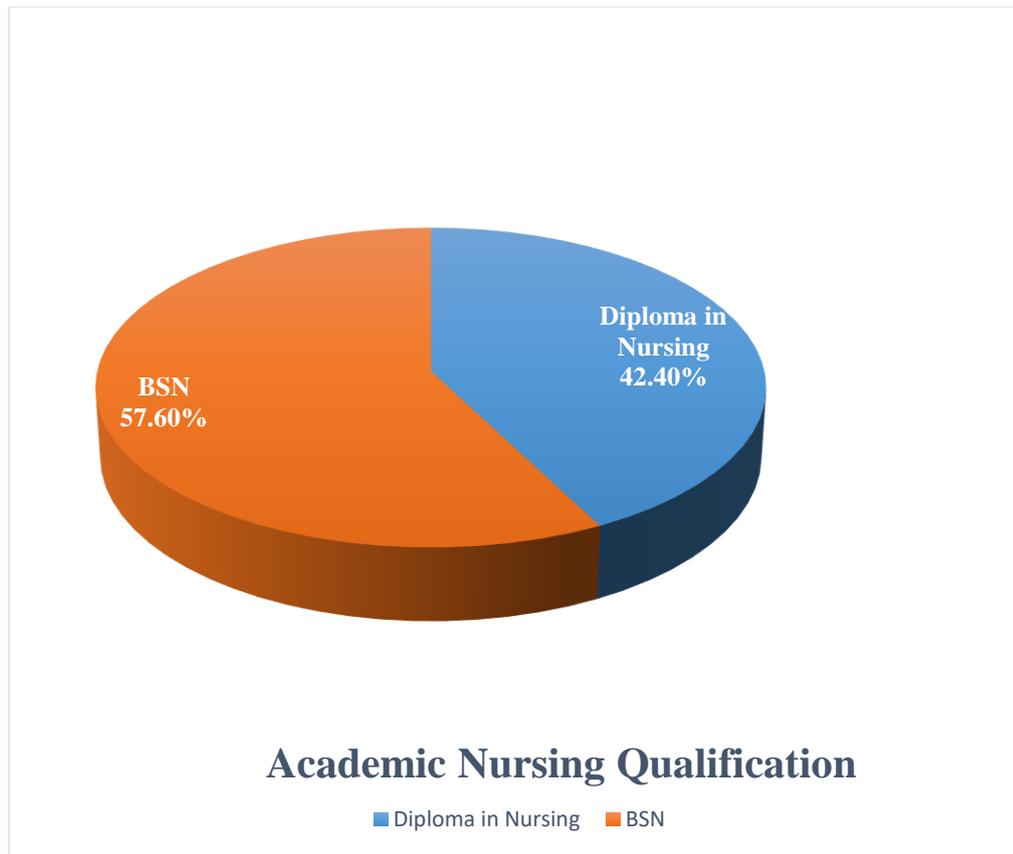


Figure 5.5: Academic nursing qualification among the participants

Table 5.1 and Figure 5.5 show that more than half of the participants ($n = 99$, 57.6%) held a BSN while the rest ($n = 73$, 42.4%) held a Diploma in Nursing. None of the participants had a qualification lower than this, such as a nursing certificate, or higher than a BSN, such as postgraduate qualification (MSc in Nursing or PhD in Nursing).

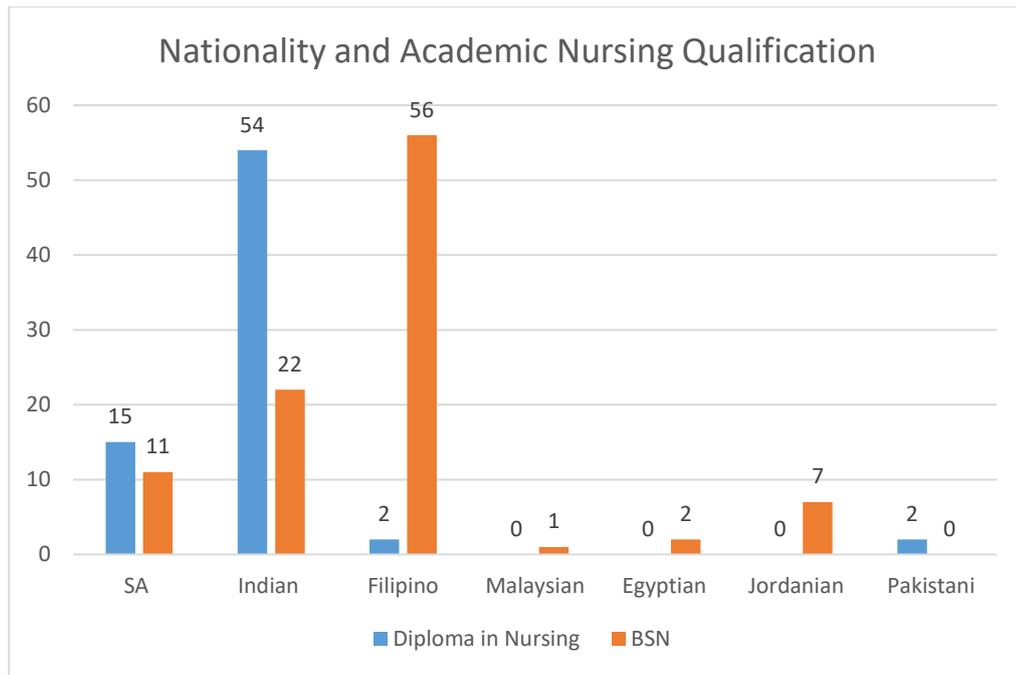


Figure 5.6: Distribution of the nationalities and academic nursing qualifications among the participants

Figure 5.6 shows that most participants with a BSN were Filipino. In fact, they represented 56 of the 99 participants with a degree. Meanwhile, participants of the other two most represented nationalities (Indian and SA) tended to have a Diploma in Nursing (54 and 15, respectively, of the 73 total participants with a Diploma in Nursing).

5.2.1.2. Variables in employment background characteristics

The characteristics of the participants' employment backgrounds are presented in this section. The data are related to the participants' years of PICU work experience in SA and previously outside SA.

5.2.1.2.1. Years of Paediatric intensive care unit work experience among the participants

The participants were asked to identify the number of years they had been practising as nurses in the PICU before coming to SA and the number of years practising as nurses in the PICU in SA.

Table 5.2: Years of paediatric intensive care unit work experience among the participants

Years of PICU work experience	Country		Frequency n	Percentage %
Participants with no previous PICU work experience in a country other than SA (n = 91, 52.9%)	Inside SA	0–10 years	72	79.1%
		11–20 years	16	17.6%
		21–30 years	3	3.3%
	Outside SA	0–10 years	--	--
		11–20 years	--	--
		21–30 years	--	--
Participants with previous PICU work experience in a country other than SA (n = 81, 47.1%)	Inside SA	0–10 years	68	84.0%
		11–20 years	12	14.8%
		21–30 years	1	1.2%
	Outside SA	0–10 years	75	92.6%
		11–20 years	6	7.4%
		21–30 years	0	0.0%
Total years of PICU work experience (n = 172, 100%)	Inside SA and previously outside SA	0–10 years	98	57%
		11–20 years	66	38%
		21–30 years	8	5%

Table 5.2 shows that, of the 172 participants, more than half (n = 91, 52.9%) had no previous PICU work experience in a country other than SA prior to their current position in SA, and most of them (n = 72, 79.1 %) had less than 10 years of PICU work experience in SA. The remaining participants (n = 81, 47.1%) had previous PICU work experience in a country other than SA prior to their current position in SA, with most (n = 75, 92.6%) having less than 10 years of PICU work experience abroad prior to their current position in SA and most (n = 68, 84%) also having less than 10 years PICU work experience in SA. When considering the total years of PICU work experience among the participants, more than half (n = 98, 57%) had less than 10 years of PICU work experience; 66 (38%) had 11–20 years of PICU work experience; eight (5%) had more than 21 years of total PICU work experience.

Table 5.3: Means of years of paediatric intensive care unit work experience among the participants

Years of PICU work experience	Country	n	%	Mean (yrs.)	SD
Participants with no previous PICU work experience in a country other than SA	Inside SA	91	52.9%	6.86	4.98
	Outside SA	--	--	--	--
Participants with previous PICU work experience in a country other than SA	Inside SA	81	47.1%	7.64	4.17
	Outside SA	81	47.1%	5.06	3.33
Total years of PICU work experience	Inside SA and previously outside SA	172	100%	9.68	5.90

Table 5.3 shows that, among participants with no previous PICU work experience in a country other than SA, the mean \pm SD years of working in a PICU in SA were 6.86 ± 4.98 . However, participants with previous PICU work experience in a country other than SA showed a higher mean \pm SD (7.64 ± 4.17) for years of working in a PICU in SA, with a 5.06 ± 3.33 mean \pm SD for years of working in a PICU previously outside SA.

5.2.2. Variables in Expanded Nursing Stress Scale

5.2.2.1. Subscale questions in the Expanded Nursing Stress Scale

The results of the ENSS analysis are shown in Table 5.4. The percentages relate to n = 172.

Table 5.4: Participants' responses to questions in each subscale of the Expanded Nursing Stress Scale

Subscale variable	Questions in each subscale	Participants' responses for each question in each subscale					
		Never happened	Never stressful	Occasionally stressful	Frequently stressful	Extremely stressful	Does not apply
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Death and dying	Performing procedures that paediatric patients experience as painful	3 (1.7%)	19 (11.0%)	85 (49.4%)	42 (24.4%)	23 (13.4%)	0 (0%)
	Feeling helpless in the case of a paediatric patient who fails to improve	14 (8.1%)	22 (12.8%)	74 (43.0%)	28 (16.3%)	31 (18.0%)	3 (1.7%)
	Listening or talking to a paediatric patient who is approaching death	66 (38.4%)	24 (14.0%)	31 (18.0%)	20 (11.6%)	25 (14.5%)	6 (3.5%)
	The death of a paediatric patient	9 (5.2%)	19 (11.0%)	54 (31.4%)	37 (21.5%)	52 (30.2%)	1 (0.6%)
	The death of a paediatric patient with whom you have developed a close relationship	35 (20.3%)	16 (9.3%)	50 (29.1%)	29 (16.9%)	38 (22.1%)	4 (2.3%)
	Physician not being present when a paediatric patient dies	80 (46.5%)	22 (12.8%)	27 (15.7%)	15 (8.7%)	23 (13.4%)	5 (2.9%)
	Watching a paediatric patient suffer	9 (5.2%)	17 (9.9%)	51 (29.7%)	41 (23.8%)	52 (30.2%)	2 (1.2%)

Conflict with physicians	Criticism by a physician	25 (14.5%)	32 (18.6%)	71 (41.3%)	19 (11.0%)	25 (14.5%)	0 (0%)
	Conflict with a physician	23 (13.4%)	32 (18.6%)	66 (38.4%)	29 (16.9%)	19 (11.0%)	3 (1.7%)
	Disagreement concerning the treatment of a paediatric patient	22 (12.8%)	31 (18.0%)	69 (40.1%)	34 (19.8%)	13 (7.6%)	3 (1.7%)
	Making a decision concerning a paediatric patient when the physician is unavailable	32 (18.6%)	22 (12.8%)	66 (38.4%)	29 (16.9%)	19 (11.0%)	4 (2.3%)
	Having to organise physicians' work	20 (11.6%)	37 (21.5%)	45 (26.2%)	44 (25.6%)	23 (13.4%)	3 (1.7%)
Inadequate emotional preparation	Feeling inadequately prepared to help with the emotional needs of a paediatric patient's family	12 (7.0%)	24 (14.0%)	72 (41.9%)	46 (26.7%)	17 (9.9%)	1 (0.6%)
	Being asked a question by a paediatric patient for which I do not have a satisfactory answer	20 (11.6%)	42 (24.4%)	70 (40.7%)	26 (15.1%)	12 (7.0%)	2 (1.2%)
	Feeling inadequately prepared to help with the emotional needs of a paediatric patient	16 (9.3%)	22 (12.8%)	83 (48.3%)	37 (21.5%)	14 (8.1%)	0 (0%)
Problems relating to peers	Lack of an opportunity to talk openly with other personnel about problems in the PICU setting	16 (9.3%)	24 (14.0%)	70 (40.7%)	35 (20.3%)	22 (12.8%)	5 (2.9%)
	Lack of an opportunity to share experiences and feelings with other personnel in the PICU setting	20 (11.6%)	44 (25.6%)	60 (34.9%)	31 (18.0%)	14 (8.1%)	3 (1.7%)
	Lack of an opportunity to express to other personnel on the PICU unit my negative feelings towards paediatric patients	32 (18.6%)	40 (23.3%)	60 (34.9%)	28 (16.3%)	10 (5.8%)	2 (1.2%)
	Difficulty in working with a particular nurse (or nurses) inside my immediate PICU setting	32 (18.6%)	32 (18.6%)	66 (38.4%)	25 (14.5%)	16 (9.3%)	1 (0.6%)
	Difficulty in working with a particular nurse (or nurses) outside my immediate PICU setting	32 (18.6%)	31 (18.0%)	63 (36.6%)	24 (14.0%)	19 (11.0%)	3 (1.7%)
	Difficulty in working with nurses of the opposite gender	78 (45.3%)	31 (18.0%)	33 (19.2%)	19 (11.0%)	6 (3.5%)	5 (2.9%)
Problems relating to supervisors	Conflict with a supervisor	50 (29.1%)	28 (16.3%)	39 (22.7%)	24 (14.0%)	27 (15.7%)	4 (2.3%)
	Lack of support from my immediate supervisor	39 (22.7%)	18 (10.5%)	61 (35.5%)	28 (16.3%)	26 (15.1%)	0 (0%)

	Criticism by a supervisor	44 (25.6%)	33 (19.2%)	42 (24.4%)	29 (16.9%)	24 (14.0%)	0 (0%)
	Lack of support by nursing administrators	17 (9.9%)	20 (11.6%)	64 (37.2%)	21 (12.2%)	47 (27.3%)	3 (1.7%)
	Being held accountable for things over which I have no control	28 (16.3%)	31 (18.0%)	48 (27.9%)	31 (18.0%)	32 (18.6%)	2 (1.2%)
	Lack of support by other healthcare administrators	18 (10.5%)	31 (18.0%)	55 (32.0%)	38 (22.1%)	29 (16.9%)	1 (0.6%)
	Criticism by nursing administration	30 (17.4%)	22 (12.8%)	47 (27.3%)	38 (22.1%)	34 (19.8%)	1 (0.6%)
Workload	Unpredictable staffing and scheduling	8 (4.7%)	12 (7.0%)	63 (36.6%)	40 (23.3%)	48 (27.9%)	1 (0.6%)
	Not enough time to provide emotional support to a paediatric patient	26 (15.1%)	34 (19.8%)	65 (37.8%)	32 (18.6%)	13 (7.6%)	2 (1.2%)
	Not enough time to complete all my nursing tasks	9 (5.2%)	26 (15.1%)	68 (39.5%)	37 (21.5%)	31 (18.0%)	1 (0.6%)
	Too many non-nursing tasks required, such as clerical work	13 (7.6%)	22 (12.8%)	46 (26.7%)	30 (17.4%)	57 (33.1%)	4 (2.3%)
	Not enough staff to adequately cover the unit	5 (2.9%)	14 (8.1%)	47 (27.3%)	41 (23.8%)	64 (37.2%)	1 (0.6%)
	Not having enough time to respond to the needs of the paediatric patients' families	22 (12.8%)	33 (19.2%)	63 (36.6%)	30 (17.4%)	22 (12.8%)	2 (1.2%)
	Demands of paediatric patient classification system	22 (12.8%)	36 (20.9%)	66 (38.4%)	27 (15.7%)	12 (7.0%)	9 (5.2%)
	Having to work through breaks	10 (5.8%)	32 (18.6%)	58 (33.7%)	33 (19.2%)	36 (20.9%)	3 (1.7%)
	Having to make decisions under pressure	4 (2.3%)	20 (11.6%)	58 (33.7%)	43 (25.0%)	46 (26.7%)	1 (0.6%)
	Uncertainty concerning treatment	Inadequate information from a physician regarding the medical condition of a paediatric patient	23 (13.4%)	27 (15.7%)	66 (38.4%)	31 (18.0%)	24 (14.0%)
A physician ordering what appears to be inappropriate treatment for a paediatric patient		35 (20.3%)	23 (13.4%)	60 (34.9%)	29 (16.9%)	24 (14.0%)	1 (0.6%)
Fear of making a mistake in treating a paediatric patient		29 (16.9%)	18 (10.5%)	58 (33.7%)	27 (15.7%)	38 (22.1%)	2 (1.2%)

	A physician not being present in a medical emergency	53 (30.8%)	36 (20.9%)	33 (19.2%)	22 (12.8%)	25 (14.5%)	3 (1.7%)	
	Feeling inadequately trained for what I have to do	35 (20.3%)	35 (20.3%)	57 (33.1%)	22 (12.8%)	20 (11.6%)	3 (1.7%)	
	Not knowing what a paediatric patient or a paediatric patient's family ought to be told about the paediatric patient's condition and treatment	16 (9.3%)	39 (22.7%)	65 (37.8%)	34 (19.8%)	16 (9.3%)	2 (1.2%)	
	Being exposed to health and safety hazards	15 (8.7%)	13 (7.6%)	63 (36.6%)	39 (22.7%)	40 (23.3%)	2 (1.2%)	
	Being in charge with inadequate experience	46 (26.7%)	28 (16.3%)	48 (27.9%)	27 (15.7%)	19 (11.0%)	4 (2.3%)	
	Uncertainty regarding the operation and functioning of specialised equipment	21 (12.2%)	29 (16.9%)	61 (35.5%)	27 (15.7%)	32 (18.6%)	2 (1.2%)	
Patients and their families	Paediatric patients making unreasonable demands	18 (10.5%)	31 (18.0%)	66 (38.4%)	33 (19.2%)	19 (11.0%)	5 (2.9%)	
	Paediatric patients' families making unreasonable demands	2 (1.2%)	16 (9.3%)	61 (35.5%)	50 (29.1%)	41 (23.8%)	2 (1.2%)	
	Being blamed for anything that goes wrong	19 (11.0%)	25 (14.5%)	60 (34.9%)	27 (15.7%)	39 (22.7%)	2 (1.2%)	
	Being the one who must deal with paediatric patients' families	12 (7.0%)	38 (22.1%)	61 (35.5%)	44 (25.6%)	15 (8.7%)	2 (1.2%)	
	Having to deal with violent paediatric patients	30 (17.4%)	29 (16.9%)	40 (23.3%)	32 (18.6%)	39 (22.7%)	2 (1.2%)	
	Having to deal with abusive paediatric patients	40 (23.3%)	28 (16.3%)	47 (27.3%)	29 (16.9%)	25 (14.5%)	3 (1.7%)	
	Having to deal with abuse from paediatric patients' families	41 (23.8%)	32 (18.6%)	53 (30.8%)	25 (14.5%)	18 (10.5%)	3 (1.7%)	
	Not knowing whether paediatric patients' families will report you for inadequate care	42 (24.4%)	34 (19.8%)	45 (26.2%)	24 (14.0%)	26 (15.1%)	1 (0.6%)	
	Discrimination	Being sexually harassed	134 (77.9%)	8 (4.7%)	5 (2.9%)	6 (3.5%)	12 (7.0%)	7 (4.1%)
		Experiencing discrimination because of race or ethnicity	43 (25.0%)	36 (20.9%)	51 (29.7%)	15 (8.7%)	26 (15.1%)	1 (0.6%)
Experiencing gender discrimination		76 (44.2%)	25 (14.5%)	27 (15.7%)	19 (11.0%)	21 (12.2%)	4 (2.3%)	

Table 5.4 presents the participants' responses to the questions in the ENSS subscales, measured in frequency and percentages. Participants responded 'never happened' to the following stressful situations: 'Being sexually harassed' (n = 134, 77.9%), 'a physician not being present when a paediatric patient dies' (n = 80, 46.5%), and 'difficulty in working with nurses of the opposite gender' (n = 78, 45.3%). The 'never stressful' response was given for the following situations: 'Lack of opportunity to share experiences and feelings with other personnel in the PICU setting' (n = 44, 25.6%), 'being asked a question by a paediatric patient for which I do not have not have a satisfactory answer' (n = 42, 24.4%), and 'lack of an opportunity to express to other personnel on the PICU unit negative feelings toward paediatric patients' (n = 40, 23.3%). In contrast to this, the 'extremely stressful' response was given for the following: 'Not enough staff to adequately cover the unit' (n = 64, 37.2%), 'too many non-nursing tasks required, such as clerical work' (n = 57, 33.1%), 'the death of a paediatric patient' and 'watching a paediatric patient suffer' (n = 52, 30.2%, in each). All the 'extremely stressful' question items were within the variables of the 'workload' and 'death and dying' subscales in the ENSS used for this research study. Table 5.5 details the average scores (mean \pm SD) for the participants' responses to the questions in the ENSS subscales.

Table 5.5: Means \pm standard deviation of questions in each subscale of the Expanded Nursing Stress Scale among the participants

Subscale variable	Number of items	Items in each subscale	Mean	SD
Death and dying	7	Performing procedures that paediatric patients experience as painful	2.37	0.91
		Feeling helpless in the case of a paediatric patient who fails to improve	2.20	1.17
		Listening or talking to a paediatric patient about his/her approaching death	1.43	1.48
		The death of a paediatric patient	2.59	1.19
		The death of a paediatric patient with whom you have developed a close relationship	2.06	1.44
		Physician not being present when a paediatric patient dies	1.24	1.47
		Watching a paediatric patient suffer	2.62	1.20
Conflict with physicians	5	Criticism by a physician	1.92	1.21
		Conflict with a physician	1.90	1.18
		Disagreement concerning the treatment of a paediatric patient	1.88	1.12
		Making a decision concerning a paediatric patient when the physician is unavailable	1.84	1.25
		Having to organise physicians' work	2.04	1.24
Inadequate emotional preparation	3	Feeling inadequately prepared to help with the emotional needs of a paediatric patient's family	2.17	1.04
		Being asked a question by a paediatric patient for which I do not have a satisfactory answer	1.79	1.07
		Feeling inadequately prepared to help with the emotional needs of a paediatric patient	2.06	1.02
Problems relating to peers	6	Lack of an opportunity to talk openly with other personnel about problems in the PICU setting	2.08	1.16
		Lack of an opportunity to share experiences and feelings with other personnel in the PICU setting	1.82	1.13
		Lack of an opportunity to express to other personnel on the PICU unit my negative feelings toward paediatric patients	1.65	1.14
		Difficulty in working with a particular nurse (or nurses) inside my immediate PICU setting	1.76	1.19
		Difficulty in working with a particular nurse (or nurses) outside my immediate PICU setting	1.77	1.24
		Difficulty in working with nurses of the opposite gender	1.03	1.20
Problems relating to supervisors	7	Conflict with a supervisor	1.66	1.44
		Lack of support from my immediate supervisor	1.91	1.33
		Criticism by a supervisor	1.74	1.37
		Lack of support by nursing administrators	2.32	1.31
		Being held accountable for things over which I have no control	2.02	1.35
		Lack of support from other healthcare administrators	2.16	1.23
		Criticism by nursing administration	2.13	1.36

Workload	9	Unpredictable staffing and scheduling	2.62	1.12
		Not enough time to provide emotional support to a paediatric patient	1.81	1.15
		Not enough time to complete all my nursing tasks	2.31	1.11
		Too many non-nursing tasks required, such as clerical work	2.51	1.33
		Not enough staff to adequately cover the unit	2.83	1.12
		Not having enough time to respond to the needs of the paediatric patients' families	1.96	1.20
		Demands of paediatric patient classification system	1.73	1.14
		Having to work through breaks	2.27	1.21
		Having to make decisions under pressure	2.61	1.09
Uncertainty concerning treatment	9	Inadequate information from a physician regarding the medical condition of a paediatric patient	2.02	1.21
		A physician ordering what appears to be inappropriate treatment for a paediatric patient	1.90	1.30
		Fear of making a mistake in treating a paediatric patient	2.13	1.36
		A physician not being present in a medical emergency	1.56	1.43
		Feeling inadequately trained for what I must do	1.72	1.27
		Not knowing what a paediatric patient or a paediatric patient's family ought to be told about the paediatric patient's condition and the treatment	1.95	1.10
		Being exposed to health and safety hazards	2.42	1.21
		Being in charge with inadequate experience	1.63	1.34
		Uncertainty regarding the operation and functioning of specialised equipment	2.09	1.27
Patients and their families	8	Paediatric patients making unreasonable demands	1.97	1.16
		Paediatric patients' families making unreasonable demands	2.63	1.02
		Being blamed for anything that goes wrong	2.22	1.29
		Being the one who must deal with paediatric patients' families	2.05	1.08
		Having to deal with violent paediatric patients	2.10	1.42
		Having to deal with abusive paediatric patients	1.80	1.37
		Having to deal with abuse from paediatric patients' families	1.66	1.29
		Not knowing whether paediatric patients' families will report you for inadequate care	1.74	1.37
Discrimination	3	Being sexually harassed	0.49	1.17
		Experiencing discrimination because of race or ethnicity	1.67	1.35
		Experiencing gender discrimination	1.28	1.45

Table 5.5 shows that ‘not having enough staff to adequately cover the unit’ was the most selected source of workplace stress (2.83 ± 1.12), while ‘paediatric patients families making unreasonable demands’ was second (2.63 ± 1.02) and ‘watching a paediatric patient suffer’ was third (2.62 ± 1.20). In contrast, one of the three lowest sources of workplace stress was a ‘physician not being present when a paediatric patient dies’ (1.24 ± 1.47), followed by ‘difficulty in working with nurses of the opposite gender’ (1.03 ± 1.20) and, lastly, ‘being sexually harassed’ (0.49 ± 1.17).

The most notable stressor events were listed under the subscales concerning ‘workload’, ‘death and dying’ and ‘patients and their families’.

5.2.2.2. Subscales of the Expanded Nursing Stress Scale

Table 5.6 shows that the stressful means \pm SD of the ENSS subscales were associated with ‘workload’ (2.29 ± 0.81), followed by ‘death and dying’ (2.07 ± 0.77) ‘patients and their families’ (2.02 ± 0.79) ‘inadequate emotional preparation’ (2.01 ± 0.82), and ‘problems relating to supervisors’ (1.99 ± 1.01).

The total means \pm SD of the ENSS was (1.96 ± 0.72), which indicates that the participants working in PICUs in public hospitals in SA perceived that their situations were ‘never stressful’ to ‘occasionally stressful’ as classified by ENSS (French et al., 2000).

Table 5.6: Means \pm standard deviation of the subscales of the Expanded Nursing Stress Scale among the participants

Subscale variable	n	Mean	SD
Death and dying	172	2.07	0.77
Conflict with physicians	172	1.92	0.87
Inadequate emotional preparation	172	2.01	0.82
Problems relating to peers	172	1.69	0.81
Problems relating to supervisors	172	1.99	1.01
Workload	172	2.29	0.81
Uncertainty concerning treatment	172	1.94	0.90
Patients and their families	172	2.02	0.79
Discrimination	172	1.15	0.99
Total scale	172	1.96	0.72

5.2.2.3. Reliability and validity of the Expanded Nursing Stress Scale

Table 5.7: Internal consistency of the Expanded Nursing Stress Scale among the participants

Subscale variable	Number of items	Cronbach's alpha
Death and dying	7	0.71
Conflict with physicians	5	0.77
Inadequate emotional preparation	3	0.68
Problems relating to peers	6	0.78
Problems relating to supervisors	7	0.87
Workload	9	0.87
Uncertainty concerning treatment	9	0.87
Patients and their families	8	0.78
Discrimination	3	0.60
Total scale	57	0.97

According to Table 5.7, most of the subscales showed levels of reliability that were higher than 0.70 and were, therefore, considered good reliable. The exceptions were the ‘inadequate emotional preparation’ and ‘discrimination’ subscales, which only achieved acceptable minimum levels (0.68 and 0.60, respectively). Overall, the ENSS used had acceptable psychometric properties, allowing for a reliable interpretation of the results. The current research study demonstrated the validity of the ENSS when compared to the studies of Saleh et al. (2013), Kamal et al. (2012), and Alsaqri (2014), which measured workplace stress among nurses in different acute and critical nursing units in SA.

5.2.2.4. Level of workplace stress

The total level of workplace stress was measured using a data-driven rank classification. As a result, there were three categories: A low level of workplace stress (scores between 30–88), a medium level of workplace stress (scores between 89–119), and a high level of workplace stress (scores between 120–220). Table 5.8 shows that levels of workplace stress varied between 30 (minimum) and 220 (maximum) and the direct score mean \pm SD of the ENSS was (111.84 \pm 41.06); thus, participants perceived their work in the PICU in public hospitals in SA as having ‘a medium level of workplace stress’. Figure 5.7 summarises the main descriptive statistical analysis previously discussed.

In order to maximise the potential of the data collected in the quantitative phase in this research study, both continuous (i.e., frequency) and ordinal (i.e., level of workplace stress) ENSS analysis results were drawn on simultaneously so that the characteristics of each were used and the impact of their respective limitations was reduced. Thus, there were two sets of analyses: The bivariate analysis and the multiple regression analysis. The next section describes the bivariate analysis.

Table 5.8: Direct score of means \pm SD of the Expanded Nursing Stress Scale among the participants

Total workplace stress scale responses (n = 172)	Minimum	Maximum	Mean	SD
	30	220	111.84	41.06

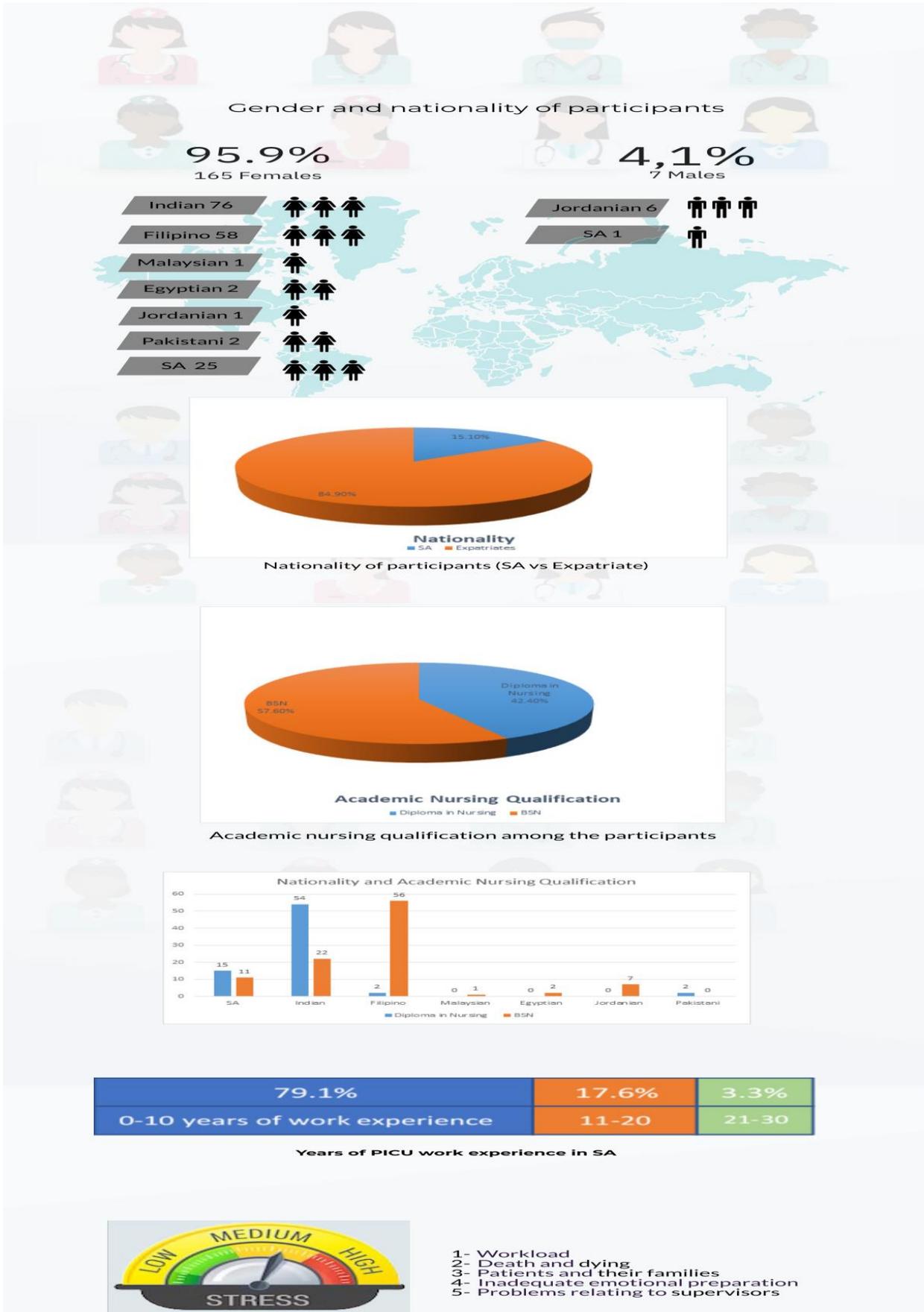


Figure 5.7: Summary the main descriptive statistics analysis

5.3. Bivariate analysis

The bivariate analysis used inferential statistics to identify the relationship between the participants' personal characteristics (demographic profile and employment background) and to examine the differences in the ENSS and participants' personal characteristics (demographic profile and employment background).

In addition, the differences among the level of workplace stress and the participants' personal characteristics (demographic profile and employment background characteristics) were examined, and finally, a correlation matrix, identifying the relationships among the ENSS subscales and the participants' personal characteristics (demographic profile and employment background characteristics), was analysed.

5.3.1. Differences between participants' personal characteristics (demographic profile and employment background characteristics)

The following tables from 5.9 to 5.13 present the bivariate statistics to illustrate the significant differences between the participants' personal characteristics (demographic profile) and then the relationship between the participants' personal characteristics (demographic profile and employment background). A chi-squared test was undertaken to identify the pattern of the data. The significance was set as * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.3.1.1. Relationships between demographic profile characteristics among the participants

Table 5.9 compares the gender and academic nursing qualification and shows a statistically significant relationship. All male participants ($n = 7$) held a BSN. Of the female participants ($n = 165$, 95.9%), 73 (42.4%) held a Diploma in Nursing, while 92

(53.5 %) had a BSN. For both genders (male and female), the most common academic nursing qualification was a BSN.

Table 5.9: Comparison of demographic profile characteristics (gender and academic nursing qualification) among the participants

Gender	Academic nursing qualification	TOTAL n (%)
Male	Diploma in Nursing	0 (0.0%)
	BSN	7 (4.1%)
	Total male nursing sample	7 (4.1%)
Female	Diploma in Nursing	73 (42.4%)
	BSN	92 (53.5%)
	Total female nursing sample	165 (95.9%)
Total participants		172 (100%)

Note: $\chi^2 = 5.381$, $df = 1$, $p = 0.020^*$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.3.1.2. Relationships between demographic profile and employment background characteristics among the participants

Table 5.10 shows a statistical significance between the demographic profile characteristic (gender) and the employment background characteristic (years of PICU work experience). The majority of male participants had previous PICU work experience outside SA (n = 6), while the majority of female participants had no previous PICU work experience in a country other than SA.

Table 5.10: Comparison of the demographic profile characteristic (gender) and employment background characteristic (years of paediatric intensive care unit work experience) among the participants

Years of PICU work experience	Gender	TOTAL n (%)
Participants with no previous PICU work experience in a country other than SA (n = 91, 52.9%)	Male	1 (0.6%)
	Female	90 (52.3%)
Participants with previous PICU work experience in a country other than SA (n = 81, 47.1%)	Male	6 (3.5%)
	Female	75 (43.6%)
Total participants		172 (100%)

Note: $\chi^2=4.368$, $df = 1$, $p = 0.037^*$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5.11 shows that all participants from SA working in PICUs had no previous PICU work experience outside SA. In contrast, the majority of the expatriate participants (47.1%) had previous PICU work experience in a country other than SA and 37.8% of the expatriate participants had no previous PICU work experience in a country other than SA. The relationship between the demographic profile characteristic (nationality) and employment background characteristic (years of PICU work experience) was statistically significant.

Table 5.11: Comparison of the demographic profile characteristic (nationality) and employment background characteristic (years of paediatric intensive care unit work experience) among the participants

Years of PICU work experience	Nationality	TOTAL n (%)
Participants with no previous PICU work experience in a country other than SA (n = 91, 52.9%)	SA	26 (15.1%)
	Expatriates	65 (37.8%)
Participants with previous PICU work experience in a country other than SA (n = 81, 47.1%)	SA	0 (0%)
	Expatriates	81 (47.1%)
Total nursing sample		172 (100%)

Note: $\chi^2 = 27.264$, $df = 1$, $p = 0.001$ ***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5.12 shows that there was a statistical significance between the demographic profile characteristic (academic nursing qualification) and the employment background variable (years of PICU work experience). As shown in Table 5.12, more than half of the participants had no previous PICU work experience in a country other than SA and most of the participants (36.0%) in this subgroup held a BSN. In addition, of the participants who had previous PICU work experience in a country other than SA, the majority (25.6%) held a Diploma in Nursing.

Table 5.12: Comparison of the demographic profile characteristic (academic nursing qualification) and employment background characteristic (years of paediatric intensive care unit work experience) among the participants

Years of PICU work experience	Academic nursing qualification	TOTAL n (%)
Participants with no previous PICU work experience in a country other than SA (n = 91, 52.9%)	Diploma in Nursing	29 (16.9%)
	BSN	62 (36.0%)
Participants with previous PICU work experience in a country other than SA (n = 81, 47.1%)	Diploma in Nursing	44 (25.6%)
	BSN	37 (21.5%)
Total nursing sample		172 (100%)

Note: $\chi^2 = 8.844$, $df = 1$, $p = 0.003^{**}$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5.13 compares nationality and three other characteristics variables: Gender, years of PICU work experience, and academic nursing qualification. While the expatriate participants comprised more females than males (n = 140, 95.9%, and n = 6, 4.1%, respectively), the distribution of participants from SA was very similar to the expatriate participants (males: n = 1, 3.8%; females: n = 25, 96.2%). There was no statistical difference between SA and expatriate participants ($p = 0.950$), but there were obvious differences in years of PICU work experience depending on participants' nationality (SA and expatriates), which was statistically significant for participants with no previous PICU work experience outside SA and was highly statistically significant for participants with previous PICU work experience in a country other than SA and for total years of PICU work experience inside SA and previously in a country other than SA.

The participants from SA (n = 26, 15.1%) all had less than 10 years of PICU work experience in SA without having any previous PICU work experience in any other

country outside SA. While the expatriate participants (n = 146, 84.9%) differed in their previous PICU work experience in countries other than SA, the majority (n = 75, 51.4%) had this PICU work experience for less than 10 years and six (4.1%) had 10–20 years. In terms of recent PICU work experience in SA without any previous PICU work experience outside SA, among expatriate participants, most expatriates (n = 114, 78.1%) had less than 10 years of PICU work experience in SA, while (n = 28, 19.2%) had 11–20 years of PICU work experience in SA; the remaining four (2.7%) had 21–30 years of PICU work experience in SA.

Finally, regarding academic nursing qualifications, of the participants from SA (n = 26, 15.1%), most had a Diploma in Nursing (n = 15, 57.7%), while among the expatriate participants (n = 146, 84.9%), most had a BSN (n = 88, 60.3%). There was no statistically significant relationship between SA and expatriate participants ($p = 0.088$).

Table 5.13: Comparison of nationality with gender, years of paediatric intensive care unit work experience, and academic nursing qualification among the participants

Variable	Definition	Nationality				χ^2	df	P	
		SA (n = 26, 15.1%)		Expatriates (n = 146, 84.9%)					
		n	%	n	%				
Gender	Male	1	3.8%	6	4.1%	0.004	1	0.950	
	Female	25	96.2%	140	95.9%				
Years of PICU work experience	In SA only	0–10 years	26	100%	114	78.1%	7.001	2	0.030*
		11–20 years	0	0.0%	28	19.2%			
		21–30 years	0	0.0%	4	2.7%			
	In a country other than SA prior to the recent work	None	26	100%	65	44.5%	27.264	2	0.000***
		0–10 years	0	0.0%	75	51.4%			
		11–20 years	0	0.0%	6	4.1%			
Total years of PICU work experience inside SA and previously in a country other than SA	0–10 years	26	100%	72	49.3%	23.129	2	0.000***	
	11–20 years	0	0.0%	66	45.2%				
	21–30 years	0	0.0%	8	5.5%				
Academic nursing qualification	Diploma in Nursing	15	57.7%	58	39.7%	2.916	1	0.088	
	BSN	11	42.3%	88	60.3%				

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

More detailed bivariate statistical analysis is presented in Appendix J along with a correlation matrix that identifies the relationships among the ENSS subscales and a correlation matrix of the demographic profile and employment background characteristics.

The next section presents the results of the multiple regression analysis relating to the examination of the differences in the ENSS and the demographic profile and employment background characteristics amongst participants as well as the differences across the levels of workplace stress and the demographic profile and employment background characteristics.

5.4. Multiple regression analysis

The multiple regression analysis was divided into two sections based on the ENSS and the level of workplace stress reported by the participants. The first section focuses on the ENSS and consists of a separate analysis of each subscale variable as well as the total ENSS in relation to the participants' demographic profile and employment background characteristics. The second section examines the level of workplace stress as expressed by the participants in relation to their demographic profile and employment background characteristics.

In general, three statistics resulting from these linear regressions was analysed-initially, the unstandardised and standardised regression coefficients. The unstandardised regression coefficient (B-value) is a measure of the size of the effect of a predictor variable on the outcome variable. Specifically, it represents the variation in the outcome variable for each one-unit increase in the predictor variable; however, because the B-value is unstandardised value, it is impossible to compare one predictive variable with the others. In order to do this, the standardised beta coefficient (β -value) was used.

While the regression coefficient is expressed directly in the units of the predictor variable to which it is associated, the beta coefficient is a standardised value, so it was possible to directly compare the beta-values of all the predictor variables included in a given model (Hair et al., 2014).

In addition, the coefficient of determination (R^2) was used. This statistic can be understood as the amount of variation in the outcome variable explained by the set of predictive variables present in the model. A challenge with R^2 is that it always increases with a greater number of variables in a model. Therefore, the adjusted- R^2 was used, which adjusts the R^2 to the number of variables present in the model, so a model with more predictive variables can have an adjusted- R^2 lower than a model with less predictive variables, which is impossible if using the traditional measure of R^2 (Hair et al., 2014).

The method of regression used in this research study was a backward elimination method, which begins with a full model followed by the progressive elimination of any non-significant variables. Of course, backward regression is somewhat controversial because the variables included in the final model are selected based solely on statistical rather than theoretical criteria (Kline, 2011). However, this method is recommended when building an exploratory model, as in this case, and has some advantages over the forward method (which starts with one variable and then adds the most suitable variable at each step). Specifically, the forward method dramatically increases the risk of excluding variables involved in suppressor effects. Overall, when using stepwise methods in regression models, backward elimination is usually the method most recommended (Field, 2009).

5.4.1. Differences between Expanded Nursing Stress Scale and demographic profile and employment background characteristics among the participants

In the linear regression, the demographic profile and employment background characteristics, with the negative linear regression beta coefficients (B values), can be seen as protective factors for workplace stress (outcome). Indeed, a negative beta coefficient indicates that an increase in a given predictive variables could result in a lower ENSS score, thus acting as a protective factor.

The linear regression, using the demographic profile and employment background characteristics, showed that the variables of gender and some participants' nationalities were the most relevant and were statistically significant for some ENSS subscales and the total ENSS score (i.e. predictive of workplace stress). Academic nursing qualification, years of PICU work experience in SA, and prior PICU work experience outside of SA were predictively irrelevant.

Indeed, successive regressions using each of the ENSS subscales showed that male nurses tended to report higher levels of stress than females nurses on the following dependent subscale variables: 'Death and dying' ($\beta = -0.150$, $F[1,170] = 3.911$, adjusted $R^2 = 0.017$, $p = 0.05$, Table 5.15), 'patients and their families' ($\beta = -0.188$, $F[2,169] = 4.273$, adjusted $R^2 = 0.037$, $p < 0.05$, Table 5.16), 'inadequate emotional preparation' ($\beta = -0.215$, $F[1,170] = 8.218$, adjusted $R^2 = 0.040$, $p < 0.01$, Table 5.17), 'uncertainty concerning treatment' ($\beta = -0.189$, $F[2,169] = 8.538$, adjusted $R^2 = 0.081$, $p < 0.01$, Table 5.19), 'problems relating to peers' ($\beta = -0.234$, $F[2,169] = 6.982$, adjusted $R^2 = 0.065$, $p < 0.01$, Table 5.21), 'discrimination' ($\beta = -0.216$, $F[2,169] = 4.891$, adjusted $R^2 = 0.044$, $p < 0.01$, Table 5.22), and total ENSS score ($\beta = -0.203$, $F[2,169] = 6.260$, adjusted $R^2 = 0.058$, $p < 0.01$, Table 5.23). It is important to note that, since gender is a nominal variable, the regression coefficient, in this case,

had no meaning in itself, and could only be interpreted in terms of understanding if being male or female predicts higher level of workplace stress. This same caution should be applied when interpreting the results of other nominal variables included in these models, such as participants' nationality.

In all cases, being male predicted higher scores for the mentioned subscales. Regarding participants' nationality, for expatriate participants, Filipinos had a positive relationship with the subscales of 'patients and their families' ($\beta = 0.144$, $F[2,169] = 4.273$, adjusted $R^2 = 0.037$, $p < 0.05$, Table 5.16), 'uncertainty concerning treatment' ($\beta = 0.266$, $F[2,169] = 8.538$, adjusted $R^2 = 0.081$, $p < 0.01$, Table 5.19), 'problems relating to peers' ($\beta = 0.185$, $F[2,169] = 6.982$, adjusted $R^2 = 0.065$, $p < 0.01$, Table 5.21), and total ENSS score ($\beta = 0.200$, $F[2,169] = 6.260$, adjusted $R^2 = 0.058$, $p < 0.01$, Table 5.23). Being Filipino predicted a higher score for the mentioned subscales, while being Indian predicted, with statistical significance, a lower workplace stress score on the subscales of 'workload' ($\beta = -0.222$, $F[2,169] = 4.186$, adjusted $R^2 = 0.036$, $p < 0.05$, Table 5.14) and 'problems relating to supervisors' ($\beta = -0.181$, $F[1,170] = 5.777$, adjusted $R^2 = 0.027$, $p < 0.05$, Table 5.18).

The only subscale to which participants from SA had a positive statistically significant relation was 'conflict with physicians'; that is, being participants from SA predicted a higher score in the 'conflict with physicians' subscale ($\beta = 0.262$, $F[2,169] = 6.833$, adjusted $R^2 = 0.064$, $p < 0.01$, Table 5.20). In conclusion, nationality was the variable that predicted greater workplace stress. Specifically, being an expatriate (Filipino) seemed to be a risk factor for it. Tables 5.14 – 5.23 provide the results of the multiple linear regression analysis for different subscales and the total ENSS, while Figure 5.8 summarises all the significant ENSS, demographic profile, and employment background characteristics.

Table 5.14: Summary of the backward regression analysis for the ‘workload’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	24.098	6.114		0.058
	Gender	-4.116	3.728	-0.112	
	Academic nursing qualification	0.482	1.567	0.033	
	PICU work experience (years in SA)	-0.013	0.137	-0.008	
	PICU work experience (years outside SA)	-0.102	0.188	-0.048	
	SA participants	-1.800	3.143	-0.089	
	Indian participants	-1.260	2.941	-0.086	
	Filipino participants	1.266	2.986	0.082	
2	Constant	23.808	5.297		0.000
	Gender	-4.062	3.675	-0.110	
	Academic nursing qualification	0.538	1.452	0.037	
	PICU work experience (years outside SA)	-0.100	0.186	-0.047	
	SA participants	-1.744	3.079	-0.086	
	Indian participants	-1.267	2.931	-0.087	
	Filipino participants	1.237	2.961	0.080	
3	Constant	25.466	2.825		-0.001
	Gender	-4.284	3.616	-0.116	
	PICU work experience (years outside SA)	-0.108	0.184	-0.051	
	SA participants	-1.886	3.048	-0.093	
	Indian participants	-1.440	2.886	-0.098	
	Filipino participants	1.404	2.919	0.091	
4	Constant	25.666	2.788		-0.001
	Gender	-3.217	2.850	-0.087	
	PICU work experience (years outside SA)	-0.116	0.183	-0.054	
	SA participants	-3.111	1.671	-0.153	
	Indian participants	-2.675	1.316	-0.183*	
5	Constant	25.279	2.716		-0.002
	Gender	-2.977	2.819	-0.081	
	SA participants	-2.955	1.649	-0.146	
	Indian participants	-2.999	1.210	-0.205*	
6	Constant	22.557	0.856		-0.006
	SA participants	-3.096	1.645	-0.152	
	Indian participants	-3.255	1.186	-0.222*	

Note: Total F(2,169) for Model 6 = 4.186, Adjusted R² = 0.036, * $p < 0.05$

Table 5.15: Summary of the backward regression analysis for the ‘death and dying’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	19.205	4.581		0.037
	Gender	-3.891	2.793	-0.143	
	Academic nursing qualification	-0.104	1.174	-0.010	
	PICU work experience (years in SA)	0.033	0.103	0.029	
	PICU work experience (years outside SA)	-0.156	0.141	-0.099	
	SA participants	-1.757	2.355	-0.117	
	Indian participants	-0.307	2.203	-0.028	
	Filipino participants	-0.495	2.237	-0.043	
2	Constant	18.855	2.290		0.000
	Gender	-3.841	2.725	-0.141	
	PICU work experience (years in SA)	0.037	0.095	0.031	
	PICU work experience (years outside SA)	-0.155	0.139	-0.097	
	SA participants	-1.719	2.309	-0.114	
	Indian participants	-0.280	2.175	-0.026	
	Filipino participants	-0.530	2.194	-0.047	
3	Constant	18.835	2.278		0.000
	Gender	-4.062	2.105	-0.149	
	PICU work experience (years in SA)	0.036	0.095	0.031	
	PICU work experience (years outside SA)	-0.156	0.138	-0.099	
	SA participants	-1.483	1.393	-0.099	
	Filipino participants	-0.280	1.002	-0.025	
4	Constant	18.749	2.251		0.000
	Gender	-4.148	2.077	-0.152*	
	PICU work experience (years in SA)	0.038	0.094	0.032	
	PICU work experience (years outside SA)	-0.142	0.126	-0.089	
	SA participants	-1.322	1.264	-0.088	
5	Constant	19.090	2.079		-0.001
	Gender	-4.189	2.069	-0.154*	
	PICU work experience (years outside SA)	-0.143	0.126	-0.090	
	SA participants	-1.485	1.194	-0.099	
6	Constant	18.583	2.032		-0.007
	Gender	-4.080	2.068	-0.150*	
	SA participants	-1.084	1.141	-0.072	
7	Constant	18.429	2.025		-0.005
	Gender	-4.089	2.068	-0.150*	

Note: Total F(1,170) for Model 7 = 3.911, Adjusted R² = 0.017, * p = 0.05

Table 5.16: Summary of the backward regression analysis for the ‘patients and their families’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	24.187	5.303		0.065
	Gender	-8.457	3.233	-0.264*	
	Academic nursing qualification	-0.668	1.359	-0.052	
	PICU work experience (years in SA)	-0.046	0.119	-0.033	
	PICU work experience (years outside SA)	-0.184	0.163	-0.099	
	SA participants	0.423	2.726	0.024	
	Indian participants	2.633	2.551	0.207	
	Filipino participants	3.990	2.589	0.298	
2	Constant	24.406	5.098		0.000
	Gender	-8.224	2.854	-0.257*	
	Academic nursing qualification	-0.707	1.333	-0.055	
	PICU work experience (years in SA)	-0.049	0.117	-0.036	
	PICU work experience (years outside SA)	-0.188	0.160	-0.101	
	Indian participants	2.316	1.524	0.182	
	Filipino participants	3.683	1.667	0.275*	
	3	Constant	23.394	4.487	
Gender		-7.897	2.741	-0.246*	
Academic nursing qualification		-0.511	1.246	-0.040	
PICU work experience (years outside SA)		-0.183	0.159	-0.098	
Indian participants		2.128	1.454	0.167	
Filipino participants		3.413	1.536	0.255*	
4	Constant	21.842	2.402		-0.001
	Gender	-7.600	2.637	-0.237*	
	PICU work experience (years outside SA)	-0.177	0.158	-0.095	
	Indian participants	2.188	1.443	0.172	
	Filipino participants	3.147	1.388	0.235*	
5	Constant	21.286	2.352		-0.007
	Gender	-7.124	2.605	-0.222*	
	Indian participants	1.549	1.326	0.122	
	Filipino participants	3.028	1.385	0.226*	
6	Constant	21.286	2.355		-0.008
	Gender	-6.024	2.431	-0.188*	
	Filipino participants	1.928	1.016	0.144*	

Note: Total F(2,169) for Model 6 = 4.273, Adjusted R² = 0.037, * $p < 0.05$

Table 5.17: Summary of the backward regression analysis for the ‘inadequate emotional preparation’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	8.699	2.039		0.068
	Gender	-3.613	1.243	-0.293*	
	Academic nursing qualification	0.072	0.523	0.014	
	PICU work experience (years in SA)	-0.025	0.046	-0.048	
	PICU work experience (years outside SA)	-0.051	0.063	-0.071	
	SA participants	0.195	1.048	0.029	
	Indian participants	1.258	0.981	0.256	
	Filipino participants	0.983	0.996	0.191	
2	Constant	8.940	1.020		0.000
	Gender	-3.648	1.213	-0.296*	
	PICU work experience (years in SA)	-0.028	0.042	-0.052	
	PICU work experience (years outside SA)	-0.052	0.062	-0.073	
	SA participants	0.168	1.028	0.025	
	Indian participants	1.239	0.968	0.252	
	Filipino participants	1.007	0.977	0.195	
3	Constant	8.977	0.992		0.000
	Gender	-3.545	1.032	-0.287*	
	PICU work experience (years in SA)	-0.028	0.042	-0.054	
	PICU work experience (years outside SA)	-0.054	0.061	-0.075	
	Indian participants	1.113	0.584	0.227	
	Filipino participants	0.876	0.553	0.170	
4	Constant	8.736	0.924		-0.003
	Gender	-3.422	1.015	-0.277*	
	PICU work experience (years outside SA)	-0.052	0.061	-0.073	
	Indian participants	0.991	0.555	0.202	
	Filipino participants	0.779	0.534	0.151	
5	Constant	8.571	0.904		-0.004
	Gender	-3.281	1.001	-0.266*	
	Indian participants	0.802	0.510	0.163	
	Filipino participants	0.744	0.532	0.144	
6	Constant	8.571	0.906		-0.011
	Gender	-2.796	0.941	-0.227*	
	Indian participants	0.317	0.374	0.065	
7	Constant	8.571	0.905		-0.004
	Gender	-2.650	0.924	-0.215*	

Note: Total F(1,170) for Model 7 = 8.218, Adjusted R² = 0.040, * $p < 0.01$

Table 5.18: Summary of the backward regression analysis for the ‘problems relating to supervisors’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	17.251	5.980		0.048
	Gender	-0.692	3.646	-0.019	
	Academic nursing qualification	0.261	1.533	0.018	
	PICU work experience (years in SA)	0.007	0.134	0.004	
	PICU work experience (years outside SA)	-0.149	0.184	-0.072	
	SA participants	-3.360	3.074	-0.170	
	Indian participants	-4.107	2.876	-0.288	
	Filipino participants	-2.046	2.920	-0.137	
2	Constant	17.401	5.181		0.000
	Gender	-0.719	3.594	-0.020	
	Academic nursing qualification	0.233	1.420	0.016	
	PICU work experience (years outside SA)	-0.150	0.182	-0.072	
	SA participants	-3.388	3.012	-0.172	
	Indian participants	-4.104	2.867	-0.288	
	Filipino participants	-2.031	2.896	-0.136	
3	Constant	18.118	2.763		0.000
	Gender	-0.815	3.536	-0.023	
	PICU work experience (years outside SA)	-0.153	0.180	-0.074	
	SA participants	-3.449	2.980	-0.175	
	Indian participants	-4.179	2.822	-0.293	
	Filipino participants	-1.958	2.854	-0.131	
4	Constant	17.704	2.093		0.000
	PICU work experience (years outside SA)	-.151	0.179	-0.073	
	SA participants	-3.819	2.504	-0.193	
	Indian participants	-4.589	2.185	-0.322*	
	Filipino participants	-2.362	2.248	-0.158	
5	Constant	17.250	2.021		-0.004
	SA participants	-3.365	2.444	-0.170	
	Indian participants	-4.750	2.175	-0.333*	
	Filipino participants	-2.078	2.221	-0.139	
6	Constant	15.529	0.837		-0.005
	SA participants	-1.644	1.607	-0.083	
	Indian participants	-3.029	1.159	-0.213*	
7	Constant	15.083	0.714		-0.006
	Indian participants	-2.583	1.075	-0.181*	

Note: Total F(1,170) for Model 7 = 5.777, Adjusted R² = 0.027, * $p < 0.05$

Table 5.19: Summary of the backward regression analysis for the ‘uncertainty concerning treatment’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	22.164	6.574		0.110
	Gender	-6.450	4.008	-0.158	
	Academic nursing qualification	0.828	1.685	0.051	
	PICU work experience (years in SA)	-0.071	0.148	-0.041	
	PICU work experience (years outside SA)	-0.221	0.202	-0.093	
	SA participants	-0.555	3.379	-0.025	
	Indian participants	-1.089	3.162	-0.067	
	Filipino participants	2.713	3.210	0.159	
2	Constant	21.877	6.319		0.000
	Gender	-6.756	3.539	-0.166	
	Academic nursing qualification	0.879	1.652	0.054	
	PICU work experience (years in SA)	-0.067	0.145	-0.038	
	PICU work experience (years outside SA)	-0.215	0.198	-0.091	
	Indian participants	-0.673	1.890	-0.042	
	Filipino participants	3.116	2.066	0.183	
	3	Constant	22.106	6.270	
Gender		-7.261	3.234	-0.178*	
Academic nursing qualification		0.873	1.648	0.054	
PICU work experience (years in SA)		-0.082	0.138	-0.047	
PICU work experience (years outside SA)		-0.242	0.182	-0.102	
Filipino participants		3.553	1.658	0.209*	
4		Constant	24.979	3.137	
	Gender	-7.875	3.013	-0.193*	
	PICU work experience (years in SA)	-0.108	0.128	-0.062	
	PICU work experience (years outside SA)	-0.254	0.180	-0.107	
	Filipino participants	4.092	1.306	0.241*	
	5	Constant	24.126	2.966	
Gender		-7.739	3.006	-0.190*	
PICU work experience (years outside SA)		-0.267	0.179	-0.113	
Filipino participants		4.017	1.302	0.236*	
6	Constant	23.286	2.923		-0.012
	Gender	-7.706	3.017	-0.189*	
	Filipino participants	4.524	1.261	0.266*	

Note: Total F(2,169) for Model 6 = 8.538, Adjusted R² = 0.081, * $p < 0.01$

Table 5.20: Summary of the backward regression analysis for the ‘conflict with physicians’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	11.869	3.608		0.079
	Gender	-3.139	2.200	-0.143	
	Academic nursing qualification	-0.042	0.925	-0.005	
	PICU work experience (years in SA)	-0.015	0.081	-0.016	
	PICU work experience (years outside SA)	-0.079	0.111	-0.061	
	SA participants	0.381	1.855	0.031	
	Indian participants	0.398	1.736	0.046	
	Filipino participants	2.661	1.762	0.290	
2	Constant	11.728	1.804		0.000
	Gender	-3.118	2.147	-0.142	
	PICU work experience (years in SA)	-0.013	0.075	-0.014	
	PICU work experience (years outside SA)	-0.078	0.109	-0.061	
	SA participants	0.396	1.819	0.033	
	Indian participants	0.409	1.713	0.047	
	Filipino participants	2.647	1.728	0.288	
3	Constant	11.607	1.667		0.000
	Gender	-3.087	2.133	-0.141	
	PICU work experience (years outside SA)	-0.077	0.109	-0.060	
	SA participants	0.439	1.798	0.036	
	Indian participants	0.384	1.703	0.044	
	Filipino participants	2.635	1.722	0.287	
4	Constant	11.646	1.653		0.000
	Gender	-2.784	1.652	-0.127	
	PICU work experience (years outside SA)	-0.074	0.108	-0.058	
	SA participants	0.108	1.036	0.009	
	Filipino participants	2.290	0.785	0.249*	
5	Constant	11.676	1.623		0.000
	Gender	-2.775	1.645	-0.126	
	PICU work experience (years outside SA)	-0.079	0.098	-0.062	
	Filipino participants	2.256	0.712	0.246*	
6	Constant	11.429	1.592		-0.004
	Gender	-2.765	1.643	-0.126	
	SA participants	2.405	0.687	0.262*	

Note: Total F(2,169) for Model 6 = 6.833, Adjusted R² = 0.064, * $p < 0.01$

Table 5.21: Summary of the backward regression analysis for the ‘problems relating to peers’ subscale

Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	12.603	3.998		0.095
	Gender	-6.174	2.438	-0.251*	
	Academic nursing qualification	0.476	1.025	0.048	
	PICU work experience (years in SA)	0.018	0.090	0.017	
	PICU work experience (years outside SA)	0.139	0.123	0.097	
	SA participants	2.692	2.055	0.199	
	Indian participants	0.744	1.923	0.076	
	Filipino participants	3.008	1.952	0.293	
2	Constant	12.998	3.464		0.000
	Gender	-6.247	2.403	-0.254*	
	Academic nursing qualification	0.400	0.950	0.041	
	PICU work experience (years outside SA)	0.136	0.122	0.095	
	SA participants	2.616	2.014	0.193	
	Indian participants	0.753	1.917	0.077	
	Filipino participants	3.047	1.937	0.297	
3	Constant	13.258	3.392		-0.001
	Gender	-5.692	1.940	-0.232*	
	Qualification	0.341	0.935	0.035	
	PICU work experience (years outside SA)	0.140	0.121	0.098	
	SA participants	1.967	1.152	0.145	
	Filipino participants	2.405	1.038	0.234*	
4	Constant	14.297	1.833		-0.001
	Gender	-5.919	1.832	-0.241*	
	PICU work experience (years outside SA)	0.134	0.120	0.094	
	SA participants	1.972	1.148	0.146	
	Filipino participants	2.610	0.871	0.254*	
5	Constant	14.794	1.780		-0.007
	Gender	-5.888	1.833	-0.240*	
	SA participants	1.445	1.049	0.107	
	Filipino participants	2.233	0.803	0.218*	
6	Constant	15.000	1.778		-0.010
	Gender	-5.757	1.835	-0.234*	
	Filipino participants	1.895	0.767	0.185*	

Note: Total F(2,169) for Model 6 = 6.982, Adjusted R² = 0.065, * $p < 0.01$

Table 5.22: Summary of the backward regression analysis for the ‘discrimination’ subscale

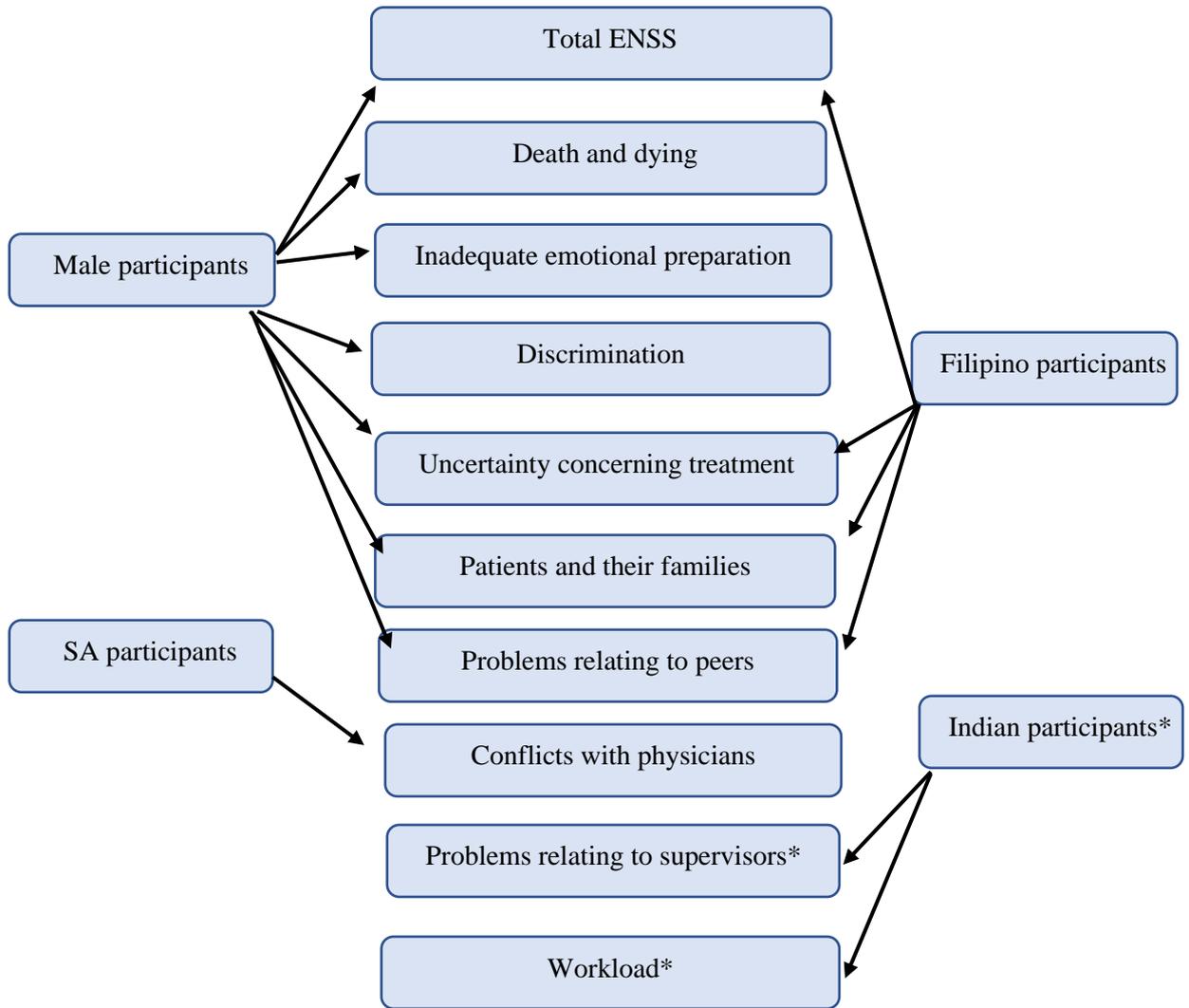
Model	Variable	B	SE(B)	β	R ² Δ
1	Constant	8.163	2.479		0.069
	Gender	-4.122	1.511	-0.275*	
	Academic nursing qualification	-0.577	0.635	-0.096	
	PICU work experience (years in SA)	-0.051	0.056	-0.079	
	PICU work experience (years outside SA)	0.055	0.076	0.063	
	SA participants	0.690	1.274	0.083	
	Indian participants	0.522	1.192	0.087	
	Filipino participants	1.813	1.210	0.289	
2	Constant	8.330	2.443		-0.001
	Gender	-3.735	1.223	-0.249*	
	Academic nursing qualification	-0.616	0.628	-0.103	
	PICU work experience (years in SA)	-0.050	0.056	-0.078	
	PICU work experience (years outside SA)	0.058	0.076	0.066	
	SA participants	0.244	0.762	0.029	
	Filipino participants	1.368	0.653	0.218*	
	3	Constant	8.518	2.365	
Gender		-3.738	1.220	-0.249*	
Academic nursing qualification		-0.639	0.622	-0.107	
PICU work experience (years in SA)		-0.056	0.052	-0.087	
PICU work experience (years outside SA)		0.048	0.069	0.055	
Filipino participants		1.309	0.625	-0.209*	
4		Constant	8.814	2.323	
	Gender	-3.777	1.217	-0.252*	
	Academic nursing qualification	-0.692	0.616	-0.115	
	PICU work experience (years outside SA)	-0.055	0.052	-0.085	
	Filipino participants	1.251	0.619	0.199*	
5	Constant	7.644	2.041		-0.006
	Gender	-3.549	1.198	-0.236*	
	Academic nursing qualification	-0.453	0.573	-0.075	
	Filipino participants	1.075	0.596	0.171	
6	Constant	6.286	1.099		-0.004
	Gender	-3.248	1.135	-0.216*	
	Filipino participants	0.790	0.474	0.126	

Note: Total F(2,169) for Model 6 = 4.891, Adjusted R² =0.044, * $p < 0.01$

Table 5.23: Summary of the backward regression analysis for the total Expanded Nursing Stress Scale

Model	Variable	B	SE(B)	β	R ² Δ		
1	Constant	148.239	34.150		0.073		
	Gender	-40.654	20.822	-0.196			
	Academic nursing qualification	0.729	8.755	0.009			
	PICU work experience (years in SA)	-0.162	0.767	-0.018			
	PICU work experience (years outside SA)	-0.749	1.048	-0.062			
	SA participants	-3.091	17.556	-0.027			
	Indian participants	-1.208	16.426	-0.015			
	Filipino participants	13.893	16.677	0.160			
2	Constant	147.854	33.643		0.000		
	Gender	-41.549	16.846	-0.201*			
	Academic nursing qualification	0.819	8.643	0.010			
	PICU work experience (years in SA)	-0.164	0.765	-0.018			
	PICU work experience (years outside SA)	-0.755	1.042	-0.063			
	SA participants	-2.058	10.491	-0.018			
	Filipino participants	14.925	8.992	0.172			
	3	Constant	150.602	16.984			0.000
Gender		-42.118	15.691	-0.203*			
PICU work experience (years in SA)		-0.191	0.706	-0.022			
PICU work experience (years outside SA)		-0.771	1.025	-0.064			
SA participants		-2.175	10.386	-0.019			
Filipino participants		15.396	7.473	0.178*			
4		Constant	149.623	16.281		0.000	
		Gender	-42.244	15.634	-0.204*		
	PICU work experience (years in SA)	-0.143	0.667	-0.016			
	PICU work experience (years outside SA)	-0.684	0.935	-0.057			
	Filipino participants	16.047	6.776	0.185*			
	5	Constant	148.490	15.362			0.000
		Gender	-42.064	15.568	-0.203*		
		PICU work experience (years outside SA)	-0.701	0.929	-0.058		
Filipino participants		15.947	6.741	0.184*			
6		Constant	146.286	15.063		-0.003	
		Gender	-41.977	15.548	-0.203*		
		Filipino participants	17.278	6.498	0.200*		

Note: Total F(2,169) for Model 6 = 6.260, Adjusted R² = 0.058, * $p < 0.01$



*Had negative relationship

Figure 5.8: Summary of the significant areas/aspects of the Expanded Nursing Stress Scale, and participants' personal characteristics (linear regression)

5.4.2. Differentiation of levels of workplace stress and participants demographic profile and employment background characteristics

This section describes the multinomial logistic regression analysis performed to explore the relationship between levels of workplace stress levels (low, medium, and high) as categorised by this research study in the descriptive analysis section and demographics profile characteristics, including gender, academic nursing qualification, and nationality (SA, Filipino, or Indian) and employment background characteristics (Table 5.24).

Table 5.24 shows that few demographic characteristics were found to be significantly related to the level of workplace stress when controlling all confounding variables (demographic profile and employment background characteristics variables). The exceptions were Indian and Filipino participants and participants holding Diploma in Nursing who reported a medium level of workplace stress; Filipino participants, who reported high levels of workplace stress compared to Indian and SA participants. In general, Filipino participants had medium to high levels of workplace stress. However, there was no correlation to the other demographic profile and employment background characteristics and levels of workplace stress, as illustrated in Table 5.24. The summary of the significant multiple regression analysis is shown in Figure 5.9.

Table 5.24: Multinomial logistic regression for levels of workplace stress

Levels of workplace stress ^a		B	Wald	Sig.	Exp(B)	95% CI
Medium	Intercept	-1.220	0.726	0.394		
	Academic nursing qualification = Diploma in Nursing	1.088	4058.000	0.044*	2.969	1.030–8.558
	Academic nursing qualification = BSN	0 ^b				
	Nationality = Indian	1.394	4.152	0.042*	4.033	1.055–15.419
	Nationality = Filipino	1.879	6.459	0.011*	6.545	1.537–27.872
	Nationality = SA	0 ^b				
	PICU work experience (outside SA) = None	-0.268	0.045	0.831	0.765	0.065–8.995
	PICU work experience (outside SA) = 1–10 yrs	-1.459	1.462	0.227	0.232	0.022–2.475
	PICU work Experience (outside SA) = 11–20 yrs	0 ^b				
	High	Intercept	-0.047	0.001	0.974	
Academic nursing qualification = Diploma in Nursing		-0.117	0.053	0.819	0.890	0.327–2.418
Academic nursing qualification = BSN		0 ^b				
Nationality = Indian		0.829	1.526	0.217	2.291	0.615–8.535
Nationality = Filipino		1.353	4.328	0.037*	3.868	1.082–13.831
Nationality = SA		0 ^b				
PICU work experience (outside SA) = None		-0.512	0.151	0.698	0.599	0.045–7.961
PICU work experience (outside SA) = 1–10 yrs		-1.600	1.574	0.210	0.202	0.017–2.459
PICU work experience (outside SA) = 11–20 yrs		0 ^b				

Note: Goodness-of-fit measures: -2, log likelihood = 87.887, $p = 0.014$; Pearson chi-squared = 23,324, $p = 0.717$. a. The category of reference is 'low'; b. corresponds to the category of reference for each variable.

* $p < 0.05$

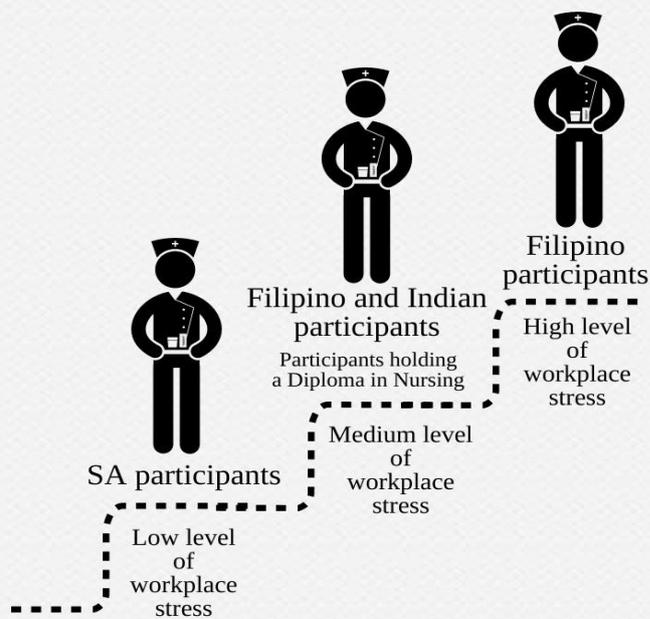
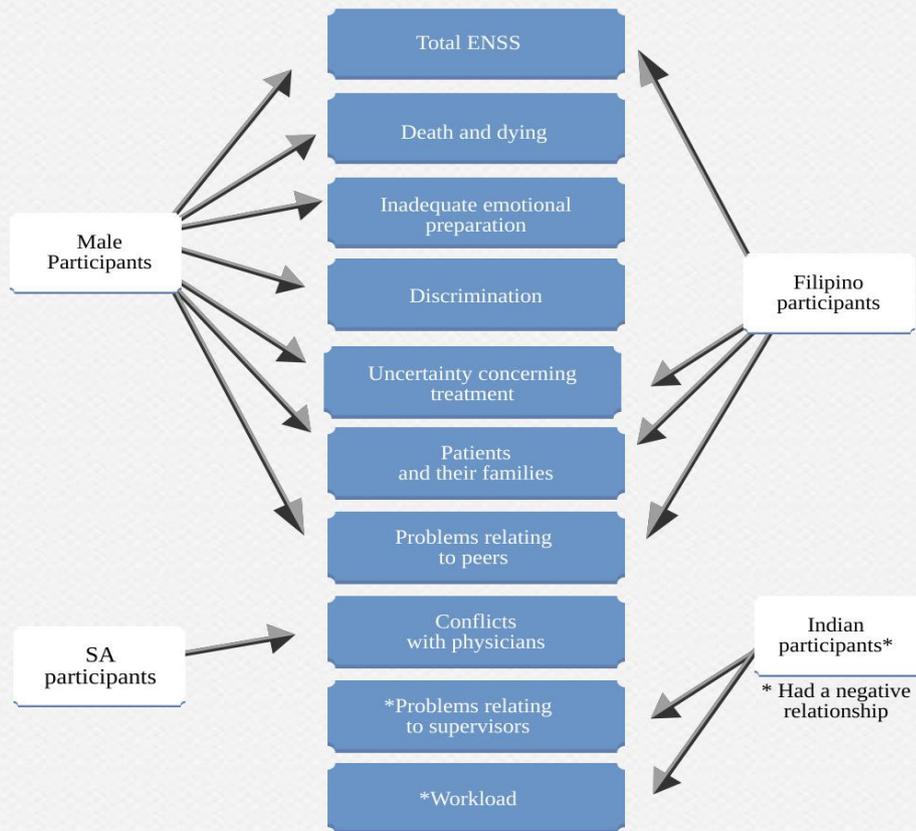


Figure 5.9: Summary of the significant multiple regression analysis

5.5. Summary of the chapter

This chapter has presented the results of the quantitative data collected from the cross-sectional questionnaire distributed among nurses in PICUs in SA. The results in the descriptive section revealed that most participants were female and expatriates; they were predominantly Indian and Filipino. The proportion of male participants was very low (4.1 %), and the majority of them were also expatriates.

The majority of the participants held a BSN, and had no prior PICU work experience outside SA (especially the SA participants). Those participants who had not previously worked in PICUs outside SA had less than 10 years PICU work experience in SA. Similarly, the participants who had previous PICU work experience outside SA also had fewer than 10 years of PICU work experience outside SA.

The participants' responses to the ENSS indicated that nurses in PICUs in SA experience different sources of workplace stress including 'workload', 'death and dying' and 'patients and their families', 'inadequate emotional preparation', and 'problems relating to supervisors'. Overall, the participants were affected by a medium level of workplace stress experiences in the PICU in SA, which was classified by ENSS as 'never stressful' to 'occasionally stressful'.

The multiple regression analysis highlighted the relevance of the participants' gender, nationality, and academic nursing qualification.

Figure 5.10 summarised the quantitative results from Phase 1, guiding the researcher in the qualitative phase (Phase 2) of this research study, including the three highest sources of workplace stress identified in the ENSS ('workload', 'death and dying' and 'patients and their families') and their relationship with participants' personal characteristics and levels of workplace stress.

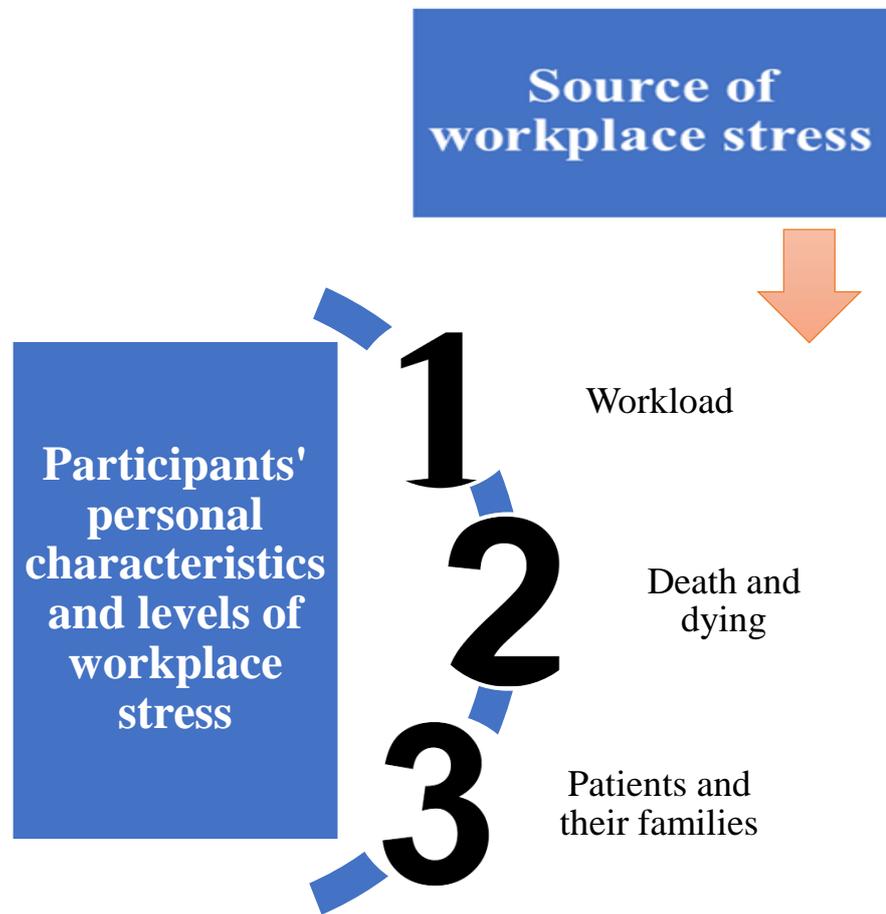


Figure 5.10: Summary of the quantitative results that guided the qualitative phase (Phase 2)

The next chapter presents the results from the qualitative data analysis and discusses participants' perceptions of workplace stress in the PICU in SA.

Chapter Six: Qualitative results

6.1. Introduction

As discussed in Chapter One, the aim of the research study was to explore workplace stress among nurses in PICUs in SA. The purpose of this chapter is to present the results from the Phase 2 qualitative interviews that further explored participants' perceptions of workplace stress in the PICU, and which highlighted other sources of workplace stress and its consequences on the quality of nursing care delivered to child patients in the PICU.

This chapter has three sections, following a description of the participants in Phase 2 of the research study, the six themes and 21 sub-themes that emerged from the data are presented; these will be illustrated with direct quotes from the participants' transcripts. Finally, the chapter compares different participants' views of sources of workplace stress according to their personal characteristics and then draws conclusions from the analysis.

6.2. Participants in the qualitative phases of this research study

As reported in the methodology chapter (Chapter Four), the quantitative results influenced the selection and recruitment of participants in the qualitative phase of this research study. As all participants had previously completed the questionnaire in the quantitative phase (Phase 1), participants' personal characteristics such as gender, nationality, academic nursing qualifications, years of PICU work experience (inside and previously outside of SA) and levels of workplace stress were already known (Chapter Five). Thus, to explore the range of participants' perceptions, the researcher categorised participants who were willing to participate in the qualitative phase (Phase

2) according to years of PICU work experience in SA, academic nursing qualification (Diploma in Nursing or BSN) and levels of workplace stress (low, medium or high). Participants with 10 or fewer years of PICU work experience in SA were assigned to category one, and those with 11–30 years of PICU work experience in SA were assigned to category two and then the researcher selected participants randomly (as reported in the methodology chapter (Chapter Four) based on their previously disclosed personal characteristics.

In total, a purposive sample of 24 nurses working in PICUs at six public hospitals in the cities of Riyadh and Dammam in SA were interviewed at their place of work. None of the nurses conducted any administrative work and all had the same level of employment as well as role and responsibility toward child patients in PICUs. Of the 24 participants, 23 were female. The sample included two SA participants, 14 Indian, six Filipino, one Jordanian and one Malaysian; all had either a Diploma in Nursing or a BSN. In terms of PICU work experience in SA, 17 participants had worked there for 10 years or less while seven had more than 10 years of work experience in this context. Regarding previous PICU work experience outside SA, 15 participants had none and nine had less than 10 years. In relation to levels of workplace stress, in Phase 1, eight participants had described them as low, nine as medium and seven as high.

Table 6.1 summarises the participants' personal characteristics, and Table 6.2 shows the distribution of the qualitative phase participants in each category.

Table 6.1: Participant profiles in the qualitative phase (Phase 2) of this research study

Participant identification	Gender	Nationality	Academic nursing qualification	Years of PICU work experience in SA	Years of PICU work experience outside SA	Level of workplace stress
P1	Female	Indian	Diploma in Nursing	5	9	Low
P2	Female	Indian	Diploma in Nursing	10	7	Medium
P3	Female	Indian	Diploma in Nursing	10	3	Low
P4	Female	Indian	Diploma in Nursing	15	0	Low
P5	Female	Filipino	BSN	5	0	High
P6	Female	Indian	BSN	5	9	Low
P7	Female	Malaysian	BSN	5	0	Low
P8	Male	Jordanian	BSN	10	2	High
P9	Female	Filipino	BSN	6	0	High
P10	Female	SA	BSN	2	0	Low
P11	Female	Indian	Diploma in Nursing	12	6	Medium
P12	Female	Indian	Diploma in Nursing	10	0	Medium
P13	Female	Indian	Diploma in Nursing	12	0	High
P14	Female	Indian	Diploma in Nursing	7	0	Medium
P15	Female	Indian	Diploma in Nursing	12	0	Medium
P16	Female	SA	Diploma in Nursing	7	0	High
P17	Female	Filipino	BSN	5	0	Medium
P18	Female	Indian	Diploma in Nursing	7	6	Low
P19	Female	Indian	Diploma in Nursing	12	2	Low
P20	Female	Indian	Diploma in Nursing	6	6	High
P21	Female	Filipino	BSN	11	0	High
P22	Female	Filipino	BSN	10	0	Medium
P23	Female	Filipino	BSN	1	0	Medium
P24	Female	Indian	Diploma in Nursing	15	0	Medium

Table 6.2: Distribution of participants in the qualitative phases of this research study by years of paediatric intensive care unit work experience in Saudi Arabia

Years of PICU work experience in SA	Academic nursing qualification	Levels of workplace stress		
		Low	Medium	High
0–10 years	Diploma in Nursing	P1, P3, P18	P2, P12, P14	P16, P20
	BSN	P6, P7, P10	P17, P22, P23	P5, P8, P9
11–30 years	Diploma in Nursing	P4, P19	P11, P15, P24	P13
	BSN	-	-	P21

6.3. Results of qualitative data analysis

Table 6.3 outlines the themes and sub-themes that emerged from the analysis of the qualitative data collected during this research study.

Table 6.3: Themes and sub-themes that emerged from the analysis of the qualitative data

Themes and Sub-themes
Theme one: Sources of workplace stress
<ul style="list-style-type: none"> • Sub-theme one: Workload • Sub-theme two: Caring for critically ill children • Sub-theme three: Cultural challenges • Sub-theme four: Nursing management and nursing colleagues
Theme two: Consequences of workplace stress
<ul style="list-style-type: none"> • Sub-theme one: Psychological health • Sub-theme two: Behavioural health • Sub-theme three: Quality of nursing care • Sub-theme four: Physiological health
Theme three: Individual characteristics that help to manage workplace stress
<ul style="list-style-type: none"> • Sub-theme one: Work experience • Sub-theme two: Undergraduate nursing education • Sub-theme three: Religion and beliefs
Theme four: Work characteristics that help to manage workplace stress
<ul style="list-style-type: none"> • Sub-theme one: Inter-professional collaborative working environments • Sub-theme two: Continuing education programmes for nurses • Sub-theme three: Being respected • Sub-theme four: Nursing orientation programme • Sub-theme five: Cultural awareness
Theme five: Motivation to work in PICUs in SA
<ul style="list-style-type: none"> • Sub-theme one: Job satisfaction • Sub-theme two: Professional development
Theme six: Suggestions for workplace stress management
<ul style="list-style-type: none"> • Sub-theme one: Hospital human resource department management • Sub-theme two: Hospital management • Sub-theme three: Nursing management

As Table 6.3 shows, the main themes that emerged from the analysis were as follows: ‘sources of workplace stress’, ‘consequences of workplace stress’, ‘individual characteristics that help to manage workplace stress’, ‘work characteristics that help to manage workplace stress’, ‘motivation to work in PICUs in SA’ and ‘suggestions for workplace stress management’. These themes are discussed in sections 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, and 6.3.6, respectively, along with the emerging sub-themes.

6.3.1. Theme one: Sources of workplace stress

Table 6.4 outlines the reported sources of workplace stress. This is followed by a more detailed description of each of the sub-themes, which are ordered according to the number of participants who mentioned them.

Table 6.4: Sources of workplace stress

Sources of workplace stress	Number of participants who reported the source	Sub-theme description	Common participant personal characteristics
Workload	21	This included numerous nursing and non-nursing tasks that lead to workload pressure. Also, they were aggravated by the shortage of nurses in PICUs and other acute and critical paediatric units.	Male participant included
Caring for critically ill children	17	Taking care of critically ill children in the PICU. This was elevated by child deaths in the PICU, sometimes increased by being a parent and/or having a therapeutic relationship with the child patient. This also increased workplace stress through facing the emotional stress of the parents and families of the critically ill child who had died.	None
Cultural challenges	12	The culture of SA and its view of nursing as a low-status profession were challenges for participants in terms of dealing with parents and families of critically ill children; for example, feeling disrespected by them. Also, when dealing with physicians in the PICU who they felt challenged and disrespected them on some occasions when working with them.	All expatriate participants

Nursing management and nursing colleagues	10	Problems with superiors, including nurse managers and nurse supervisors; a lack of support or consideration from them; perceived unprofessional modes of communication and not feeling valued. For example, loud communication or shouting in the participant's face when requesting a nursing task to be accomplished by the participants for a critically ill child were sources of workplace stress in the PICU. Also, feeling unsupported by their nursing colleagues led to additional workplace stress in the PICU.	Male participant included
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6.3.1.1. Sub-theme one: Workload

Workload was the most commonly mentioned source of workplace stress in PICUs (n = 21; see Table 6.4), these participants' personal characteristics showed no commonality, and the only male participant also felt that workload was a source of workplace stress in the PICU. Seventeen participants believed that caring for critically ill children in the PICU involves numerous nursing and non-nursing tasks that increase nurses' workload. Nursing tasks referred to the large amount of time that activities could take as well as their complexity (e.g., administering medications) and the way these affect nurses' abilities to undertake other tasks, such as performing physical assessments and completing documentation and paperwork, thereby increasing their workplace stress. Participant 22 compared the wide and unrealistic scope of nurses' responsibilities to being *"an octopus who has to do everything"*, and others shared her concerns.

"There are several requests in several areas. Sometimes, maybe, five or six hands are not enough and we feel some stress." (Participant 19)

"The workload is the most stressful thing: Starting antibiotics, taking blood samples, and then, suddenly, a cardiac arrest patient comes in, which means intubation, reintubation. It's a lot. We have a lot of work here." (Participant 16)

Administering multiple medications to critically ill children required careful calculation of dosage and continuous monitoring because medication was based on the child's body weight.

“Especially medication — medication calculations; all paediatric medication will be based on body weight, so it is different for each patient. We have to calculate each dose based on the body weight. We must be very careful.” (Participant 2)

“For paediatric patients, a slight difference in the amount of medication may have a major impact on the child. This is very serious, so that is why it is a little bit stressful. We have to be very careful.” (Participant 7)

Arguably, this task in itself increases workplace stress, not least because of the responsibility it places on the nurses who perform it. In addition, four participants raised concerns that if *“you have to handle him [the child] alone, there are so many procedures to perform, so it is also stressful”* (Participant 5). In these situations, they reported asking other nurses for help.

Additionally, Participants 11 and 21 raised concerns about the scarcity of PICU equipment and supplies as a factor that affects their workload, requiring them to search for these resources in other nursing units.

“When there is an emergency situation, we do not have enough equipment to administer medication to the patients — there are too many shortages, and almost all of the syringe pumps are not working. We need maybe five or six syringe pumps at a time, but where can we get them? That is a really stressful situation.” (Participant 11)

Another factor that added to the nurses' workload, causing workplace stress, was the amount of documentation and paperwork required for critically ill children in the PICU. This issue was mentioned by four participants, one of whom believed it to be the main source of workplace stress.

“Another stressor is the documentation. The workload comes from too much paperwork in the PICU. In my opinion, most of the stress comes from the paperwork.” (Participant 8)

Non-nursing tasks were also seen to add to the nurses' heavy workload, including the need to request consultations with other physician teams, cleaning the rooms of critically ill children and checking whether PICU equipment was working. Again, by affecting the nurses' workload, these tasks were seen to increase workplace stress.

“Nurses are the ones who are most involved with in-patient care. Nurses have to do a little bit of everything: infection control, patient care, documentation, dietitian — they even have to check that equipment is functioning. All of these things are under the supervision of nurses, which entails some stress.” (Participant 19)

Finally, according to nine participants, the number of tasks, both nursing and non-nursing, was affected by a shortage of nurses in the PICU. This meant, for example, that nurses were required to care for two critically ill children on the same nursing shift, which increased their workload and caused them additional workplace stress, especially if the child patient required immediate and constant attention.

“The ideal workload in the PICU is one patient to one nurse, but when we have a shortage, we may have to look after two patients, increasing the workload and the level of stress.” (Participant 7)

“Sometimes we are managing two patients. They may be critical, and when one patient needs something from us, it becomes very stressful. The other patient is deteriorating, and you are managing another patient. For a nurse, this is very stressful.” (Participant 13)

Three of the participants who mentioned workload as a consequence of a shortage of nurses in the PICU also noted that other acute and critical paediatric units also suffered from a shortage of nurses which meant that nurses in the PICU were required to do nursing tasks (such as intravenous line insertion or venepuncture) in other acute or critical paediatric units anytime during their nursing shift, even when they were busy in the PICU. As well as increasing these nurses' workload, and

causing additional workplace stress, this also affected the nurses who remained in the PICU as they were required to cover their nursing colleagues' absence.

6.3.1.2. Sub-theme two: Caring for critically ill children

Seventeen participants mentioned another factor that also emerged during the discussion of workload — caring for critically ill children. Again, there was no commonality among the personal characteristics of those participants; they all mentioned that being responsible for the care and management of critically ill children, who needed constant assessment and monitoring, was a source of workplace stress. For example, Participant 20 emphasised that this was one characteristic of the PICU that made it stressful for nurses. Participants also explained that in other acute or critical paediatric units, such as medical or ER paediatric units, any child in a critical condition is immediately transferred to the PICU; caring for children who are all in a critical condition makes it a very stressful environment.

“Any critical patient can have an emergency; any patient can arrest, so you always have to be prepared. This means stress.” (Participant 15)

“If the patient is critical, we have to be more careful. We have to make an extra effort and take care.” (Participant 24)

Furthermore, the workplace stress is exacerbated when a critically ill child dies. In this regard, three of the participants reported having developed a strong therapeutic relationship and bond with the critically ill child which meant that the child's death had a particularly severe effect on them.

“A patient with whom you have a relationship — once we did everything for that patient. This patient was coded¹ several times, and we could not save him. But when he died, I cried more than anyone, even my consultant. It was stressful.” (Participant 4)

¹ *Coded*: when the patient is in cardiopulmonary arrest and not breathing and/or has no pulse, he or she immediately requires resuscitation.

Six of the participants reported that the death of a critically ill child caused workplace stress, particularly for those nurses who themselves had children.

“If there is a critical patient who died, then that will affect us. At that time, we are thinking about our child, it is very stressful.” (Participant 13)

“Still, we are stressed because we are human beings. We also have children, so we are putting ourselves in the parents’ or family’s shoes. We can see what they are dealing with; it is very stressful.” (Participant 21)

In addition to the workplace stress of the traumatic nature of the event itself, the participants experienced further workplace stress when, following a critically ill child’s death, they had to face the emotions of the patient’s parents and family, which was very challenging indeed.

“The emotionality of the parents was the most stressful part for me; they arrived after the patient died. They cried, and the mother fell down. It was stressful.” (Participant 16)

“Too many, yes, especially for those children, healthy children. They come here [following an] accident, and we can see the emotional stress on the parents. It is very difficult for us to deal with that.” (Participant 22)

6.3.1.3. Sub-theme three: Cultural challenges

In this sub-theme, 12 participants perceived the culture of SA as a challenge due to the recognised low status of the nursing profession, which became a source of workplace stress as a result. This included the attitudes of the physicians, patient’s parents and their family. These participants were all expatriates and they all had different cultural backgrounds from that of SA.

Nine of the participants stated that in addition to workplace stress resulting from caring for critically ill children, the critically ill children’s families, specifically the parents, were an additional source of workplace stress in the PICU. Some participants perceived that patient’s parents’ behaviours could be disruptive and were thought to relate to religious or cultural factors in SA. For example, Participant 2, who may not have had previous cultural awareness about SA

culture, reported that patients' parents praying for the whole night near to their child made it difficult for her as she did not have space to move and deliver care to the child during her nursing shift. Also, due to the culture of SA, and the negative public image of the nursing profession, patients' parents had low expectations for the quality of nursing care. Participants 3 and 6 mentioned that patients' parents, specifically mothers, who usually accompanied their critically ill children during their admission to the PICU, "*continuously are disturbing us for simple things, and they are complaining*" (Participant 3) such as "*if the rhythm changes a little or the alarm activates*" (Participant 6).

Participants 3, 7, 9, 13 and 20 also recalled being treated in a disrespectful way by the patients' parents (which they perceived was due to the low status of the nursing profession in SA) despite all their hard work to care for the critically ill children: "*Some parents still do not see nurses as nurses, and this is part of the stress for us*" (Participant 9). This led the participants to feel "*very bad*" (Participant 13) and to "*feel stressed*" (Participant 20).

Moreover, due to SA culture, expatriate participants from another culture felt that the patient's parents, specifically mothers, were often demanding and expected nurses to carry out tasks beyond their normal duties such as "*simple simple things; even just to turn on the television they will ask the nurse*" (Participant 9). The participants said that families complained about the cleanliness of the bathrooms in the PICU (which is beyond the nurses' duties) and asked to use the nurses' toilet facilities. According to Participant 3, "*They will ask repeatedly, and you will be stressed*". This perceived attitude of disrespect toward nurses from parents of critically ill children increased one participant's workplace stress as she identified it as a totally different culture from that of her home country, the Philippines.

“They do not treat the nurses as nurses because, in our country people do not act like that. So, I feel that somehow the nurses are not seen as nurses but lower than that.”
(Participant 9)

In addition to the low regard for the professional status of nursing, there are strong family relationships and extended families in SA culture. Nurses in the PICU faced challenges due to the hospital policies in terms of visiting hours: Open visiting hours are for patients’ parents only, and restricted visiting hours are intended for other family members of the critically ill child, with the rule that only a few of them may enter the PICU at a time and they must leave before others enter. However, regarding the visits of extended families, three participants reported workplace stress related to dealing with them as they were difficult to communicate with and ignored the participants’ comments about visiting times. Participant 21 raised concerns related to the SA culture of patients’ families not complying with PICU policies and arguing and complaining about nurses’ comments, stating that sometimes they behaved in an abusive manner.

“Some families really are a headache; we cannot explain things to them, and sometimes they are harsh with us or argue because of their culture. Another problem is that when you tell them that because this is an ICU, you are not allowed to get in frequently, but still they will argue with you. Then they will go to the special relations office and argue that this is their right. This is stressful for me.” (Participant 21)

Finally, in this sub-theme, due to the culture of SA and the low status of the nursing profession, six expatriate participants referred to physicians’ disrespectful attitudes as another source of workplace stress. Participants 5, 6, 12, 13, 22 and 23 raised concerns that some physicians gave them orders in a demanding manner as if they were superior to the nurses: *“Do it now, do it now”* (Participant 6). Other physicians were particularly difficult to work with as they disrespected the nurses, and the participants made comments such as *“cannot work with them [the physicians] easily”* (Participant 13). This led the participants to feel *“more stressed”* (Participant 5).

6.3.1.4. Sub-theme four: Nursing management and nursing colleagues

Ten participants reported issues with their superiors, including nurse managers and nurse supervisors. The issues that affected levels of workplace stress included feeling unsupported by the head of the hospital's nursing department (i.e. nurse managers) or by nurse supervisors, who were also inconsiderate or communicated in an unprofessional way. Also, in this sub-theme, a sense of being unsupported by their nursing colleagues led to additional workplace stress in the PICU for participants. These participants' personal characteristics showed no commonality and included the male participant.

As part of the discussion on workload, mentioned previously, two participants reported a sense of being unsupported in that they were constantly asked, by the nurse manager, to help out in other acute or critical paediatric nursing units in order to fill the shortage of nurses in those areas. They explained that this increased their workload but was expected despite their requests to remain in the PICU. It was felt that their manager did not accept or understand this, "*and they reply, no*" (Participant 14) and were perceived to be unsupportive. Three participants also reported a sense of not being supported by their nurse supervisors, for example, when asking for help from nurses in another acute or critical paediatric nursing unit to support them in the PICU, or, as Participant 10 noted, when her nurse supervisor did not allow her to attend training courses.

"I do not feel supported. I would feel supported if they allowed us to attend courses, and if they were fairer with in-patient assignments." (Participant 10)

Six participants mentioned the lack of consideration by their superiors as a workplace stress factor and expressed concern that their efforts went unnoticed by their nurse supervisors and/or managers.

"One specific issue is that sometimes you feel more stress because your hard work is not appreciated, and so we feel very bad." (Participant 11)

Participants felt that this lack of consideration extended to superiors' failure to listen to the participants' problems or requests to help minimise workplace stress. They also mentioned stressors related to requests for days off and the inability of nurse supervisors to adjust the nursing duty schedule when nurses' circumstances changed.

“I have two kids, and sometimes I cannot make duty arrangements when I need to. This is the main thing that makes me more stressed. If my children are sick, or my husband needs something, I cannot adjust my duty here because of this work situation. This makes it more stressful, especially if my children are ill.” (Participant 20)

Another issue was the overall lack of professionalism, or respect, and not feeling valued, in the way their nurse supervisors addressed and treated them. Participant 8 (the male participant) described a situation in which he was providing care for a critically ill child when his nurse supervisor “*loudly asked why did you not do something*”, referring to another nursing activity for the same critically ill child the participant was caring for (he had not yet got to that nursing task). Participant 11 said that her nurse supervisor was more focused on checking her patient files and documentation than on the quality of nursing care provided to the critically ill child, and that the supervisor had shouted at the participant in front of other nurses for not complying with the new documentation policy.

“We have a new policy that requires us to sign in and stamp our nursing care plan, and we must complete whatever we have written to finish the entry. When a very sick patient came in, we were all caring for that patient, who was in a really critical condition. We all felt very happy when he was no longer in the first stage [of critical condition] and was gradually improving. Then, the nurse supervisor and the team came to do their rounds, and she shouted at me, ‘Sister², your signature should be under the stamp’. This time, I controlled myself; how, I don’t know.” (Participant 11)

² *Sister*: is a term used (instead of their name) by healthcare professionals, patients or patients' families, when calling the nurse; it is not related to their status of employment in the unit.

Lastly in this sub-theme, Participants 7 and 10, of different nationalities and backgrounds, who were Malaysian and SA, respectively, reported that being a member of a minority group caused additional workplace stress. Participant 10 felt particularly unsupported and isolated during the night shift, as opposed to those nurses who shared a national background, spent their breaks together and supported each other during their nursing shifts. Participant 7 felt that *“If they are in the majority, they look down on others and only support[ed] each other.”*

6.3.1.5. Theme one summary

Within the theme related to sources of workplace stress, workload was the aspect most commonly mentioned. Heavy workload referred to the numerous nursing and non-nursing tasks, compounded by the shortage of nurses in the PICU and other acute and critical paediatric units. This was followed by caring for critically ill children and the increased workplace stress when the child died and they had to face the feelings of the patient’s parents and/or family. The next two common sources of workplace stress in the PICU were cultural challenges and nursing management and nursing colleagues; however, only expatriate participants mentioned cultural challenges. The male participant concurred with other participants by identifying workload, nursing management and nursing colleagues as sources of workplace stress. Table 6.5 summarises the theme of sources of workplace stress and participants’ identification and their personal characteristics, including gender, nationality and academic nursing qualification.

Table 6.5: Participants’ personal characteristics and sources of workplace stress

Theme	Sub-themes	Number of participants who reported the source	Participant identification	Academic nursing qualifications	Nationality	Common participant personal characteristics
Sources of workplace stress	Workload	21	P2, P3, P4, P5, P6, P7, P8, P9, P11, P12, P13, P14, P15, P16, P17, P18, P19, P21, P22, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included
	Caring for critically ill children	17	P1, P2, P4, P5, P7, P10, P13, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Malaysian	None
	Cultural challenges	12	P2, P3, P5, P6, P7, P9, P12, P13, P20, P21, P22, P23	Diploma in Nursing, BSN	Indian, Filipino, Malaysian	All expatriate participants
	Nursing management and nursing colleagues	10	P7, P8, P10, P11, P13, P14, P15, P16, P20, P22	Diploma in Nursing, BSN	Indian, Filipino, SA, Malaysian	Male participant included

In addition to sources of workplace stress, another theme that emerged during the analysis of the qualitative data was positive and negative consequences of workplace stress (Theme two).

6.3.2. Theme two: Consequences of workplace stress

As shown in Table 6.6, consequences of workplace stress were found to relate to the participants’ psychological, behavioural and physiological health. In addition, they were found to have both positive and negative effects on the overall quality of nursing care. There follows a more detailed discussion of each of these consequences. They are ordered according to the number of participants who mentioned them.

Table 6.6: Consequences of workplace stress

Consequence of workplace stress	Number of participants who reported the consequence	Sub-theme description	Common participant personal characteristics
Psychological health	21	Consequences of workplace stress in terms of participants' emotional responses to workplace stress in the PICU.	Male participant included
Behavioural health	14	Consequences of workplace stress in terms of participants' descriptions of the consequences on participants' behavioural health through directly observable responses.	Male participant included
Quality of nursing care	12	Consequences of workplace stress in terms of negative and positive consequences on the quality of nursing care delivered to critically ill children in the PICU.	All expatriate participants; male participant included
Physiological Health	7	Consequences of workplace stress in terms of physiological consequences on participants' physical health, including somatic manifestations.	Male participant included

The following sections discuss each of the consequences of workplace stress in greater detail.

6.3.2.1. Sub-theme one: Psychological health

Consequences for psychological health relate to the emotional responses to workplace stress in the PICU. As mentioned by 21 participants, these included the inability to disconnect from work, feeling tired, feeling frustrated, loss of concentration and feeling irritable and angry—there was no commonality among these participants' personal characteristics. The male participant referred to two psychological health consequences of workplace stress: Inability to disconnect from work and feeling tired.

Nine participants reported being unable to disconnect from work, resulting in an inability to relax after coming home.

“When we are at home, we are also thinking a lot. We cannot even rest at home; even while sleeping, I am thinking about this patient, this situation, whether something is pending or not.” (Participant 19)

They also raised concerns about being unable to stop thinking about work and about how they were following up on patient progress from home; for example, Participants 15 and 24 rang the PICU to make sure everything was in order and/or to double-check with their nursing colleagues about whether any of their nursing tasks had been missed or forgotten; Participant 8 expressed how the workplace stress had led to his inability to disconnect from work and that this was reflected in his facial expressions at home, which *“make it obvious and clear to my family that I am stressed and thinking about work”*. Interestingly, while raising concerns about this as one of the consequences of workplace stress, one participant admitted that she willingly remained accessible to nursing colleagues at work.

“At the end of the shift (...), I will ask them if they need anything later on. They are allowed to call me; they have my number. So, at home, I just think about work, and I also call them to see if I missed anything or to verify something with them again.” (Participant 15)

Nine participants (1, 3, 5, 8, 9, 14, 15, 17 and 21) raised concerns about feeling tired as another consequence of workplace stress affecting their psychological health. As previously discussed in relation to Theme one, the ‘sources of workplace stress’, they noted that their tiredness was caused by a heavy workload related to the numerous nursing and non-nursing tasks, which led to them extending their working hours after their shift in the PICU had technically finished — this was the only way that they could accomplish outstanding tasks, and so they felt tired.

“We have to work more hours. We have to stay to finish our work.” (Participant 1)

“All that time, we have patients. Oh my God! It is so tiring. I am so tired. I want to go home now, and that is because of the stress.” (Participant 5)

As discussed above, and according to Participants 5, 9 and 14, the shortage of nurses in PICUs was one of the factors that contributed to heavy workloads, resulting in feelings of tiredness because they had to work overtime, have less time off duty. As a result, they felt exhausted and that they had no time to relax.

“Yes — in particular, there is too much on-call now. Most of the staff are exhausted (...) We are very tired and very exhausted.” (Participant 9)

Three participants (7, 9, and 11) referred to feelings of frustration that resulted from the sub-theme ‘workload’ (in terms of numerous tasks), as well as the sub-theme of nursing management and nursing colleagues’ issues, as previously discussed above. Participant 9 believed that nurse supervisors’ failure to acknowledge her hard work and the heavy workload *“contributes to feeling frustrated”*.

Loss of concentration was referred to by eight participants as another consequence of workplace stress on psychological health, Participant 13 stated that *“when we are stressed, we cannot concentrate properly on our work”*.

A final psychological consequence of workplace stress was feeling irritable and angry. As reported by five participants (6, 7, 10, 15 and 20), this feeling adversely affected both their professional and personal lives *“very badly”* (Participant 6).

6.3.2.2. Sub-theme two: Behavioural health

Fourteen participants referred to the consequence of workplace stress on their behavioural health. Effects included isolation, social withdrawal, angry outbursts, difficulty falling asleep when going to bed and forgetting personal needs, such as urinating, hydrating, eating or taking breaks during their nursing shift in the PICU. There was no commonality among the personal characteristics of

these participants. The male participant also described two behavioural health consequences of workplace stress: Being isolated and social withdrawal.

Isolation was mentioned by five participants. Participants 7, 8 and 10 described how they reacted to different sources of workplace stress during their nursing shifts, such as workload, caring for critically ill children or cultural challenges in terms of dealing with patients' parents. In some cases, isolation took the form of psychological distancing themselves from other nursing colleagues in the PICU and from patients' parents in an attempt to focus on delivering nursing care to the critically ill child.

“Sometimes, the patient is very, very sick. At those times, I feel stressed. I do not want to talk to anybody because I am focused on so many things that I have to do.” (Participant 7)

Although it can be argued that isolation had a potentially positive outcome for the critically ill child's physical quality of nursing care in such cases, nevertheless, it is concerning that participants sometimes found themselves isolated from their own families, including their partner and children. For example, Participants 2, 7 and 17 did not communicate with their family as much as they would have liked to, whether their family was with them in SA or elsewhere. Participant 2 specifically mentioned she was isolated from her own family and unable to support her children with their homework.

“I will not be able to support them if they have any homework. I will be away from everything. I will just be quiet at home.” (Participant 2)

According to five participants (5, 8, 10, 16 and 17), the isolation described above ultimately resulted in overall social withdrawal. As a result, their relationships with their friends and families were affected, and they *“would rather sleep than go out”* (Participant 5) as they were tired and stressed.

“This can affect your life with your wife, your kids and your family. I will not interact with them. It affects me, my social life and my family life.” (Participant 8)

Participants also reported other negative influences of workplace stress on their behavioural health. Two referred to angry outbursts toward their children at home (*“Maybe they will do something small, and we will punish them [participant’s children], or we will shout at them, my poor children”*—Participant 11) while three experienced difficulties falling asleep at night and four reported forgetting to take care of personal needs as a result of workload and caring for critically ill children.

“Sometimes I do not eat because I need to finish all my work. Sometimes even urinating, going to the bathroom, you cannot do that because of the patients.” (Participant 21)

6.3.2.3. Sub-theme three: Quality of nursing care

As reported by 12 expatriate participants, workplace stress in the PICU had negative consequences for the quality of nursing care delivered to critically ill children. This included the male participant who was also the only one to recognise that workplace stress had both positive and negative consequences for the quality of nursing care.

Twelve participants referred to the negative consequences of workplace stress on the quality of nursing care: *“As it is easy to make a mistake”* (Participant 8) and *“sometimes we do not recognise the mistakes we made with the patient, because we already are in stress”* (Participant 11). According to Participants 5, 15 and 22, this could lead to serious medical errors such as incorrect medication calculations, wrong medication given to critically ill children or forgetting to give medication.

“If you are stressed and you have so many tasks in relation to that patient, it affects your work. Sometimes, you may have medical errors, such as medication errors; you will give a wrong dose to that patient or maybe you forget to give him the medication.” (Participant 5)

The workload created by the amount of paperwork and documentation in the PICU for critically ill children was also a factor that indirectly affected the quality of nursing care by increasing workplace stress. When participants could not properly record past health history and have insufficient time to complete documentation because it was so extensive, this affected the overall quality of nursing care.

In addition, there is the issue of workload that increases due to the shortage of nurses in the PICU. One participant said that having to care for “*two patients, it is very difficult, affecting the care*” (Participant 12) as the nurse may “*miss some things*” (Participant 13). However, Participant 13 asked other nurses for help “*but that may delay something for their own patients*”, which potentially affected the quality of nursing care for other children.

The cultural challenges of dealing with patients’ parents, as previously discussed, was also described as problematic; as Participant 7 explained, this source of workplace stress may cause the nurse to avoid the patient’s parents, which understandably affects the quality of nursing care delivered to that child.

“Maybe indirectly she will miss something for the patient, or she will try not to assess that child as much as she is supposed to.” (Participant 7)

The male participant (8) was the only one to recognise that there were also some positive outcomes; he argued that workplace stress challenged him to improve his delivery of high-quality nursing care to the critically ill child.

“Stress helps us provide a good outcome. It challenges me to do more. Any unit with stress will do a good job and will provide high-quality care to patients. This is how stress affects me.” (Participant 8)

6.3.2.4. Sub-theme four: Physiological health

The consequences of workplace stress for physiological health were observed in relation to somatic manifestations identified by seven participants (7, 8, 9, 14, 16, 20 and 21) in terms of aches, pains and illnesses. There was no commonality among participants' personal characteristics. In addition, the male participant also mentioned aches and pains as a physiological health consequence of workplace stress.

Participants 7, 8, 9, 14 and 20 described the physical exhaustion caused by workplace stress in the PICU in terms of workload and numerous nursing and non-nursing tasks, this specifically led to physical pain after their shifts ended.

“If you are under stress (...) you are tired you are in pain.” (Participant 8).

“It actually leads to pain, physical pain, because you work too much that day, too much stress. So, when I return home my leg hurts.” (Participant 9).

Participants 16 and 21 noted that workplace stress caused different types of illness such as *“nervous colon and an ulcer”* (Participant 16) or *“headaches”* (Participant 21), and they perceived *“this is all from stress”* (Participant 16).

6.3.2.5. Theme two summary

Participants described four consequences of workplace stress, including the impact on psychological, behavioural and physiological health, all of which were also mentioned by the male participant. The fourth consequence of workplace stress related to quality of nursing care, which was described in negative terms by expatriates. On one occasion, the expatriate male participant noted this as a positive consequence as he said that workplace stress helped him to be more productive in the PICU, however, he also acknowledged the negative aspects of it. Table 6.7

summarises the theme of the consequences of workplace stress and participants' personal characteristics.

Table 6.7: Participant personal characteristics and consequences of workplace stress

Theme	Sub-themes	Number of participants who reported the consequence	Participant identification	Academic nursing qualifications	Nationality	Common participant personal characteristics
Consequences of workplace stress	Psychological health	21	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P13, P14, P15, P17, P19, P20, P21, P22, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included
	Behavioural health	14	P2, P5, P6, P7, P8, P10, P11, P13, P15, P16, P17, P20, P21, P23	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included
	Quality of nursing care	12	P5, P7, P8, P9, P11, P12, P13, P15, P19, P21, P22, P23	Diploma in Nursing, BSN	Indian, Filipino, Jordanian, Malaysian	All expatriate participants, male participant included
	Physiological health	7	P7, P8, P9, P14, P16, P20, P21	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included

As demonstrated above, all the sources of workplace stress were seen to have consequences for the participants' own health and for the quality of nursing care they delivered to the critically ill children in the PICU. However, participants managed the different sources of workplace stress well. One emergent theme that contributes to how participants do this relates to the individual characteristics that helped to manage workplace stress (Theme three).

6.3.3. Theme three: Individual characteristics that help to manage workplace stress

Table 6.8 outlines individual characteristics that were found to influence how participants managed workplace stress. Each participant referred to one or more of these characteristics as helping them. There follows a more detailed discussion of each of these characteristics; they are ordered according to the number of participants who mentioned them.

Table 6.8: Individual characteristics that help to manage workplace stress

Individual characteristics that help to manage workplace stress	Number of participants who reported the characteristic	Sub-theme description	Common participant personal characteristics
Work experience	16	Participants' previous and current work experience in a PICU or other acute or critical nursing unit and its contribution to management of workplace stress.	Male participant included
Undergraduate nursing education	14	Participants' undergraduate nursing education, including knowledge and practice during their Diploma in Nursing or BSN programme, and its contribution to management of workplace stress.	Male participant included
Religion and beliefs	13	Participants' religion and beliefs, including faith and acceptance of death, in terms of helping to recover from and manage sources of workplace stress, as observed in the PICU workplace.	Male participant included

6.3.3.1. Sub-theme one: Work experience

Sixteen participants considered their previous and current work experience in a PICU or other acute and critical nursing units to be a key factor in their individual responses to managing workplace stress in the PICU. In this sub-theme, there was no specific commonality among the personal characteristics of the 16 participants. The male participant also mentioned his previous PICU work outside SA and current experience in SA as an individual characteristic that helped him to manage workplace stress in the PICU.

Participants 1, 3, 8, 14, 16, 17, 18, 20 and 21 — all of whom had work experience in a PICU, both in SA and previously elsewhere — explained how this helped them to minimise and manage workplace stress in terms of all the sources of it that they had identified in relation to the first theme (i.e. workload, caring for critically ill children, cultural challenges and nursing management and nursing colleagues).

“After 10 years of working in the PICU, I do not have as much stress. I have more experience in dealing with patients, and I have handled most of the cases before. In addition, I have more experience in communicating with my superiors and with people of different nationalities.” (Participant 8)

“Of course, previous experience helps me in every aspect of working here because I have learned to handle the children (...). Through experience, day by day, we develop the capacity to tolerate everything and become more confident, so there is no more stress.” (Participant 18)

Some participants also mentioned that their knowledge and skills had been strengthened by their previous work experience in critical nursing units other than the PICU, including the adult ICU, the CICU, the operating theatre/operating room (OR) and the neonatal intensive care unit (NICU). They said that this helped to reduce workplace stress when they started working in the PICU. For example, three participants (4, 15 and 23) had previously worked in the ICU and were familiar with caring for critically ill adult patients as well as the equipment used, such as mechanical ventilators and their settings.

“Yeah, of course it helped, because in the ICU, I learned about the ventilator, about critical patients. So, from my long experience, I now have an idea of how to work with paediatric patients.” (Participant 15)

This work experience was also considered helpful when delivering nursing care to older children. As participant 4 noted, her previous ICU work helped her when repositioning older children in the

PICU because of their physical similarity to adult patients. This in turn helped those participants (4, 15 and 23) to minimise their workplace stress in the PICU.

Participants 20 and 24, who had previously worked in a CICU, explained how that experience had provided skills and knowledge that helped them care for critically ill children with cardiac problems in the PICU. Their existing skills, such as reading an electrocardiogram (ECG), helped to minimise the source of workplace stress that they had mentioned earlier.

“CICU, yeah, it helped with ECG manifestation. I really learned a lot from there. That experience minimises the stress — experience is the best teacher.” (Participant 24)

Participant 19, who previously worked in the OR, believed that this helped her with her source of workplace stress in terms of caring for critically ill children with post-operative surgical wounds and sutures. She explained that *“experience is very important. It provides sufficient guidance here”*. Participant 5, who had previously cared for infants in a NICU, explained that this provided knowledge and skills that were useful and so helped to minimise her workplace stress when caring for critically ill children in the PICU.

“NICU was my grounding experience. It is like a bridge that taught me how to deal with kids, with babies, and then again broadened my opportunities when I went to the PICU, extending my skills and knowledge.” (Participant 5)

Finally, participant 13, who had previously worked in an acute paediatric nursing unit — a non-critical area — also believed that this work had helped her to handle the source of workplace stress in the PICU in terms of caring for critically ill children because she was familiar with and skilled in caring for this age group.

6.3.3.2. Sub-theme two: Undergraduate nursing education

Fourteen participants (7, 8, 9, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21 and 22) believed that their undergraduate education (Diploma in Nursing or BSN) had helped them to manage workplace stress in the PICU. There was no specific commonality among the participants' personal characteristics. The male participant also mentioned that undergraduate education was an individual characteristic that helped him in managing workplace stress.

Participants 15, 17, 19, 20, 21 and 22, who held either a Diploma in Nursing or BSN, believed that the combination of nursing knowledge and practice that they had received in their undergraduate nursing education programme prepared them for working in the PICU. That experience enabled them to be more confident and comfortable when caring for critically ill children and helped them to manage workplace stress in the PICU. In addition, Participants 9, 11, 12, 13, 16, 17 and 21, who held either a Diploma in Nursing or BSN, said that during their undergraduate nursing education, their clinical teacher encouraged them to be clinically exposed to and to seek direct contact with patients with a range of health conditions and diseases; this enabled them to learn about various nursing procedures/tasks and to gain experience of situations that a nurse might encounter in different nursing units and on different shifts.

“Our lecturer encouraged direct contact with the patient. We saw many serious situations and identified which were normal and which were abnormal. Step by step, we learned. We practised until we felt confident. I can do it. I can manage, so there is less stress.”
(Participant 11)

“In our country, we study for four years. We handle all kinds of cases. The knowledge and experience are already there, so we can adapt; we are comfortable and confident when working in the PICU because we have the knowledge.” (Participant 21)

Participant 17 explained that her exposure to the ICU during her undergraduate nursing education proved useful when she started working in the PICU.

“In the adult ICU, I was trained only as a student. It helps because we saw the ventilator, the intubated patients, how they are. At least I had an idea of what to do and what to expect in similar circumstances.” (Participant 17)

Participants 7, 8 and 18 discussed how other aspects of their undergraduate nursing education (such as communication skills and problem-solving) prepared them to address and manage different sources of workplace stress.

“Of course, when we were studying, they taught us problem-solving and critical thinking. It helps minimise stress, of course.” (Participant 18)

6.3.3.3. Sub-theme three: Religion and beliefs

Thirteen participants reported that religion and beliefs were an individual characteristic that helped them to manage workplace stress in the PICU. There was no commonality of personal characteristics among the 13 participants in this sub-theme. The male participant also mentioned religion and beliefs as an individual characteristic.

Participants 5, 7, 15, 16, 17, 20, 21, 22, 23 and 24, who all had different religions and belief backgrounds said that their faith and belief in God helped them when caring for critically ill patients as well as after the death of a child. For example, when a critically ill child dies, the belief that God has other plans for the child helped them manage the resulting workplace stress.

“Sometimes, patients come in a difficult condition. We do as much as we can. We give them good care, but the rest depends on God.” (Participant 15)

In addition, they also believed that it was a blessing from God that eased the child's suffering, especially when no progress could be expected. They viewed the child's death in the PICU as follows:

“It helps when I think I did everything I could do, but the patient was sick, and the doctor also said that if the patient survives, he will suffer. He is suffering in his current condition, and more throughout his life, so I think it is a blessing that God ends that life.” (Participant 16)

“Less stressful right now because I always think, especially for very sick children, that it is better that they die rather than stay.” (Participant 22)

Those participants also explained that praying to God strengthened them and helped them to manage this source of workplace stress.

“I just need to pray and ask him [God] for help because I have nothing here. He is the one who helps me to do what I do. He tells me: ‘You are working, and I will give you everything’.” (Participant 22)

Participants 8, 9, and 11, a Jordanian, a Filipino and an Indian nurses, respectively, with different religions and belief backgrounds also mentioned that their faith and belief in God contributed to the individual characteristics that helped them manage this source of workplace stress and workload.

“We believe in God; he will see everything. We think we will do whatever we can for the patient. But of course, maybe this time, because of God's plan, he needs to leave. That is all we think.” (Participant 11)

6.3.3.4. Theme three summary

In relation to individual characteristics that help to manage workplace stress, current and previous PICU work experience, or that in other acute or critical nursing units, was the most important individual characteristic that contributed towards managing workplace stress in the PICU. Then,

almost equal numbers of participants identified the following sub-themes as individual characteristics that helped to manage workplace stress: Undergraduate nursing education, including Diploma in Nursing and BSN, and religion and beliefs. The male participant also acknowledged the relevance of these three sub-themes. Table 6.9 summarises this theme and the participants' personal characteristics.

Table 6.9: Participants' personal characteristics and individual characteristics that help to manage workplace stress

Theme	Sub-themes	Number of participants who reported the characteristic	Participant identification	Academic nursing qualifications	Nationality	Common participant personal characteristics
Individual characteristics that help to manage workplace stress	Work experience	16	P1, P3, P4, P5, P8, P13, P14, P15, P16, P17, P18, P19, P20, P21, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian	Male participant included
	Undergraduate nursing education	14	P11, P12, P13, P15, P16, P18, P19, P20.	Diploma in Nursing	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included
			P7, P8, P9, P17, P 21, P22.	BSN		
	Religion and beliefs	13	P5, P7, P8, P9, P11, P15, P16, P17, P20, P21, P22, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included

Apart from individual characteristics that helped to manage workplace stress among participants, the analysis revealed a number of characteristics of this working environment that also contributed to minimising workplace stress—Theme four describes these in detail.

6.3.4. Theme four: Work characteristics that help to manage workplace stress

As shown in Table 6.10, the interviews revealed a number of work characteristics that helped to manage workplace stress. Each participant referred to one or more of these; the characteristics are ordered according to the number of participants who mentioned them.

Table 6.10: Work characteristics that help to manage workplace stress

Work characteristics that help to manage workplace stress	Number of participants who reported the characteristic	Sub-theme description	Common participant personal characteristics
Inter-professional collaborative working environment	20	This includes the teamwork-supportive PICU work environment for all healthcare professionals in the PICU, including nurses, and its contribution towards managing workplace stress. Also, the prevalence of female nurses in the PICU were perceived to help create a good inter-professional collaborative working environment, which, as a result, contributed to managing workplace stress.	None
Continuing education programmes for nurses	18	Continuing education programmes for nurses, including lectures and training courses in the PICU, made a contribution towards managing workplace stress.	Male participant included
Being Respected	16	Feeling respected by the patients' parents or their families, specifically mothers, influenced participants' behaviour in managing workplace stress. Feeling respected by the healthcare professionals that included nursing colleagues, nursing superiors and physicians, contributed towards participants' management of workplace stress in the PICU.	None
Nursing orientation programmes	7	This included the benefits of nursing orientation programmes, which comprised of two stages: General hospital and unit orientation (i.e. PICU). These contributed toward participants' management of workplace stress in the PICU and helped them be more prepared.	None

Cultural awareness	6	Cultural awareness as a part of the nursing orientation programmes that helped new nurses in the PICU to learn about the Islamic religion and cultural values of SA and to understand basic Arabic (which aided communication with critically ill children and their parents and families) contributed towards managing workplace stress. In addition, understanding the SA gender segregation was overcome by the high prevalence of female nurses in the PICU; this helped to address cultural challenges and the management of workplace stress.	All are expatriate participants
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6.3.4.1. Sub-theme one: Inter-professional collaborative working environment

The most important work characteristic that helped participants to manage workplace stress was an inter-professional collaborative working environment (discussed by 20 participants in total). With no commonality among their personal characteristics, the vast majority of the participants believed that if the PICU work environment was supportive, and they experienced teamwork during day-to-day operations, the levels of workplace stress were lower for the whole multidisciplinary team: Nurses, nurse managers, charge nurses, nurse supervisors, physicians, respiratory therapists and social workers.

While it could be perceived that there was contradiction among participants and their views, this was not the case and it is important to note that in terms of ‘cultural challenges’, Participants 6 and 13, who had identified earlier that they experienced challenges when working with some physicians, nevertheless, said that most of physicians were cooperative and supportive. Nine of the other participants found physicians to be part of the inter-professional collaborative team, stating that they were supportive and thereby contributed to managing workplace stress in the PICU.

Regarding ‘nursing management and nursing colleagues’ as a source of workplace stress, Participants 7, 11 and 20 (who had identified this) also stated that most of their superiors and nurses were supportive and encouraged teamwork. Other participants (1, 2, 3 and 4) also emphasised this point; for example, Participant 2 explained: *“If I am not feeling able to handle this patient today because I am stressed, I can say that honestly to the charge nurse, and she can change the assignments, no problem”*. This had contributed to her management of her workplace stress.

Moreover, nurses’ teamwork and nurses’ mutual support for each other helped to compensate for the shortage of nurses in the PICU and the numerous nursing tasks as well as the workplace stress of caring for critically ill children.

“Here, we are always working together. We have good teamwork; we help each other when we are busy, and if you have stable patients, you forget about your break and you go to help. If an admission is critical [ill child], we all work together. One does the patient assessment, I do the documentation, and one prepares the file. We manage everything to get our work done.” (Participant 15)

“Here, we have teamwork, which is helpful — for example, if I am busy, I will say, ‘I am busy, please give the antibiotics’ or ‘Can you help me with a blood sample?’ We practise teamwork.” (Participant 16)

Most importantly, effective collaboration among nurses to overcome workload in terms of the numerous nursing tasks resulted in timely completion *“before the shift ends”* (Participant 12), which potentially helped to minimise the previously discussed negative consequences of workplace stress on participants’ psychological and behavioural health.

In terms of different sources of workplace stress in the PICU, the participants expressed that nurses were supportive of each other. For example, Participant 9 felt that she could freely share her feelings with other nurses about different sources of workplace stress in the PICU, and so they

helped each other. She felt that they were giving her support, as they all experienced the same issues.

“Most of the time, my colleagues support me, because I think we share the same experience at the bedside — the same stress — so we always talk about it. As long as you ask them for help, they will help you.” (Participant 9)

Interestingly, support and teamwork among nurses were aided by the high prevalence of female nurses with a variety of cultural backgrounds in the PICU, even though two female participants felt isolated and excluded from other nurses who share the same language and culture and support each other in the PICU. However, Participants 13, 14, 17, 20 and 21 emphasised and believed that the good relationships formed by working with same-gender nurses contributed to a collaborative working environment, as they could talk and express their feelings freely without difficulties or limitations. This contributed to teamwork and a harmonious working atmosphere.

“Sometimes, if we feel stressed about the family [of critically ill children], we can express ourselves freely to other female nurses.” (Participant 20)

The nurses felt that they could *“work comfortably with each other”* (Participant 21), *“understand each other”* (Participant 20), and relate better to each other, to deliver better nursing care through *“good communication”* (Participant 16), which resulted in a collaborative working environment.

In addition, participants also discussed how teamwork and the support nurses offered each other, as well as the support from other members of the whole healthcare professional team, helped them to manage the workplace stress.

“If my patient is very ill, I have my doctors and my colleagues, who are very supportive, so there is a team that is willing to help me, and I don’t feel alone. If I have a problem, I have my charge nurse, and I have doctors to help me. I have the whole backup team that can help me. So, why should I be stressed all the time?.” (Participant 7)

“Yeah, of course, from our consultant and from our charge nurse, really, they help us — there is teamwork. All our colleagues also help us. Just work as a team — that is the only way to solve it.” (Participant 15)

Participants also specifically discussed how an inter-professional collaborative working environment with the whole healthcare professional team (that included nurses) helped them to manage the specific source of workplace stress related to caring for a child who died: *“support[ing] each other (...) and talk[ing] about the situation”* (Participant 10), *“help[ing] each other”* (Participant 13) and by *“providing psychological support [to the parents of deceased child], so we are not alone”* (Participant 19).

Additionally, the role of the social worker was mentioned by Participant 19 when a child’s death was experienced in the PICU. The social worker, who was a SA national and spoke Arabic, supported the family of the deceased child by speaking to them in their own language and empathising with their feelings. This teamwork approach helped the participant manage workplace stress.

6.3.4.2. Sub-theme two: Continuing education programmes for nurses

Eighteen participants referred to continuing education programmes for nurses, including lectures and training courses as one means of managing workplace stress in the PICU. There was no commonality among these participants’ personal characteristics. The male participant also stated that this work characteristic helped to manage workplace stress.

Participants 1, 4, 7, 11, 13, 14, 19 and 24 described different lectures encompassing a wide range of topics such as diseases, fluid and electrolyte balance, revision of anatomy and physiology,

medication calculation, mechanical ventilator care and how to approach each age group of children when conducting clinical assessments. Participant 7 referred to continuing education as a “*memory stick*” for all nurses in the PICU, covering all the relevant topics specific to a child’s age. The participants explained that these lectures helped them to gain new and/or update their existing knowledge of caring for critically ill children. This was beneficial to the unit because they were trained in early detection of deterioration and in preventing complications, helping them in caring for critically ill children and, in turn, to manage this aspect of workplace stress.

“Yes, of course it helps. Here, we have continuing education inside the PICU and in-service lectures related to some disease conditions, and there are seminars. We gain more knowledge of this area, and sometimes there are specific classes on mechanical ventilators or other topics. As we get more knowledge and updates, this helps when working with patients and lowers our stress level.” (Participant 1)

“It has reduced stress already, because we have the knowledge, which supports early detection of any patient condition, and we know what the proper care is. This reduces my stress.” (Participant 19)

Additionally, Participants 2, 8 and 22 also mentioned being exposed to various training courses, including medicine management, mechanical ventilation training and basic ECG interpretation. These courses improved the participants’ skills and self-confidence and thus helped them to manage the workplace stress of caring for critically ill children. In fact, the male participant had specifically taken a course on workplace stress management, facilitated by a psychiatric physician in the hospital, which was helpful.

“Yes, I have taken continuing education training. At the hospital, I took a ‘how to manage stress in the workplace’ course, taught by a Syrian psychiatric doctor. The course helped me.” (Participant 8)

Interestingly, a training course on paediatric advanced life support (PALS) was mentioned by participants 5, 12, 16, 18, 20, 21, 23 and 24. PALS was specifically developed to facilitate caring for children and the participants considered it very important. By explaining in depth what to expect in the PICU, and how to manage and care for different critically ill children, the course provided knowledge and practice that helped them to minimise workplace stress and to care for these children with greater confidence, as illustrated by Participant 23 “*it has reduced stress already, because we have the knowledge*”. PALS included information on different critical medical conditions, such as heart disease, respiratory failure and shock, as well as on emergency situations or procedures, such as code blue³. Participants also mentioned that they became alert to early detection of the signs of deterioration, such as bradycardia, and, as a result, this helped to manage the workplace stress of caring for critically ill children in the PICU.

“PALS helped me a lot, in terms of how to treat a heart disease patient or a respiratory failure patient, or what to do if you receive a patient in shock. It helped a lot with my stress level in the unit; you learn how to handle such patients and you know the steps.” (Participant 16)

“In PALS, they taught us how to handle the patient in an emergency situation, and it helps a lot. PALS courses — yes, in some way, it also helps to reduce our stress level, because now we know how to handle the emergency situation in paediatrics, so we feel even more confident when taking care of sick children.” (Participant 18)

6.3.4.3. Sub-theme three: Being respected

Sixteen participants noted that they felt respected by the families of the critically ill children in the PICU, as well as by the whole healthcare professional team, including nursing colleagues, nurse supervisors and physicians. Some of the 16 participants, both SA national and expatriates, and

³ *Code blue*: is a term used in the SA hospital announcements to indicate an emergency situation such as cardiac or respiratory arrest requiring a team of providers to immediately go to a location and start resuscitation.

with no commonality among their personal characteristics, had expressed that disrespectful attitudes from a few of the patients' parents or families, as well as physicians and nursing superiors, were a source of workplace stress (as mentioned in Theme one); however, they believed that this working environment, in which they felt respected in general, had contributed to their management of the four sources of workplace stress in the PICU as discussed earlier in Theme one.

Participants 1, 2, 4, 5, 7, 11, 12, 14, 17, 19, 20, 23 and 24 discussed examples that demonstrated being respected by many patient's parents, including direct comments by discharged patients' parents, for example, saying "*thank you*" (Participant 23). On another occasion, it was noted that "*even if they do not tell us anything*" (Participant 1), their general attitude, manner of communication or simple facial expressions helped the participants to feel "*proud and happy*" (Participant 11), of "*value*" (Participant 7), "*less stressed*" (Participant 11), and "*happy to work here*" (Participant 14). For participant 5, "*a simple thank you from the parents*" made her feel like "*I have the best job in the world*" and "*all stress goes away*".

Even when a critically ill child patient died in the PICU, as discussed by participants 2 and 24, the patients' parents, specifically the mothers, valued, respected and trusted the quality of nursing care they delivered and appreciated their — and other nurses' — hard work; the mothers expressed this after their children had died. For participant 24, positive comments made by a mother after the loss of her child helped her to minimise the stress resulting from the child's death.

"She came outside; she was hugging us, and she was crying. She was telling us, 'Sister, God bless you. You did too much for my child'. We earned her respect, because we were really doing our job. Whatever we could do, we did it to save that child. The mother was very friendly towards us, respecting what we were doing. We worked out the stress."
(Participant 24)

Participant 7 believed, for example, that positive attitudes expressed by some patients' parents towards nurses, and their placing value on nurse's hard work, resulted from the fact that some parents "*are more educated; they are more open minded, so they really can see what nurses are doing for their child specifically*". Participants 2, 19, and 24, none of whom had experienced challenges with patients' parents, believed that when the mothers were educated, they were more understanding and respectful toward the nurses and valued their work with their critically ill children. Although it was not specified whether being 'educated' referred specifically to knowledge about cultural differences, it appeared that this was, in fact, the case.

In addition, participants 3, 4, 12, 13 and 16 also shared a sense of being respected by the whole healthcare professional team, specifically by nurses, nurse supervisors and physicians. There were some participants who had expressed that a few physicians and nursing superiors were disrespectful (previously mentioned as a source of workplace stress in Theme one); however, they said that other physicians and nursing superiors did show them respect. This respect from the whole healthcare professional team occurred within an environmental culture in the PICU: "*Here we are getting more respect toward each other*" (Participant 3) and was expressed through simple gestures, such as kindly asking a nurse "*if we can do this or that*" (ibid) during work. Some physicians also showed their respect by listening to participants' suggestions, believing in them and trusting their decisions, even in front of a junior physician (the resident). The physician recognised the nurse's hard work and guided the residents to ask the nurse if they had any concerns, saying to them, "*why did you not ask the nurse?*" (Participant 13). This sense of being respected, appreciated and valued helped to manage workplace stress.

"The physicians respect me very much. When we work together, they respect us. When you are valued, it reduces the stress level." (Participant 16)

6.3.4.4. Sub-theme four: Nursing orientation programmes

Nursing orientation programmes were also listed as work characteristics that help to manage workplace stress. Seven participants with no commonality among their personal characteristics mentioned that both general hospital and unit orientations (i.e. PICU) played a central role in managing their workplace stress in the PICU. As described by participants 3, 4, 5 and 9, the benefits of the hospital's general orientation for nurses included nursing lectures to update participants' knowledge, as well as a tour of the hospital, nursing units, laboratories and other hospital facilities. This orientation also introduced basic policies, briefed the participants on what to expect in their new environment and gave them a chance to meet their new colleagues. One participant described how this orientation helped her to adapt and manage her workplace stress.

“It helped me, because this is a new hospital, a new environment. So, they told us about the hospital's policies and what you are expected to do. They gave us a tour of the hospital and introduced us to our new colleagues. To some extent, this taught us how to adapt.”
(Participant 5)

In addition, orientation to the PICU proved beneficial. Although participants already had knowledge and experience, new nursing employees were accompanied by a preceptor for a certain time period while they learned about the new PICU setting, work style, policies and procedures and met their nursing colleagues as well as their nursing superiors. Importantly, they were also introduced to the different critically ill children they would be caring for and they learned how to approach the children and their families. This familiarisation process again helped the participants to manage workplace stress in the PICU. Additionally, participants noted that learning about the PICU equipment and completing documentation and paperwork enabled new nursing employees to see the 'whole picture' and prepare for work. Participants said that after completing the unit

orientation, they felt ready to deliver nursing care comfortably and independently. Again, this helped to manage their workplace stress.

“With my preceptor, I was able to learn the unit slowly — the work style for approaching patients, the people, the environment; then, how we work, how to complete the picture — everything you need to know about the things you are using. In two or three months, we got used to it, we became independent, we handled the patients and we felt more comfortable. During this orientation period, we slowly learned everything. Although we had experience, we did not know how to work here.” (Participant 7)

“The orientation helped me to become familiar with the PICU patients, so that when I began working, the stress factors were minimised.” (Participant 10)

6.3.4.5. Sub-theme five: Cultural awareness

Cultural awareness was mentioned by nine participants, all expatriates, who perceived that cultural awareness was a contributing factor towards managing workplace stress in the PICU.

Moreover, when SA cultural awareness was mentioned as a part of the nursing orientation programmes, it was described as helping participants manage workplace stress in the PICU. Some of public hospitals in SA had recently included training in the nursing orientation programme on SA culture, the Islamic religion and basic Arabic language that could be used when communicating with critically ill children and their parents/family — this had contributed to minimising the associated workplace stress. Three expatriate participants (5, 7, and 11) specifically emphasised the benefits of the SA awareness training because of the new culture and values they encountered in SA, noting that *“it is totally different”* (Participant 11). They explained that they learned *“what is acceptable and what is not, especially with the patients”* (Participant 5) and *“how to deal with people; there are some restrictions here because of Islam and your [SA] culture”* (ibid).

For example, participant 11 mentioned that “*in India, we are not allowed to pray at the bedside of patients especially who are infectious, but here, we are allowed to do it because of the culture*”. Also, she mentioned that “*if they did not provide this orientation, [for example] we would not know how many prayer times there are or the prevailing culture and values*”, which would have led her to “*stop the parents*” from undertaking any observable behaviours related to the SA culture and religion that the nurses were not used to and so “*they [patients’ parents] would get angry, and big problems would arise*” (ibid).

Learning some of the Arabic language was an important step for participants in adjusting to their new environment before undertaking independent care, because “*everyone is different, patients are different, the culture is different, the language is different, and people are different*” (Participant 7). Thus, the cultural awareness training helped participants “*Because we know the atmosphere here and we adjust*” (Participant 11).

In addition, cultural factors had an impact on communication with families of critically ill children, specifically the mothers, who were sometimes restricted by certain cultural and religious factors; for example, a female must cover her head, or in some cases, cover her face in the presence of males, which is the prevailing situation throughout SA, including in the PICU. According to three expatriate female participants (P3, P9, and P18), the fact that the majority of nurses in the PICU were female was beneficial “*because the companion is always the mother*” (Participant 3); working with primarily female nurses helped to ease communication and interactions with mothers of critically ill children and made them feel more comfortable, since “*the mothers, of course, will be more willing to deal with female nurses*” (Participant 9).

6.3.4.6. Theme four summary

To summarise, the most important work characteristics specifically mentioned by participants that helped to manage workplace stress in the PICU were an inter-professional collaborative working environment, continuing education programmes for nurses and being respected; this was followed by nursing orientation programmes and cultural awareness training — the latter being specific to expatriate participants. The male participant also acknowledged the continuing education programmes. This theme and the participants’ personal characteristics are described in Table 6.11.

Table 6.11: Participants’ personal characteristics and work characteristics that help to manage workplace stress

Theme	Sub-themes	Number of participants who reported the characteristic	Participant identification	Academic nursing qualifications	Nationality	Common participant personal characteristics
Work characteristics that help to manage workplace stress	Inter-professional collaborative working environment	20	P1, P2, P3, P4, P5, P6, P7, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21	Diploma in Nursing, BSN	Indian, Filipino, SA, Malaysian	None
	Continuing education programmes for nurses	18	P1, P2, P4, P5, P7, P8, P11, P12, P13, P14, P16, P18, P19, P20, P21, P22, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	Male participant included
	Being respected	16	P1, P2, P3, P4, P5, P7, P11, P12, P13, P14, P16, P17, P19, P20, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Malaysian	None
	Nursing orientation programmes	7	P3, P4, P5, P6, P7, P9, P10	Diploma in Nursing, BSN	Indian, Filipino, SA, Malaysian	None

	Cultural awareness	6	P3, P5, P7, P9, P11, P18	Diploma in Nursing, BSN	Indian, Filipino, Malaysian	All expatriate participants
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In addition to individual and work characteristics, motivation for working in PICUs in SA was identified as another factor that helped participants to manage the different sources of workplace stress and continue working in the PICU. The following section details Theme five and its sub-themes.

6.3.5. Theme five: Motivation to work in paediatric intensive care units in Saudi Arabia

Participants' motivation to work in PICUs was identified as another factor that helped them manage workplace stress. Table 6.12 outlines the relevant sub-themes, ordered to reflect the frequency of each sub-theme's occurrence.

Table 6.12: Motivation to work in paediatric intensive care units in Saudi Arabia

Motivation to work in PICUs in SA	Number of participants who reported the motivation	Sub-theme description	Common participant personal characteristics
Job satisfaction	20	Feelings of pleasure from working in a job that is loved and the achievement associated with working in the PICU, feeling that the work was worth doing and having a good salary contributed to participants' motivation to continue working there. Also, a cooperative teamwork environment that included colleagues, nurses' supervisors and physicians helped to satisfy 'and motivate participants to continue working in the PICU.	Male participant included
Professional development	11	Based on knowledge and skills gained from working in the PICU that helped to motivate participants to continue working in PICUs in SA and to pursue future plans for their professional careers.	None

6.3.5.1. Sub-theme one: Job satisfaction

Twenty participants felt that job satisfaction motivated them to continue working in PICUs in SA. In this sub-theme, there was no commonality among participants' personal characteristics. The male participant also noted job satisfaction as a motivating factor.

Participants 1, 4 and 13 appreciated the opportunity to closely monitor and deliver nursing care to critically ill children in the PICU, which made them feel fulfilled. Participants 2, 5, 9, 12, 15, 20 and 24 said that seeing children recover, become stable and be transferred to the acute paediatric care unit gave them job satisfaction and was their main motivation to continue working in the PICU.

“When you see the progress of the patient, a very sick child who is transferred to the ward, or a child who was in a coma, and suddenly, after a few months of care, he is walking — this is the positive side. You see the quality of care you gave to the patient. Now he is okay, and you can send him home. You think they will go to school someday; they will grow up and maybe become a doctor or a nurse — you do not know. So, this is the positive side.” (Participant 9)

For participant 5, one event that stood out was when a child came back to visit her in the PICU after being discharged from the hospital. She commented, *“that made my world”*, and noted that it motivated her to continue working in the PICU and helped her to forget *“all the stress”* (ibid) that they feel that every day, as they are *“saving the lives of these people [critically ill children]. This is the way we are getting satisfaction”* (Participant 24).

Participants 1, 3, 4, 7, 15, 22 and 24 said they felt satisfaction in the fact that being a nurse in the PICU was their choice and what interested them, and that doing what they loved gave them job satisfaction: *“I am really happy to work here with paediatrics. It is my first choice”* (Participant

24). They noted their interest in and enjoyment of working with children by continuing to work in PICUs in SA.

Participants 1, 6, 8, 12, 14, 15, 16, 17 and 18 were satisfied and were motivated to work in the PICU because they believed that the teamwork environment, as a part of the ‘inter-professional collaborative working environment’ sub-theme, helped participants to manage workplace stress in PICU. It is also noted that this teamwork is what motivated the participants to continue working in PICUs in SA, thus raising their job satisfaction and the feeling of being surrounded by a great healthcare professional team, as perceived by participant 14: *“I am satisfied with my colleagues because they all are helping. I am satisfied working in PICU because of this teamwork. Maybe in another nursing unit, we cannot get teamwork. Here we always experience it”*.

Participants also believed that the atmosphere of cooperation and teamwork in the PICU, as well as the lack of hierarchy among nursing colleagues, nurse supervisors and physicians, created a positive atmosphere in the PICU, as *“whatever the nationality, we work as a team”* (Participant 18). This, in turn, motivated them to continue working in the PICU in SA.

In addition, three expatriate participants mentioned that they were satisfied with the good wages, which helped them to raise their children back home and give them a good education, especially if their partner was not working. This was a priority since they wanted a better future for their children, and, as a result, it motivated them to continue working in the PICU in SA.

6.3.5.2. Sub-theme two: Professional development

With no commonality among the participants’ personal characteristics, 11 participants were motivated to continue working in PICUs in SA because of the excellent learning opportunities; these participants believed that working in the PICU enabled them to improve their knowledge

and skills each day through exposure to a range of critically ill children. The many nursing procedures conducted on a daily basis, such as intravenous line insertion or venepuncture, also provided learning opportunities and helped participants to improve their nursing skills.

“In the PICU, you are learning continuously — how to handle different cases and patients, how to handle your stress, your emotions, everything. The learning process motivates me to continue.” (Participant 17)

“The advantage here is the experience. Yes, the knowledge you learned, as well as the skill of doing so many procedures. Here in the PICU, you can see all kinds of diseases; sometimes, you did not even know that this one existed.” (Participant 21)

Participant 16 said that these extensive learning opportunities in the PICU helped to expand her knowledge and skills. As a result, she was more confident about working in other acute or critical nursing units in the hospital since she felt that nothing would be more difficult for her. Interestingly, two participants explained that these learning opportunities opened doors for them to pursue their professional goals. For example, participant 5, who was an expatriate, explained that the experience in managing different critically ill children would enable her to move and work in another country. Participant 10, who was from SA, said that she was motivated to continue working in the PICU because it would facilitate the continuation of her postgraduate studies and help her to further specialise, which was important to her.

6.3.5.3. Theme five summary

Job satisfaction was the important motivating factor for participants; this was followed by professional development as a motivation to continue working in the PICU in SA. The male participant also agreed that job satisfaction motivated him. The theme and participants' personal characteristics are summarised in Table 6.13.

Table 6.13: Participants’ personal characteristics and motivation to work in PICUs in SA

Theme	Sub-themes	Number of participants who reported the motivation	Participant identification	Academic nursing qualifications	Nationality	Common participant personal characteristics
Motivation to work in PICUs	Job satisfaction	20	P1, P2, P3, P4, P5, P6, P7, P8, P9, P12, P13, P14 P15, P16, P17, P18, P20, P21, P22, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian	Male participant included
	Professional development	11	P3, P4, P5, P10, P11, P12, P16, P17, P18, P20, P21	Diploma in Nursing, BSN	Indian, Filipino, SA	None

Theme six contains suggestions for workplace stress management and details the sub-themes.

6.3.6. Theme six: Suggestions for workplace stress management

During the interviews, the participants made several suggestions about how to minimise workplace stress among nurses in the PICU in SA, with a view towards enhancing the quality of the nursing care delivered to critically ill children. Table 6.14 summarises the theme and its sub-themes, ordered to reflect the frequency of sub-theme occurrence.

Table 6.14: Suggestions for workplace stress management

Suggestions for workplace stress management	Number of participants who reported the suggestion	Sub-theme description	Common participant personal characteristics
Hospital human resource department management	14	Suggestions related to increasing the workforce in the PICU, including nurses and physicians.	None
Hospital management	10	Suggestions about enhancing awareness of workplace stress; increasing the PICU bed capacity, providing more medical equipment and supplies and providing an occupational health clinic and wellness centre for nurses.	None
Nursing management	9	Suggestions for nursing management in terms of building interpersonal relationships with nurses, improving the scheduling of nurses' duties, providing further training opportunities, as well as the opportunity to learn basic Arabic.	None

6.3.6.1. Sub-theme one: Hospital human resource department management

The hospital's human resource managers played an important role in developing a PICU setting that minimised levels of workplace stress and facilitated the reporting of concerns about nurses' workloads. According to 14 participants with no observed commonality in terms of their personal characteristics, this could be achieved by increasing the workforce, including nurses and physicians, in the PICU.

Increasing the number of nurses would help to improve the quality of nursing care delivered to critically ill children and would reduce the burden on the existing nurses in the PICU. This, in turn, would minimise the workplace stress as nurses would not need to care for more than one critically ill child during a nursing shift.

“We need to keep PICU nurses one-to-one so that we can provide more care to our patients. We should have more nurses.” (Participant 11)

Along with employing more nurses, participants 4, 12, 13, 14, 21 and 22 believed that more specialist physicians were also needed. Employing a larger number of experienced physicians who are PICU specialist would help to reduce the workload and, consequently, the levels of workplace stress for nurses, as nurses could contact an appropriately experienced PICU physicians. *“If very experienced doctors were introduced, our stress would be reduced”* (Participant 14), thereby improving the quality of nursing care delivered to critically ill children.

6.3.6.2. Sub-theme two: Hospital management

Ten participants with no observed commonality in their personal characteristics identified suggestions for improvements to hospital management that would minimise workplace stress and increase the quality of nursing care for critically ill children in the PICU, these were: Increasing the awareness of workplace stress, increasing the PICU bed capacity, providing more medical equipment and supplies, and providing an occupational health clinic and wellness centre for employees.

Participants 5, 9 and 17 noted that identifying and addressing workplace stress was a key factor for hospital management in terms of implementing strategies to prevent or minimise it. The participants said that highlighting the issues and sources of workplace stress would help to achieve the goals of improving the quality of nursing care to critically ill children and minimise the turnover of nurses in the PICU.

In order to provide a high quality of nursing care to critically ill children, listening to the needs of nurses should be prioritised. Meetings should not only address children's needs, but they should also provide an opportunity for nurses to discuss the sources of their workplace stress.

“They should also prioritise the staff and their workload. They should discuss this with them [nurses] and meet with the nurses to improve the situation here in the PICU.”
(Participant 17)

With no acknowledgement of the financial implications, the following suggestions were made by participants regarding hospital management. Firstly, participants 12 and 21 stated that the PICU bed capacity needed to be increased by the hospital management as many critically ill children remained mechanically ventilated in the ER as there was insufficient PICU bed capacity. Additionally, the acquisition of more medical equipment and supplies should be prioritised, especially if hospital management increased the PICU bed number. Participants 13, 15, 16 and 21 believed that this would help to minimise the workplace stress caused by a combination of their workload and the scarcity of equipment and supplies. This solution would also enhance the quality of nursing care for critically ill children.

“Equipment. There is a lack of equipment. Also, ensuring sufficient supplies would improve quality.” (Participant 15)

Finally, participants 22 and 24 believed that workplace stress could be reduced by the provision of an occupational health clinic as well as a wellness centre that could provide health and recreational facilities for employees—the latter perhaps including a swimming pool and an exercise area on the hospital site. Participant 22 explained that an occupational health clinic for employees would help them to feel respected and valued by hospital management and would also minimise the stress of waiting for an appointment in the OPD.

“I would suggest providing the staff with a clinic in the hospital (...) we get no advantage in the OPD; there is no special line for the staff. We just mix in with other people — the patients.” (Participant 22)

6.3.6.3. Sub-theme three: Nursing management

Nine participants (7, 10, 11, 12, 13, 16, 20, 23 and 24) with no observed commonality among their personal characteristics discussed factors related to nursing superiors, including managers and supervisors, which would minimise workplace stress and improve the quality of nursing care. These factors included building interpersonal relationships with nurses, listening to their problems, improving the scheduling of nurses’ duties and providing further training opportunities as well the chance to learn basic Arabic.

Effective communication and supportive relationships between nurses and their nursing superiors were thought to be likely factors in building good workplace interpersonal relationships. Participants 11, 16 and 24 believed that nurses’ managers needed to support nurses by considering the sources of their workplace stress.

“The nurses’ managers should support us to create a good atmosphere at work. We are working for the patients, and they are also working for the patients. So, we need unity first, and they should understand the problems of nurses.” (Participant 11)

Participants 10, 13 and 20 raised concerns that they often felt their personal needs were not being considered when nurses’ duties were scheduled. It was felt that the nurse supervisors should base the PICU duty schedules, as much as possible, on nurses’ needs, and there should be flexibility and fairness for all nurses. This could increase nurses’ motivation to continue working in the PICU and improve the quality of nursing care because the nurses would be more satisfied. Additionally, nurse supervisors should listen to nurses’ needs and discuss time-off requests and other preferences. To improve nurses’ work-life balance and to motivate nurses to remain working in

the PICU, there should be an approved process to facilitate shift swapping when personal circumstances change.

“If they allowed us to select or adjust our duties, it would be more comfortable for me to stay here for a long time.” (Participant 20)

Participants 10, 23 and 24 suggested that nurse supervisors should prioritise opportunities for further staff training for all nurses in the PICU. This would allow them to develop professionally and update their knowledge and skills. This, in turn, would enhance the delivery of quality of nursing care.

“Still, we need to improve our knowledge, because learning is a continuous process, especially in nursing. We need to update our knowledge continuously.” (Participant 24)

Lastly, as this had been introduced in few public hospitals recently, participants suggested that nursing superiors should consider providing opportunities for expatriate nurses in the PICU to learn basic Arabic during general hospital orientation, or by organising a short course to enable basic communication. Learning the fundamentals of the Arabic language would help to minimise workplace stress that resulted from the problems of communicating with and providing support for the patients’ parents or their families — this would also improve nurses’ confidence when delivering nursing care. As noted by participants 7 and 12, expatriate nurses arrived from foreign countries without knowing any Arabic.

“Personally, I feel that I need to be good in Arabic, because my issue now is that I cannot communicate very well with the parents. If I could speak Arabic, the communication would be much better.” (Participant 7)

6.3.6.4. Theme six summary

In summary, the various suggestions for workplace stress management were related to the hospital's human resources department management, hospital management and nursing management, as shown in Table 6.15. No commonalities were observed in the participants' personal characteristics.

Table 6.15: Participants' personal characteristics and suggestions for workplace stress management

Theme	Sub-themes	Number of participants who reported the suggestion	Participant identification	Academic nursing qualifications	Nationality	Common participant personal characteristics
Suggestions for workplace stress management	Hospital human resource department management	14	P3, P4, P5, P6, P9, P10, P11, P12, P13, P14, P15, P16, P21, P22	Diploma in Nursing, BSN	Indian, Filipino, SA	None
	Hospital management	10	P5, P9, P12, P13, P15, P16, P17, P21, P22, P24	Diploma in Nursing, BSN	Indian, Filipino, SA	None
	Nursing management	9	P7, P10, P11, P12, P13, P16, P20, P23, P24	Diploma in Nursing, BSN	Indian, Filipino, SA, Jordanian, Malaysian	None

6.4. Participants' views of source of workplace stress according to their personal characteristics

As a further step, the qualitative data analysis examined perceptions of workplace stress in the PICU in terms of participants' personal characteristics.

Gender and nationalities demonstrated specific issues in relation to sources of workplace stress; the analysis showed that the male participant complained of only two sources of workplace stress: ‘workload’ and ‘nursing management and nursing colleagues’. Whereas all of the female participants mentioned all the four sources of workplace stress: ‘Workload’, ‘caring for critically ill children’, ‘cultural challenges’ and ‘nursing management and nursing colleagues’.

In addition, the nationality of nurses (being an expatriate) may result in a specific source of workplace stress that relates to cultural challenges – this was specifically mentioned by them, along with the other sources of workplace stress (Table 6.16).

6.5. Summary of the chapter

Participants revealed that a PICU in SA is a stressful workplace environment for nurses; they identified different sources of workplace stress and its potential negative consequences on their health and the quality of nursing care. However, participants also demonstrated that they were handling this workplace stress very well; they highlighted positive traits that helped to manage it, including individual and work characteristics as well as motivation to work in PICU. Importantly, participants suggested other strategies for future improvement of the work environment that may reduce the workplace stress and improve the quality of care. Finally, Table 6.16 provides an overview of the themes that emerged from the analysis of qualitative data along with participants’ personal characteristics and Figure 6.1 demonstrates how Phase 2 helps explain the sources of workplace stress results of Phase 1.

Table 6.16: An overview of the themes and sub-themes that emerged from the analysis of qualitative data along with participants' personal characteristics

Theme	Sub-themes	Number of participants	Participants' personal characteristics
Sources of workplace stress	Workload	21	Male participant included
	Caring for critically ill children	17	None
	Cultural challenges	12	All expatriate participants
	Nursing management and nursing colleagues	10	Male participant included
Consequences of workplace stress	Psychological health	21	Male participant included
	Behavioural health	14	Male participant included
	Quality of nursing care	12	All expatriate participants; male participant included
	Physiological health	7	Male participant included
Individual characteristics that help to manage workplace stress	Work experience	16	Male participant included
	Undergraduate nursing education	14	Male participant included
	Religion and beliefs	13	Male participant included
Work characteristics that help to manage workplace stress	Inter-professional collaborative working environments	20	None
	Continuing education programmes for nurses	18	Male participant included
	Being respected	16	None
	Nursing orientation programmes	7	None
	Cultural awareness	6	All expatriate participants
Motivation to work in PICUs in SA	Job satisfaction	20	Male participant included
	Professional development	11	None
Suggestions for workplace stress management	Hospital human resource department management	14	None
	Hospital management	10	None
	Nursing management	9	None

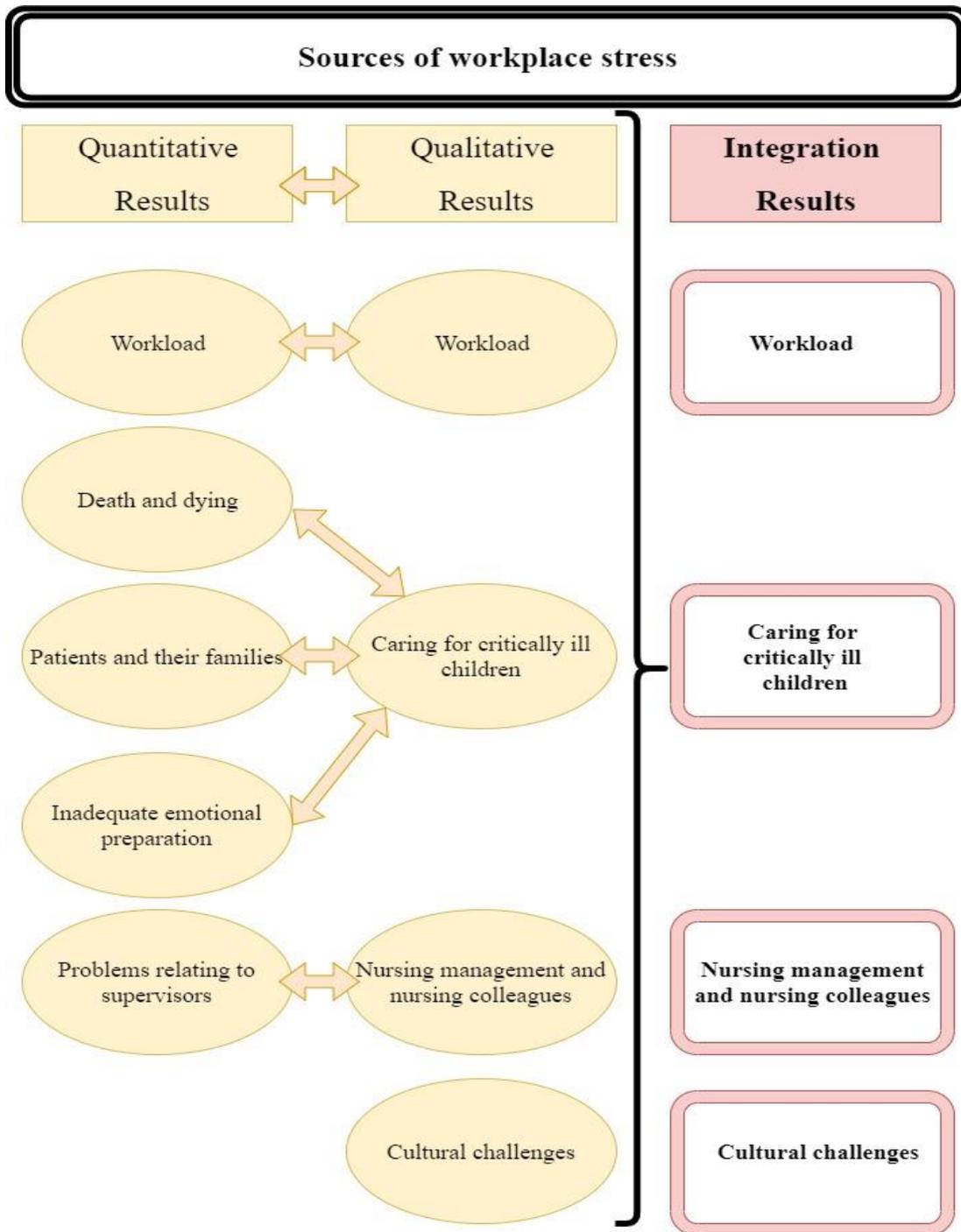


Figure 6.1: A summary of how Phase 2 links with the results of Phase 1

The next chapter discusses the research study results along with available literature.

Chapter Seven: Discussion

7.1. Introduction

This chapter discusses the results presented in Chapters Five and Six in relation to the available literature on the topic, to argue that these results are unlike anything offered to date and, therefore, shed a new light on the topic of workplace stress.

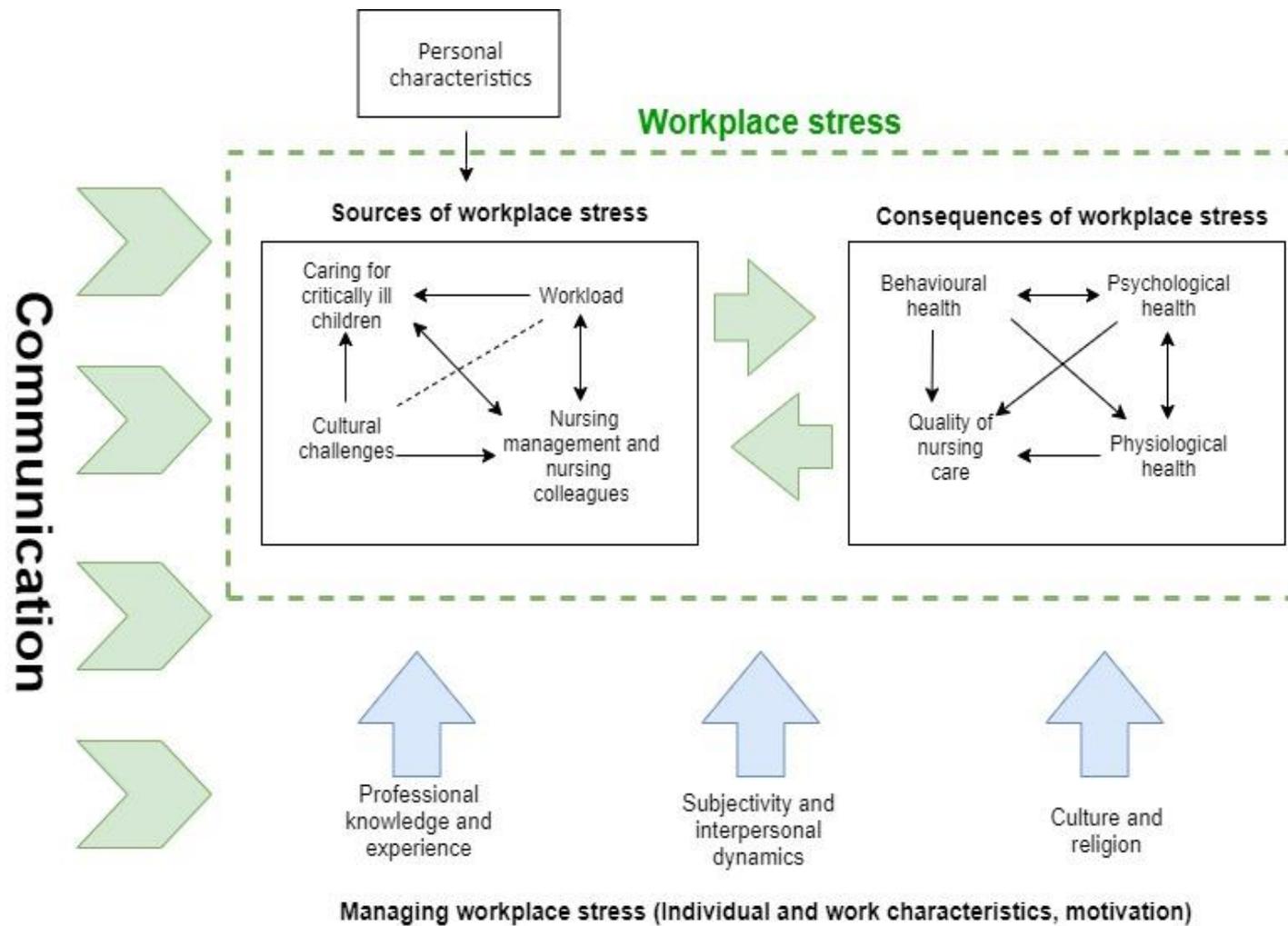
As previously noted, this research study utilised a mixed-method approach to explore and understand workplace stress and its sources among nurses working in public hospital PICUs in Riyadh and Dammam City, SA. The following research questions were formed in order to achieve the overall aim.

- 1) Do participants working in PICUs in public hospitals run by the government healthcare sector in Saudi Arabia healthcare system in Riyadh and Dammam city, experience workplace stress?
- 2) What is the perceived prevalence of workplace stress among the participants in their work setting?
- 3) If the participants experience workplace stress, what do they perceive to be the sources of it?
- 4) What are the participants' perceptions of the impact of workplace stress on the quality of nursing care and their work performance in their daily nursing practice?
- 5) Is there a relationship between the participants' personal characteristics and their perceptions of workplace stress?

As detailed in the results of Phase 1 and Phase 2 (Chapters Five and Six), several sources and consequences of workplace stress emerged from data analysis, and these results constitute a valuable contribution to the knowledge of this topic by adding in-depth context-specific information to the existing body of evidence. Previous studies have also determined, for example, the role of workload in contributing to nurses' workplace stress, and attributed this workload to a

variety of factors, including large amounts of paperwork and long shifts (Alomani, 2016; Wazqar, 2018), shortage of nurses (Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Kamal et al., 2012; Muhawish et al., 2019; Sayed & Ibrahim, 2012; Wazqar, 2018) and lack of clarity about the required responsibilities (Muhawish et al., 2019). Other sources of workplace stress found in this research study supported previous studies' findings, including having to deal with death and dying (Saleh et al., 2013; Wazqar, 2018) and with the patients' families (Alomani, 2016; Kamal et al., 2012; Muhawish et al., 2019), inadequate emotional preparation (Kamal et al., 2012; Saleh et al., 2013), conflicts with supervisors and managers (Al Hosis et al., 2013; Muhawish et al., 2019; Sayed & Ibrahim, 2012; Wazqar, 2018), and challenges related to culture (Wazqar, 2018). The effects of workplace stress, that were highlighted in this research study, in terms of the impact on the quality of nursing care as well as on the psychological, behavioural and physiological aspects of nurses' health also add to the available, broad body of literature on the topic (e.g. Al Hosis et al., 2013; Alomani, 2016; Cheung & Yip, 2015; Ganster & Rosen, 2013; Humaida, 2012; Karkar et al., 2015; Lim et al., 2010).

Whilst the above results undoubtedly constitute a valuable addition to the existing literature on the topic, this research study provided new insight that, rather than existing in isolation, there seems to be a dynamic. Not only does there seem to be an interplay, or a dynamic, between the sources of and the consequences of workplace stress, but also the sources seem to influence the consequences and vice versa (see Figure 7.1).



Please note that (—) indicates a direct influence, and (----) indicates an indirect influence.

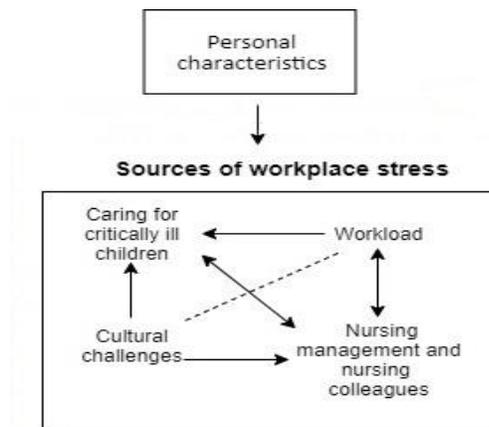
Figure 7.1: A dynamic model of workplace stress amongst nurses in paediatric intensive care units in Saudi Arabia

As most available workplace stress theories to date are Western based and reflect the culture of Western healthcare environments, it is not appropriate to ‘fit’ these models to the Arab healthcare system, such as SA, when seeking to understand workplace stress. The model developed from this research study, which was the first research study of workplace stress based in PICU that used a mixed-methods approach, has been developed within the SA culture. Moreover, unlike the previous studies that have explored the sources and consequences of workplace stress and have given the impression of a static overview of it; what emerged in this research study, and is reflected in the above model (Figure 7.1), is a dynamic interplay that exists between each part of the diagram rather than a static ‘picture’.

The discussion in this chapter starts with a section on the dynamic interplay between the sources of workplace stress (Section 7.2). Sections 7.2.1 and 7.2.2 discuss the relationship between the various sources of workplace stress (Figure 7.1); this is followed by a discussion of the influence of participants’ personal characteristics on workplace stress (Section 7.2.3). Section 7.3 continues to discuss the elements of the model (Figure 7.1), and the interplay between various consequences of workplace stress is discussed. A dynamic relationship between sources and consequences of workplace stress, another result that has not been offered before, is presented in Section 7.4. What follows is a detailed discussion of ways to address workplace stress (Section 7.5), which includes the discussion of how to manage workplace stress (Section 7.5.1, and the bottom of Figure 7.1) and prevalence of it (Section 7.5.1.1). The chapter concludes with a discussion on addressing workplace stress through improving communication on micro and macro levels (Sections 7.5.2, 7.5.3 and 7.5.4, and the left-hand side of Figure 7.1).

7.2. Dynamic interplay between sources of workplace stress

The results of this research study revealed that the various sources of workplace stress cannot be discussed independently of one another as there exists a dynamic interplay among these sources (see Figure 7.2).



Please note that (—) indicates a direct influence, and (---) indicates an indirect influence.

Figure 7.2: Interplay between the various sources of workplace stress

As evident in the above figure, although various relationships between the different sources of workplace stress were found, the ‘cultural challenges’ were the only source expressed by the expatriate participants that seemed to, either directly or indirectly, influence all other sources of workplace stress as perceived by both SA and expatriate participants’ in this research study.

7.2.1. The relationship between culture and other sources of workplace stress

In previous literature to date, the influence of culture on nurses’ workplace stress in the SA context has only been discussed on one occasion. Focusing on nurses in an oncology unit in SA, Wazqar (2018), found a discrepancy between the cultural beliefs of nurses’ and patients’ families about caring for sick patients, which, in turn, affected the quality of nursing care provided, as families refused nurses’ medical advice and instructions; in some situations, patients’ families followed

their ‘culture and traditional way’ of treatment, such as herbal medication, so managing the patients’ families was difficult for nurses. In addition, the relationship between the two groups was affected by the differing expectations of each other’s roles and responsibilities. This misconception was mainly due to the image of nursing in SA, where a lack of respect for nurses is implanted in SA culture. However, the relationship between sources of workplace stress and the influence of culture has not been previously investigated.

The current research study provided new insights into the sources of workplace stress experienced by nurses in PICUs in the SA context by highlighting the influence of the local culture on the sources of it—this was visible via the following sub-themes: ‘Workload’, ‘caring for critically ill children’, and ‘nursing management and nursing colleagues’. ‘Cultural challenges’ were arguably the most fundamental source of workplace stress among the participants; these challenges were the only ones that seemed to influence all other sources of it, either directly or indirectly.

‘Caring for critically ill children’ (see Figure 7.2), for example, was a source of workplace stress that was linked to these cultural challenges, as the experiences of caring for critically ill children can be strongly influenced by the cultural clash between the participants and the patients’ parents and families, resulting in a discrepancy between both groups’ expectations of each other (Cruz et al., 2017). This may include, for example, practices such as having a family member or sitter with the patient in the unit, praying in the patient’s room, or frequent and long-lasting visits (Almostadi, 2012; Baddarni, 2010). Some expatriate participants’ in this research study believed these practices to be disruptive and disrespectful; in SA culture, though, these are considered common practices (Almostadi, 2012; Baddarni, 2010).

In previous SA studies, expatriate nurses, including those who worked in acute or critical nursing units, also faced challenges due to a lack of familiarity with local religious habits, beliefs and

culture (Aboshaiqah, 2016; Aboul-Enein, 2002; Aldossary et al., 2008, Aldossary et al., 2013; Alghamdi & Urden, 2016; Alhusaini, 2006; Al-Mahmoud, 2013; Almutairi, 2012; Almutairi & McCarthy, 2012; Almutairi et al., 2015; Halligan, 2006), which raises a question about the extent to which this could have been limited had the nurses been more prepared to enter the profession in this context.

Another barrier to the local culture is language, which was also found to affect the participants' experiences. Knowing the culture and being trained to speak Arabic would have helped the expatriate participants to find common ground with the families, which was evident in the participants' comments about workplace 'cultural awareness' in the nursing orientation programmes. These programmes helped them learn the culture, Islamic religion and fundamental Arabic and, as a result, "*adjust*" better (Participant 11). All healthcare professionals including nurses are expected to provide culturally sensitive care, respecting the culture and appropriately communicating with patients and their families to ensure high-quality care (Cruz et al., 2016).

According to Mohamed (2002), who distributed a cross-sectional questionnaire to nurses in Riyadh to determine the extent of workplace violence against nurses in SA, 36.3% of nurses indicated that the language barrier was a main cause of verbal and physical workplace violence towards them. Not being able to speak the local language affected a nurse's ability to, for example, instruct the parents in the SA paediatric ER about the dosage of the prescribed drug (Wahabi & Alziedan, 2012).

Importantly, the participants' negative experiences did not exclusively result from culture differences between both groups. The influence of culture on 'caring for critically ill children', through influencing relationships with the patients' families, also reflects SA society's culture and other healthcare professionals' perceptions of nurses as 'maids', followers of doctors' orders and

second-class workers (Aboshaiqah, 2016; Aboul-Enein, 2002; AbuAlRub, 2007; Almutairi, 2015; Almutairi et al., 2015; Almutairi & McCarthy, 2012; Almutairi & Moussa, 2014; AlYami & Watson, 2014; Gazzaz, 2009; Lamadah & Sayed, 2014; Miller-Rosser et al., 2006; Tumulty, 2001).

To support their claims, the participants recollected experiences of being asked to carry out tasks that they felt lay beyond their responsibilities, such as dealing with offensive or argumentative patients' parents or families or the general manner in which patients' parents gave them orders. Talking about the perceived lack of respect for the nurses, one participant stated that "*in our country, people do not act like that*", "*simple simple thing; even just to turn on the television they will ask the nurse*" (Participant 9). The parents were also reported to distrust nurses and questioned the quality of their performance based on minor issues, such as "*If the rhythm changes a little or the alarm activates*" (Participant 6).

Wazqar (2018) identified the lack of respect for nurses by patients and their families as a major source of workplace stress for SA and expatriate nurses. This disrespect included treating nurses as 'servants' or 'slaves', being dependent on nurses and not taking any responsibility for their own health or being unable to understand the extent of nursing expertise (i.e. their ability to effectively manage cancer patients beyond meeting their basic care needs).

In addition, participants reported negative behaviour from a number of physicians, which seemed to reflect the previously mentioned negative perceptions of (mostly female) nurses working in the cultural context of SA (Almutairi et al., 2015; Alotaibi et al., 2016; El-Sanabary, 1993; Lamadah & Sayed, 2014; Miller-Rosser et al., 2006). These attitudes were evident in this current research study with some participants raising concerns, for example, about the way male Arab physicians

gave them orders — “*do it now, do it now*” (Participants 6) — which ultimately led to some participants feeling that they “*cannot work with them [the physicians] easily*” (Participant 13).

Both the SA and expatriate participants in the ‘caring for critically ill children’ sub-theme felt “*very bad*” (Participant 13) about being treated by the patients’ parents or the physicians in a disrespectful way in the PICU, which raised concerns that “*nurses are not seen as nurses but lower than that*” (Participant 9).

The participants subconsciously made crucial points that should not be overlooked — that these experiences should be analysed from the perspective of the overall cultural clash between the nurses’ and the patients’ parents’ or with physicians, with the former not being familiar with, or prepared to face, the local cultural and religious beliefs and its resulting expectations towards nurses in SA context (Aboshaiqah, 2016).

Similar to the negative behaviour of a number of physicians, the SA culture was also found to influence the SA and expatriate participants’ relationships with ‘nursing management and nursing colleagues’ (see Figure 7.2), which, as discussed in the previous chapter (Chapter Six) was another source of workplace stress. Some participants reported negative behaviour from a number of nursing managers, an overall lack of professionalism and a condescending attitude when the nurse supervisor, in front of the other nurses, “*loudly asked*”, (Participant 8), or “*shouted*” (Participant 11) when communicating with participants, which seemed to reflect a lack of respect for the nurses role. Also, these attitudes were aggravated by a lack of consideration from nursing management which ultimately led to the participants feeling “*more stress*” (ibid).

Few participants also reported a sense of isolation and inability to find common ground with their colleagues, commenting that nurses who shared a national background spent their breaks together

and “*only support[ed] each other*” (Participant 7). These participants raised concerns that they were being alienated by other personnel who shared national, cultural and linguistic backgrounds, which is in line with the findings of previous studies (example.g., Aldossary et al., 2008; El-Gilany & Al-Wehady, 2001).

Interestingly, culture seemed to indirectly influence another major source of workplace stress, namely ‘workload’, which has been widely documented in other studies (Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Kamal et al., 2012; Muhawish et al., 2019; Wazqar, 2018). Firstly, both the amount and type of work that the participants were assigned may have resulted from the aforementioned norms in this particular cultural context; workload included numerous nursing and non-nursing tasks — many of the latter (such as checking equipment functions or checking the cleaning of the child patients’ rooms) were part of the nurses’ role in SA, but were not always perceived to be by the expatriate participants. Secondly, the participants’ perceptions of the amount of work could, again, have stemmed from comparisons with their own country and the workload at the hospitals where they previously worked in their own cultural context; the setting of the current research study was PICUs, in public hospitals in the government sector, which is the largest sector of SA’s healthcare system, so this context may have been a particularly heavy workload (MoH, 2017, 2018; Walston et al., 2008).

Finally, and most importantly, the amount of workload was, as the participants believed, largely due to a shortage of nurses in their workplace. As reported in several studies to date, however, the shortage of nurses at different nursing units, including PICUs, has resulted both from the inability to attract high school students from the local population as candidates for nursing programmes and from the high turnover rates among nurses in the SA healthcare system (Aboshaiqah, 2016; Aboul-Enain, 2002; AbuAlRub, 2007; Abu-Zinadah, 2004; Aldossary et al., 2008; Alhusaini, 2006;

Almalki et al., 2011b; Almutairi, 2015; Almutairi & McCarthy, 2012; Almutairi et al., 2015; Almutairi & Moussa, 2014; Alotaibi et al., 2016; Gazzaz, 2009; Lamadah & Sayed, 2014). There are multiple reasons for the latter: Nurses either change jobs or leave the profession, or they face challenges, including cultural ones, that indirectly influence their decision to quit the job. With regard to the low interest in nursing among the local population, it has been documented that family members discourage female students from pursuing a nursing careers because of the negative public image of the profession (Al-Johari, 2001; Lamadah & Sayed, 2014). Furthermore, qualified SA nurses are pressurised into moving from clinical roles to non-clinical roles, such as those in healthcare administration (Almadani, 2017; Gazzaz, 2009). Therefore, culture again seems to directly influence the shortage of nurses in the SA healthcare system, thus indirectly influencing the ‘workload’ that participants frequently raised concerns about.

7.2.2. The relationship between other sources of workplace stress

Regarding the ‘workload’ itself, and its impact on other sources of workplace stress mentioned by the participants, ‘workload’ seemed to influence the nurses’ relationships with ‘nursing management and nursing colleagues’ and, unsurprisingly, the task of ‘caring for critically ill children’ (Figure 7.2). Regarding the latter, although, ‘caring for critically ill children’ is undoubtedly a stressful task in itself, what adds to this workplace stress is the shortage of nurses which increases the ‘workload’ and means that “*you have to handle him [the child] alone, there are so many procedures to perform, so it is also stressful*” (Participants 5). In addition, in light of the previously discussed (Chapter Six) lack of equipment and abundance of both nursing and non-nursing tasks that the participants are expected to complete (and which all jointly contribute to the unrealistic workload the participants raised concerns about), it is not surprising that the task of caring for critically ill children, where “*a slight difference in the amount of medication may have*

a major impact on the child” (Participants 7), becomes even more stressful. Additionally, the ‘workload’ affects the relationships between participants and their nursing colleagues and nursing management; the participants perceived the latter as not being helpful or respectful, and reported feeling unsupported and unappreciated. Furthermore, as discussed in the following sections (sections 7.3 and 7.4), due to certain consequences of workplace stress and the relationship between these and the sources of workplace stress, the participants’ frustration, tiredness and irritation, possibly influences their relationships with nursing management and their nursing colleagues. In addition, perceiving the assigned tasks as reflecting the lack of respect and appreciation from their superiors, for example “*I cannot make duty arrangements when I need to (...) If my children are sick, or my husband needs something*” (Participant 20), coupled with being convinced that they are left on their own and unsupported, is likely to affect participants’ relationships with nursing management. The poor relationships with nursing management (which were a source of workplace stress) influenced the participants’ perceptions of both their workload and the tasks involved in caring for critically ill children. Had their relationships with nursing management been better, it is possible that the participants would not have perceived that they were being assigned tasks as an expression of their nursing management’s negative attitudes towards them. There was no evidence that the workload or the types of tasks being assigned to participants were being negotiated. In a desirable workplace environment, in which colleagues show each other support and respect, one would expect more dialogue and negotiation than was found in this research study. The role of the micro-level communication and macro-level communication between nurses and nursing management and their colleagues, is further discussed in Section 7.5.3 and 7.5.4.

To summarise, although the various sources of workplace stress discussed by the participants have been previously mentioned in the literature, they have always been discussed in isolation. Although this approach reflects individual participants' perceptions of the sources of workplace stress and can be a clear and effective way to categorise them, it is necessary to go beyond this surface level of reporting and instead attempt to understand the overall nature of workplace stress in its full complexity. The model (Figure 7.1) developed from this research study illustrates this complexity and the interplay between the various sources of workplace stress. It is necessary to view the dynamic workings of workplace stress in its entirety in order to later make suggestions to help nurses address and manage it (see Section 7.5).

The dynamic nature of workplace stress from the current model is also evident in how, in addition to sources of workplace stress influencing its consequences, the consequences of workplace stress also influence the sources. Prior to discussing the consequences of workplace stress (Section 7.3) and the interplay between the sources and consequences of workplace stress (Section 7.4), the effects of participant's personal characteristics and relationships on workplace stress is discussed below.

7.2.3. The influence of personal characteristics on workplace stress

As previously noted, one of the main strengths of this current research study is the use of a mixed-methods approach which enabled the researcher to gain a more detailed insight into the phenomenon of workplace stress among nurses in PICU in SA. Therefore, whilst Phase 2 resulted in detailed, subjective and personal insights into the studied topic, Phase 1 enabled the researcher to explore the possible relationships between workplace stress and the participants' personal characteristics in a scientifically rigorous and objective way.

The first analysed characteristic was gender. Similarly to previous nursing studies conducted in an SA context (see also Alharbi & Alshehry, 2019; Al Hosis et al., 2013; Alomani, 2016; Humaida, 2012; Kamal et al., 2012; Karkar et al., 2015; Muhawish et al., 2019; Rayan et al., 2019; Sayed & Ibrahim, 2012; Saleh et al., 2013; Wazqar, 2018), the majority of the participants in this research study were female. The quantitative results found that male participants reported higher level of workplace stress than female participants under the ENSS subscales of ‘discrimination’, ‘problems relating to peers’, ‘patients and their families’, ‘death and dying’, ‘inadequate emotional preparation’ and ‘uncertainty concerning treatment’ and the relationships were statistically significant. This is at odds with some previous studies conducted in SA that either suggested that females have higher workplace stress than males (Kamal et al., 2012; Sayed & Ibrahim, 2012) or did not find a significant statistical relationship (Alharbi & Alshehry, 2019; Al Hosis et al., 2013; Saleh et al., 2013; Sayed & Ibrahim, 2012).

In this research study, the rationale of male participants having higher levels of workplace stress than females in the subscale of ‘discrimination’ and ‘problems relating to peers’ may be due to the fact that females have generally dominated the nursing profession for much of the twentieth century around the world (Mackintosh, 1997). Similarly, female nurses outnumber the males in the SA healthcare system (MoH, 2017, 2018) and this was reflected in the sample of this research study. Additionally, as the males in this research study were all Arab, originally from SA and Jordan, they may have tended to see females as being inferior to them, this may have influenced this significant relationship with these subscales (Al-Shahri, 2002; Gazzaz, 2009; Rassool, 2000).

The quantitative results presented in Chapter Five showed a significant stressful relationship between males and the subscale of ‘patients and their families’. This can be explained, for example, by situations such as when a mother who is accompanying her child to the PICU needs a female

to notify her that a male nurse is going to enter so she can cover herself before he sees her. Also, this may be echoing the previously mentioned generally negative perceptions of either male or female nurses in the society (Aboul-Enein, 2002; Gazzaz, 2009; Miller-Rosser et al., 2006; Tumulty, 2001).

The quantitative results also indicated that male participants had a significant relationship with the 'death and dying' and 'inadequate emotional preparation' subscales. Those two stress subscales in ENSS may be due to the culture of gender segregation in SA. Male participants may not know how to support the mother of a child in the PICU. When death occurs, male participants cannot physically touch females to support them (Alqufly et al., 2019; Boucher et al., 2017). This, alone with the belief that 'men do not cry' affects the men emotionally and causes them not to seek help or support (Milligan, 2001).

Male participants also had a significant relationship with 'uncertainty concerning treatment' subscale. The reasons for this remain unclear as the result of this research study did not provide further insight. However, this statistically significant difference between males and females should be taken cautiously, as there were only a few male participants in both phases of the research study.

The second significant personal characteristic is nationality. Most of the participants were expatriates, which reflects the prevalence of expatriate nurses in this context (Mansour et al., 2014; MoH, 2017, 2018; Muhawish et al., 2019; Rayan et al., 2019; Saleh et al., 2013; Wazqar, 2018). A significant relationship was found between participants from SA and the 'conflicts with physician' subscale; however, it was expressed also by expatriate participants in Phase 2 as a source of workplace stress. This may be due to the poor image of the nursing profession not only by society but also from the physicians as they view nurses as inferior to them with their role merely being to assist to the doctors (El-Sanabary, 1993; Schwirian & Moloney, 1998). This may

lead to clashes between SA nurses and physicians, resulting in a negative physician attitude towards nurses in a culture that prioritises status and honour (Carty et al., 1998).

The quantitative results also indicated that Filipino participants had a medium to high level of workplace stress and a statistically significant relationship with the subscale of ‘patients and their families’. Considering the previously discussed Phase 2 results which highlighted the importance of ‘cultural challenges’, this may be due to their being unable to appropriately support or communicate with the patients’ parents and family when caring for their critically ill children or when there is bereavement due to the language and culture barriers and may, have therefore, elevated their levels of workplace stress. Filipino participants also had a significant relationship with the subscale ‘uncertainty concerning treatment’, and ‘problems relating to peers’ which warrants further investigation.

Interestingly, Indian participants had a medium level of workplace stress and did not struggle as much (a significant negative relationship) with subscales of ‘workload’ and ‘problems relating to supervisors’. This may be because Indian participants hold a Diploma in Nursing, and as such are used to completing numerous nursing and non-nursing tasks, as their education focuses more in clinical practice and basic nursing knowledge (Gazzaz, 2009; Huston, 2013). Their degree level (i.e Diploma in Nursing) may also have allowed them to not be seen as ‘competition’ by nursing management as usually they hold a higher nursing degree, allowing them to accept their superior more and making them feel less stressed about their relationship with their superiors. The lowered stress from both the above ENSS subscales may be the reason why Indian participants were suffering from medium level of workplace stress, whereas Filipino participants had a medium to high level of workplace stress; however, both had more stress than SA participants in this research study.

The last significant personal characteristic is academic nursing qualifications, all the participants held a Diploma in Nursing or BSN–this is similar to previous literature that has focussed on workplace stress among nurses in SA (Alharbi & Alshehry, 2019; Al Hosis et al., 2013; Kamal et al., 2012; Mansour et al., 2014; Muhawish et al., 2019; Saleh et al., 2013; Sayed & Ibrahim, 2012). However, the quantitative results found that participants with a Diploma in Nursing had a medium level of workplace stress. Most participants holding Diplomas in Nursing were Indian and most of their workplace stress was due to the challenges of a different culture. In general, the perspective of male, expatriate nurses toward workplace stress needs further study and exploration.

Finally, years of PICU work experience was not statistically significantly correlated with workplace stress. However, the majority of participants in the present research study had less than 10 years of PICU work experience in SA, which is similar to the work experience of participants of several studies conducted in different specialist SA nursing units (Alharbi & Alshehry, 2019; Al Hosis et al., 2013; Mansour et al., 2014; Wazqar, 2018). This may reflect the fact that the majority of expatriates use the SA healthcare system as a temporary location to obtain training and experience. They then resign and move with marketable skills to developed countries such as the USA, the UK, Canada and Australia (Alhusaini, 2006; Almalki et al., 2011b) while SA qualified nurses are pressurised into moving from clinical roles to non-clinical roles, such as those in healthcare administration due to the cultural situation (Almadani, 2017; Gazzaz, 2009). In addition, a high percentage of experienced nurses leave clinical work and transfer to administration departments (Almadani, 2017; Gazzaz, 2009). This would align with international data showing that nurses tend to withdraw early from the clinical sector, possibly because of early retirement or a change in job role (Hinson & Spatz, 2011).

7.3. Dynamic interplay between the consequences of workplace stress

The qualitative data analysis provided more insight into the consequences of workplace stress as discussed in Chapter Six. The participants felt that workplace stress negatively affected their ‘psychological’, ‘behavioural’ and ‘physiological health’. Additionally, the effects of workplace stress impacted on the ‘quality of nursing care’.

The emerged results of this research study supported previous work revealing the influence of workplace stress on physical (e.g., Al Hosis et al., 2013; Humaida, 2012; Ganster & Rosen, 2013; Wazqar, 2018), psychological (e.g., Al Hosis et al., 2013; Alomani, 2016; Cheung & Yip, 2015; Ganster & Rosen, 2013; Karkar et al., 2015; Lim et al., 2010; Machado et al., 2012; McKinney, 2011; Wazqar, 2018) and behavioural health (e.g., Al Hosis et al., 2013; Alomani, 2016) of healthcare professionals, including nurses working in ICU. As in the case of the previously discussed sources of workplace stress, however, this research study found that apart from the obvious influence of sources of workplace stress on its consequences, there exists a dynamic interplay between the consequences themselves (see Figure 7.3).

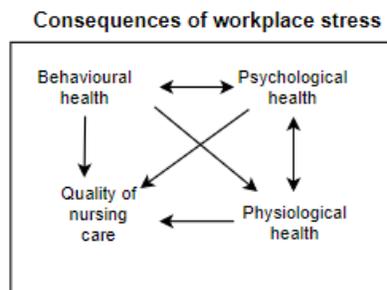


Figure 7.3: Interplay between the consequences of workplace stress

Most importantly, as this directly refers to one of the research questions, the results also provide evidence that workplace stress ultimately influenced the nurses' performance and their 'quality of nursing care', which supports previous findings on the topic (e.g., Al-Homayan et al., 2013a; Al Hosis et al., 2013; Alomani, 2016; Karkar et al., 2015; Wazqar, 2018).

While analysing the data, the consequences of workplace stress on several different aspects of health were each coded separately from its impact on the quality of nursing care (see Table 6.3. in Chapter Six). This directly reflected the participants' beliefs and statements. However, the analysis revealed that these various consequences of workplace stress were interrelated — all participants highlighted that they seemed to influence one another, and all seemed to ultimately affect the 'quality of nursing care', this providing more insights into the consequences of workplace stress.

For example, the different symptoms of poor psychological health, that the participants reported, all had an influence on their work performance, which translated to the quality of nursing care. Participant 5 said she was "*so tired*" and would always "*want to go home now*". She felt demotivated and exhausted "*because of the stress*".

This general lack of motivation and decreased job satisfaction for some participants, as well as the negative consequence on the 'quality of nursing care', were previously documented in a meta-analysis of studies by Blegen (1993) of variables related to job satisfaction. Similarly, the consequences of workplace stress on 'behavioural health' that the participants described (which included such effects as affected sleep, isolation and social withdrawal), resulted in a perceived overall decrease in performance with regard to nursing tasks and the quality of care. As the participants' social and family life was affected, they reported that this had an additional negative consequence on their 'psychological health', which also negatively impacted on the 'quality of nursing care'. Similarly, the consequences to 'psychological health' (including frustration and

feeling irritable) may have resulted in what the participants believed to be poorer 'behavioural health', such as anger outbursts at home with their children.

Just as it is not easy to separate the consequences of workplace stress in terms of the 'quality of nursing care' from the consequences on 'psychological', 'physiological' or 'behavioural health', it is equally difficult to distinguish between the different outcomes of these health aspects.

In other words, poor 'physiological health' seemed to affect 'psychological health' and vice versa which supports previous literature on the topic (for example, Luo et al., 2019; Ohrnberger et al., 2017). Similarly, the negative consequences that affected 'physiological health' (pain and aches) could be attributed to more than merely the heavy 'workload'. Rather, it could be the effect of a decrease in 'behavioural health', such as difficulties in falling asleep, or in 'psychological health', including tiredness or the inability to disconnect from work.

To summarise, as previously demonstrated in a number of studies investigating the links between sources of workplace and the quality of nursing care, including Karadzinska-Bislimovska et al.'s (2013) focus group discussions with a total of 56 physicians, interns, nurses and residents, it is clear that nurses who struggle physically and mentally cannot deliver the highest quality of care to their patients. Although the participants' responses were coded in a way that reflected their direct statements (thus, the consequences of workplace stress were initially divided into the effects on 'psychological', 'physiological' and 'behavioural health', as well as the effects on the 'quality of nursing care'), it was found that workplace stress affects all of these consequences, and that these impacted on one another. In short, by affecting the participants' 'behavioural', 'psychological' and 'physiological health', each of which is linked to the other and which also influences the 'quality of nursing care', workplace stress ultimately affects the quality of nursing care and the participants' behavioural, psychological and physiological health.

7.4. Dynamic interplay between the sources and consequences of workplace stress

Although the sources and consequences of workplace stress are separated in their respective categories in the dynamic model of workplace stress amongst nurses in PICU in SA, presented in Figure 7.1, there was a direct dynamic interplay between the sources and consequences of workplace stress (Figure 7.4).

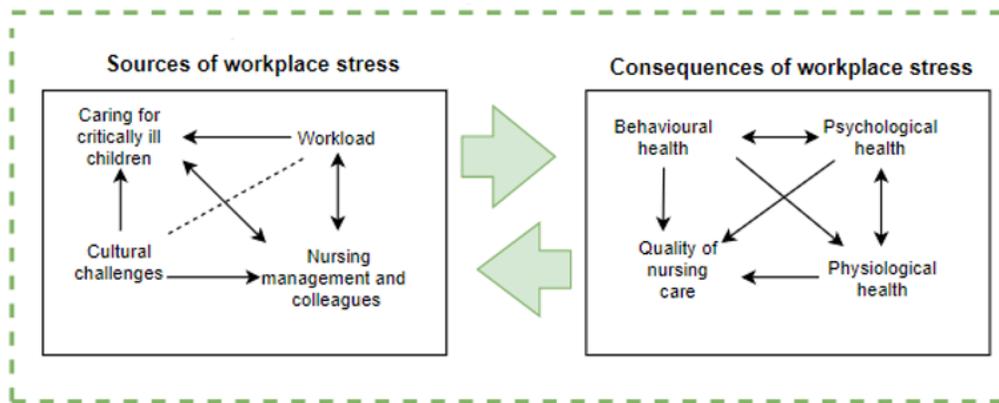


Figure 7.4: Interplay between the sources and consequences of workplace stress

Interestingly, several factors which have previously been described in the literature as sources of workplace stress (Lin et al., 2016; Weinberg & Creed, 2000) were mentioned in this research study in relation to its consequences. For example, physical pain, not being able to disconnect from work and the inability to complete personal commitments were believed to be sources of workplace stress by Weinberg and Creed (2000) and Lin et al. (2016). Lin et al.'s (2016) research focussed on PICU nurses and explained that long term workplace stress in PICU was negatively reflected in the nurse's home, affecting their personal commitments toward their families or even their ability to clean their home. In this research study, however, these issues were categorised as 'psychological', 'behavioural' and 'physiological' consequences of workplace stress.

Similarly, certain consequences of workplace stress that emerged from previous work (Karkar et al., 2015; Sarafis et al., 2016; Stewart & Barling, 1996) were reported by the participants as sources of workplace stress. For example, poor relationships with healthcare professionals and nursing colleagues which have been discussed in the context of the consequences of workplace stress among nurses (Karkar et al., 2015; Sarafis et al., 2016; Stewart & Barling, 1996) were one of the key sources of it in this research study (see Section 7.2).

As the participants' discussions of both sources and consequences of workplace stress were being analysed, it became clear that making a one-directional and causal relationship between the two (sources and consequences of workplace stress) was neither feasible nor desirable. Therefore, while the sources and consequences of workplace stress still remain in their respective categories in the dynamic model of workplace stress amongst nurses in PICU in SA (Figure 7.1) in order to reflect what the participants believed and openly stated-the direction of arrows indicates the dynamic interplay between these two themes that emerged in the qualitative analysis in Chapter Six.

The dynamic interplay between the sources and consequences of workplace stress is based on two factors. The first one is that all consequences of workplace stress can be considered as also including its sources. Any of the negative effects of 'psychological', 'behavioural' or 'physiological health' can themselves be a source of workplace stress in addition to being its consequences. The same applies to the 'quality of nursing care'. If the 'quality of nursing care' was affected, the participants perceived that they would certainly experience additional workplace stress because of it. This would explain why, for example, physical pain resulting from the unrealistic workload, coupled with the shortage of nurses, caused workplace stress amongst the participants.

The second factor on which the dynamic interplay between the sources and consequences of workplace stress proposed in the model (Figure 7.1) is based is that, in addition to being the sources of workplace stress themselves, such consequences influence individual sources of workplace stress. ‘Nursing management and nursing colleagues’, for example, were believed by participants to result in workplace stress and ultimately lead to psychological and behavioural health issues, (Chapter Six). In addition, as suggested (Section 7.3), the various consequences of workplace stress seem to influence one another, which effects all three aspects of health but also impacts negatively on the overall ‘quality of nursing care’. However, this relationship seems to work the other way as well, as both the lowered quality of nursing care and the combination of negatively affected psychological, behavioural, and physiological health may also negatively affect the participants’ relationships with their nursing management and nursing colleagues. Not only will the quality of nursing care be negatively assessed by nursing management and potentially result in further tensions, it is likely to affect their relationships with other healthcare professionals and so caring for critically ill children will be affected. In the same vein, the various consequences of poor psychological, behavioural and physiological health are likely to negatively affect the participants’ ability to care for critically ill children, to communicate with the patients’ parents or families, or to face and cope with the already heavy workload.

To summarise, contrary to the findings of previous studies which clearly distinguished between the various sources and consequences of workplace stress and gave an impression of a somewhat static and one-directional relationship between the two, what emerged in the current research study is a dynamic interplay between the sources and the consequences. Firstly, the consequences of workplace stress can constitute additional sources of workplace stress themselves. Secondly, the dynamic combination of various consequences of workplace stress, also influences these

individual sources (see Section 7.4). The remaining sections in this chapter discuss the results related to addressing and managing workplace stress, which were themes that emerged from the Phase 2 data analysis.

7.5. Managing workplace stress and the role of communication

It is argued in this section that improving communication on micro and macro levels, both of which are defined in Section 7.5.2, minimises workplace stress. Prior to this, however, in Section 7.5.1, the results related to ‘individual and work characteristics that help to manage workplace stress’ and ‘motivation to work in PICUs in SA’ are summarised; it was the analysis of these characteristics that highlighted the importance of micro and macro levels of communication. Additionally, the prevalence of workplace stress among nurses in PICUs is presented in section 7.5.1.1.

7.5.1. Managing workplace stress

A further analysis of the participants’ statements regarding their ‘motivation to work in PICUs in SA’ that they made during the interviews, as well as both ‘individual and work characteristics that help to manage workplace stress’, revealed that overall, the factors that helped manage workplace stress fell into three general categories that encompassed various ways of managing workplace stress and potentially contributed to the nurses remaining in their profession in PICUs in SA namely: ‘Professional knowledge and experience’; ‘subjectivity and interpersonal dynamics’; and ‘culture and religion’. The three bottom arrows in Figure 7.1 reflect three general categories that positively affect the sources of workplace stress and their consequences for both participants’ health and quality of nursing care.

The first category, ‘professional knowledge and experience’ which is shown in Table 7.1, included ‘work experience’, and ‘undergraduate nursing education’, both of which are sub-themes of the ‘individual characteristics that help to manage workplace stress’; ‘continuing education programmes for nurses’, ‘nursing orientation programmes’-which are sub-themes of the ‘work characteristics that help to manage workplace stress’ and ‘professional development’ a sub-theme of ‘motivation to work in PICUs in SA’.

Table 7.1: Professional knowledge and experience category

Category	Theme	Sub-themes
Professional knowledge and experience	Individual characteristics that help to manage workplace stress	Sub-theme: Work experience Sub-theme: Undergraduate nursing education
	Work characteristics that help to manage workplace stress	Sub-theme: Continuing education programmes for nurses. Sub-theme: Nursing orientation programmes
	Motivation to work in PICUs in SA	Sub-theme: Professional development

In short, it seems that the more relevant the skills, knowledge and experiences the participants have, the more they seem to deal with workplace stress, and the more likely they are to remain in the profession as nurses in PICUs in SA. When talking about her motivation to stay as a nurse in a PICU in SA, for example, participant 21 explained that “*the advantage here is the experience. Yes, the knowledge you learned, as well as the skill of doing so many procedures*”. Despite having experienced stressful situations, what motivated her was the continuous opportunities to gain more skills and knowledge. These also seemed crucial in the participants’ statements regarding ‘nursing orientation programmes’ and ‘continuing education programmes for nurses’ as work

characteristics that helped them manage workplace stress. Regarding the ‘nursing orientation programmes’, they provided the participants with the relevant skills and knowledge that helped them face their work environment and meet their nurse supervisors’ expectations more effectively. They teach “*the work style for approaching patients, the people, the environment; then, how we work (...) everything you need to know about the things you are using*” (Participant 7). This professional knowledge resulted in the participants being better prepared for their work and thus being less likely to suffer from workplace stress. Similarly, continuing education programmes for nurses increased the participants’ knowledge base and self-confidence, therefore decreasing their levels of workplace stress “*it has reduced stress already, because we have the knowledge*” (Participant 23). Regarding the ‘individual characteristics that help to manage workplace stress’, both ‘work experience’ and ‘undergraduate nursing education’ ultimately helped the participants become better equipped with the professional knowledge, skills and experiences they needed to face their work. Previous work experience “*helps (...) in every aspect of working here*” (Participant 18) and “*there is no more stress*” (ibid.) because the participants had already been involved in a variety of similar cases and had faced a variety of challenges. For the same reason, the combination of theoretical knowledge and practice, to which they had been exposed during their undergraduate nursing education, helped them gain knowledge and experiences, which was crucial to minimising the amount of workplace stress they may later experience “*we saw many serious situations and identified which were normal and which were abnormal. Step by step, we learned. We practiced until we felt confident. I can do it. I can manage, so there is less stress*” (Participant 11).

The second category as seen in Table 7.2, that encompassed various ways of managing workplace stress and, in the long run, potentially contributed to the participants remaining in their profession were ‘subjectivity and interpersonal dynamics’. The sub-themes of ‘work characteristics that help

to manage workplace stress’ included ‘inter-professional collaborative working environments’, ‘being respected’; and the sub-theme of ‘motivation to work in PICUs in SA’ included ‘job satisfaction’.

Table 7.2: Subjectivity and interpersonal dynamics category

Category	Theme	Sub-themes
Subjectivity and interpersonal dynamics	Work characteristics that help to manage workplace stress	Sub-theme: Inter-professional collaborative working environments Sub-theme: Being respected’
	Motivation to work in PICUs in SA	Sub-theme: Job satisfaction’

The combination of personal subjective evaluations of the work environment (“*I am really happy to work here*” [Participant 14]; “*when you are valued, it reduces the stress level*” [Participant 16]) and the group dynamics between healthcare professionals (“*I have the whole backup team that can help me. So, why should I be stressed?*” [Participant 7]; “*most of the time, my colleagues support me*” [Participant 9]) jointly contributed to managing workplace stress and potentially influenced the decision of the nurses, including the expatriate participants and particularly the Filipino nurses who suffered from high levels of workplace stress in this research study, to remain in PICUs in SA. According to Masselink and Daniel (2013), Filipino nurses, who comprise the majority of expatriate nurses in SA, send their salaries to their country. The level of pay was a key aspect of job satisfaction for Filipino nurses, as Ravari et al. (2012), Curtis (2007) and Sparks et al. (2005) all mentioned. The Filipino participants in this research study mentioned that aside from the job satisfaction they derive from teamwork with nurse colleagues and other healthcare professionals, their salary was also a source of job satisfaction that motivates them to continue working in PICUs

in SA and helped reduced their workplace stress, as their salary helped to pay for the tuition fees of their children back home. According to Phillipson and Smith (2005), financial commitments to children, such as the pressure to fund them through university, may increase the likelihood for individuals to remain in their work, as was the case in this research study, even though the nurses were suffering from workplace stress.

All these sub-themes suggested that working in a supportive, friendly and collaborative environment, where colleagues and healthcare professionals show respect for one another, contributed to minimising workplace stress and to the participants' decision to continue working in PICUs in SA.

These, in turn, may have been enhanced by the fact that there are no part-time or any agency/bank nursing jobs in the SA healthcare system. Nurses have a contract to work in one clinical area in a hospital whilst employed in SA. In practice, this means that the relatively small number of full-time nurses work together for prolonged periods of time, which may benefit their sense of connection with one another, especially in a close nursing unit such as a PICU. This corroborates the findings of international and national literature highlighting that a supportive work environment for nurses is known to lessen workplace stress and contribute to the provision of high-quality nursing care (Alharbi et al., 2016; Duffield et al., 2011; Lefton, 2012; Machado et al., 2012; Purdy et al., 2010).

Finally, 'cultural awareness' and 'religion and beliefs', which are sub-themes of the 'work and individual characteristics that help to manage workplace stress' as seen in Table 7.3, comprised the third general category in the above model of managing workplace stress (Figure 7.1),-'culture and religion'.

Table 7.3: Culture and religion category

Category	Theme	Sub-themes
Culture and religion	Individual characteristics that help to manage workplace stress	Sub-theme: Religion and beliefs
	Work characteristics that help to manage workplace stress	Sub-theme: Cultural awareness

In light of the role of culture and/or religion that has emerged throughout this discussion and the qualitative results in Chapter Six, it is not surprising to see that the participants attributed importance to culture and religion when managing workplace stress. This referred mainly to one's own faith, which helped the participants face the challenges of their work (For example, "*I just need to pray and ask him [God] for help*" [Participant 22]), This is in line with Alharbi and Alshehry's (2019) study of nurses in different ICUs in SA, which found that strong religious beliefs are the most common way of coping with sources of workplace stress.

Secondly this aspect of the model refers to familiarity with the local people's cultural and religious habits and beliefs. As reported in Chapter Six, exposure to information about the local culture and religious beliefs during the nursing orientation programme helped some participants understand "*what is acceptable and what is not, especially with the patients*" (Participant 5), thus helping minimise the workplace stress related to the clash between the participants' and local people's cultures and religion beliefs.

7.5.1.1. Prevalence of workplace stress

The previously discussed characteristics of workplace stress management from the Phase 2 results contributed to new knowledge by describing how the participants managed workplace stress in PICUs in public hospitals in Riyadh and Dammam in SA; the quantitative results may also account

for ‘medium levels of workplace stress’, which the ENSS analysis characterised as ‘never stressful’ to ‘occasionally stressful’. Therefore, the Phase 2 results may indicate why, despite having experienced a significant amount of workplace stress in PICUs and its consequences to their health and the quality of care provided, the participants’ individual and work characteristics enabled them to manage well workplace stress in PICUs and to remain motivated to work as nurses in PICUs in SA.

The level of workplace stress in the current research study is similar to that experienced by nurses in other units in SA, including the ICU (Alharbi & Alshehry, 2019; Kamal et al., 2012; Mansour et al., 2014; Saleh et al., 2013; Sayed & Ibrahim, 2012), as well as by nurses in PICUs in other countries, such as PICU nurses in a Sudan public hospital (Mohamedkheir et al., 2016) and in a Bangalore hospital (Gurung, 2016). However, the levels of workplace stress vary across existing SA studies; there is evidence of high levels of workplace stress among nurses in certain nursing units, including ICUs (Alomani, 2016; Humaida, 2012; Muhawish et al., 2019; Rayan et al., 2019; Wazqar, 2018), but none of these studies related specifically to nurses working in PICUs in SA. Whilst others reported low levels of workplace stress (Al Hosis et al., 2013; Karkar et al., 2015); however, this may be attributed to the participants’ work environment. For example, the haemolysis unit (Karkar et al., 2015) has relatively stable patients and no night shifts for nurses; in another study (Al Hosis et al., 2013), the authors did not provide information regarding the nursing setting, that is if nursing units were acute or critical.

7.5.2. Poor communication at the micro and macro levels

The above summary and discussion of the results are related to managing workplace stress, nurses’ motivation to remain in PICUs despite having experienced a medium amount of workplace stress and the corresponding consequences to their health and to the quality of care they provided. The

purpose is to lay the foundation for the following discussion of the role of communication at the macro and micro levels in improving nurses' experiences, reducing their levels of workplace stress and, potentially, increasing the likelihood of nurses remaining in the profession. Initially, communication did not emerge as a theme, as the themes were all grounded in the data, which means that they were directly represented by the codes which, in turn, were applied to what the participants specifically said. For example, if the participants discussed caring for critically ill children, these accounts were coded as such, and eventually a theme of 'caring for critically ill children' was developed and described. However, the constant comparison, as described in the Methods Chapter (Chapter Four), aimed to 'theorise' from the data (Charmaz, 2014), or to develop a unified understanding of it. This involved looking beyond the surface level of the themes and sub-themes, attempting to interpret these results and understand them in more depth, as well as developing a model that would incorporate all themes and explain possible relationships between them. The development of theoretical relationship was then followed by further analysis in order to either support or dismiss this working theory. The model presented in Figure 7.1 and referred to throughout this chapter is the result of this stage of the analysis, and the superordinate theme of Communication emerged when most of the themes in the model, and the participants' accounts on which the themes were based, were further analysed.

It has been evident throughout the above discussions of the sources of workplace stress, its consequences and, in particular, the individual and work characteristics, as well as the participants' motivation to work in PICUs in SA, that the success in this work environment seems to be determined, at least to a certain extent, by various forms of communication or a lack thereof at both the micro and macro levels, both of which terms have been developed by the researcher of this research study. At the micro level, communication occurs on a personal level, it may occur at

a very close person-to-person level such as the communication between nurses and the patients' parents or their families, with nursing management and nursing colleagues, or any other kind of communication with healthcare professionals.

At the macro level, communication may occur at a higher and broader level. There may be communication, for example, between the whole hospital or MoH and the nurses in the form of official instructions or policies, the nursing orientation programme or subsequent professional development educational programmes or any other formal instruction that aims to prepare nurses for their work environment in PICUs.

The following sub-sections argue that improving this micro- and macro-level communication may help to address and minimise workplace stress and its consequences.

7.5.3. Improving micro-level communication to address workplace stress

With regard to the sources of workplace stress and communication at a micro level, it is evident that problems with nursing management and nursing colleagues, as reported by some participants ($n = 10$) in the qualitative results (Chapter Six), could be addressed by improving this interpersonal communication. The participants who reported these problems raised concerns about feeling unsupported, about the sense that their "*hard work is not appreciated*" (Participant 11) and about their superiors not treating them with respect. They also reported that their superiors were not willing to listen to their concerns and support them in addressing the workplace stress that they were experiencing. This also linked the issue of poor micro-level communication and the consequences of workplace stress; in light of the reported psychological, behavioural and physiological health consequences that workplace stress may inflict, it is of potential concern that the participants did not feel they had someone to talk to and seek support from.

As discussed in Section 7.2.2, these poor relationships also affected the perceived workload. The participants felt that their superiors failed to cater to their specific needs, especially in the case of participants who had children and family commitments. In addition to relationships with superiors, as the ten participants illustrated, some of them also reported poor relationships with their nursing colleagues, which resulted in their sense of isolation and alienation.

The fact that the above problems largely stemmed from the poor quality of micro-level communication was further evident in the ways used to manage workplace stress, in which both stress management techniques and the motivation for staying in PICUs in SA were related to situations in which this communication was clearly more effective. The previously discussed category of ‘subjectivity and interpersonal dynamics’ in Table 7.2, for example, covered the accounts in which the participants praised their healthcare colleagues for being supportive, respectful, friendly, considerate and helpful.

It seems, therefore, that in order to both minimise workplace stress and assist nurses with managing it, the importance of effective micro-level communication must not be overlooked. The most common issue reported by the participants was their poor relationships with physicians, which was particularly interesting to note in light of previous studies in different nursing units, including ICU, that demonstrated how important nurse–physician communication is (for example, Kong, & Liu, 2009; Larrabee et al., 2004; Robinson et al., 2010; Sutcliffe et al., 2004; Thomson, 2007; Zhang et al., 2016). Apart from the negative consequences of such poor relationships on nurses’ general psychological wellbeing (Saber, 2014), which may ultimately result in nurses leaving the job if the issue is not properly addressed (Zhang et al., 2016), the quality of communication between nurses and physicians has also been shown to affect the quality of patient care and the level of patient satisfaction (Larrabee et al., 2004). In fact, some studies argued that between 37% (Donchin et al.,

1995) and 91% (Sutcliffe et al., 2004) of all medical errors are due to poor nurse–physician communication.

A possible way of improving this micro-level communication between healthcare professionals is to develop a more effective and personal dialogue between nursing management and nurses, nurses and physicians, and between nurses themselves. This could include workshops, team briefings and team trainings that could contribute to greater transparency and clarity about one another’s responsibilities and expectations, as well as the challenges they face. Boyle and Kochinda (2004), for example, found that team training during which nurses and physicians had the opportunity to gain insight into each other’s roles resulted in their increased trust and respect towards each other. Similar results were reported by Meurling et al. (2013), who demonstrated that team training contributed to better communication and collaboration between nurses and physicians. In light of the problems that the participants in the present research study reported, it seems that introducing such trainings could potentially contribute to improving their relationships with physicians and other healthcare professionals.

With regard to purely professional communication and the quality of patient care, one of the most popular tools suggested in the literature is daily goal sheets that record patients’ needs and treatment, the tasks to be completed and care to be provided, as well as communication plans with acknowledgement of the workload that this may add from completing the document; however, the use of a tool such as this was shown by Pronovost et al. (2003) to improve communication between nurses and physicians and to increase the quality of patient care as a result. This could not only minimise the workplace stress related to the relationships between nurses and their nursing colleagues and/or physicians but could also potentially influence nurses’ perceptions of the

overwhelming workload and, in general, result in a greater sense of confidence and clarity about the tasks they perform.

Finally, consideration should also be directed toward the fact that participants were concerned that they were not supported in coping with their workplace stress or receiving relevant social support or interventions (Hamaideh et al., 2008). Social support may come from families, co-workers, colleagues, managers and supervisors (Peeters & Le Blanc, 2001), and is believed to be effective in preventing, recognising or addressing the sources of workplace stress (e.g. Albar Marin & Garcia-Ramirez, 2005). Regarding the role of the hospital in facilitating such support, direct instruction regarding the nature and sources of workplace stress, the different types and roles and the positive influence of social support could be introduced at the institutional level (Hamaideh et al., 2008), for example via employee training and workshops.

7.5.4. Improving macro-level communication to address workplace stress

With regard to macro-level communication, improving it mainly refers to providing nurses with more opportunities for professional development and raising their cultural-religion awareness. This may contribute to minimising workplace stress related to all four aspects of the sources of it: ‘Cultural challenges’, ‘caring for critically ill children’, ‘workload’ and ‘nursing management and nursing colleagues’.

Firstly, it was evident that the more knowledge and experience a nurse had, the more confident he or she was about his or her job, which resulted in less workplace stress being experienced. The participants reported that the more they had of this broadly defined ‘professional knowledge and experience’ (previously discussed in Table 7.1), the more confident they were in their skillset and in the ways they approached the care of critically ill children who had a range of health needs. “*Previous experience helps (...) in every aspect of working here*” (Participant 18), in general,

including dealing with critically ill children because “*it is like a bridge that taught me how to deal with kids, with babies*” (Participant 5). Conversely, some participants did not have much previous work experience, but their undergraduate nursing education including Diploma in Nursing or BSN served a similar purpose, as “*the knowledge and experience are already there, so we can adapt*” (Participant 21). What further helped the participants manage workplace stress were both the ‘nursing orientation programmes’ at the beginning of their work and the continuing ‘professional development’ offered in the PICUs. All these professional development mechanisms seem crucial and had a positive role to play in minimising workplace stress and ultimately contributing to a higher quality of nursing care. These mechanisms are referred to here as macro-level communication because they involved a form of communication (for example, lectures, workshops) that took place on a level of formal instruction and, unlike one-to-one, personal micro-level communication, occurred between the hospital or MoH and nurses. This form of macro-level communication is already taking place in the described context, and the results should serve as guidance for other areas where this kind of communication is not as well developed as it is in the SA PICU setting.

Another form of macro-level communication, however, that does not seem to be particularly well developed and which would arguably contribute to minimising workplace stress is raising the participants’ cultural awareness through formal training as cultural misunderstanding between patients or patients family and expatriate healthcare professional including nurses is a contributing factor for poor quality of care (Almutairi, 2015). As discussed in Section 7.5, and in line with the literature exploring expatriate non-Muslim nurses’ familiarity with Muslim practices and cultures (e.g, Sidumo et al., 2010), most of the expatriate participants in the current research study were not familiar with the local religious and cultural beliefs in SA-this impacted on their ability to

effectively communicate with patients' parents, families and colleagues. Not only does this result in workplace stress, but as previous studies suggest, it also impacts on the quality of care provided (Halligan, 2006; Mitchell, 2009; Van Rooyen et al., 2010) as nurses are not able to appreciate patients' cultural/spiritual-specific needs (Almutairi, 2012). However, none of the participants raised an issue in terms of communicating with child patients; this may be because most of the critically ill children in the PICUs are endotracheally intubated and therefore also sedated.

At the same time, when discussing ways to manage workplace stress, participants mentioned 'cultural awareness' as a factor in 'culture and religion' category that helped them address this issue (Table 7.3). Participants specifically praised the effectiveness of the cultural awareness instruction that was a part of their nursing orientation programme, noting that they learned "*what is acceptable and what is not, especially with parents*" (Participant 5). During that nursing orientation programme, they also had the opportunity to learn the basics of the Arabic language, which they felt contributed to improving the quality of their communication with the patients' parents and families in PICUs.

Although the awareness raising classes of the nursing orientation programme had undoubtedly eased the participants' transition into the culturally and religiously unique environment of SA, it was not clear from the participants' statements what the content of these classes were or how extensive and lengthy they were.

Cultural awareness in the current context was crucial; before entering their new job in an international setting the cross-culture context is the first step that needs to be undertaken by an expatriate (Culhane et al., 2012). Culture and language difference are factors that affect the communication between nurses and patients (Schyve, 2007), especially considering the unique environment of SA, the large number of expatriate nurses working there (MoH, 2017, 2018) who

have culture and language differences that affect the communication (Almutairi, 2015). The results from this research study, as well as previous work, suggest that the lack of familiarity with the SA culture is one of the main sources of workplace stress for expatriate nurses (Wazqar, 2018).

In addition, according to Al-Harasis (2013) study, the language barrier on quality of nursing care in SA in different nursing units shows that a high and relatively equal percentage of nurses and patients-90% and 89.5% respectively, suggested that nurses need to attend Arabic courses during their orientation period before starting work; this is an essential point to consider to minimise language barrier between expatriate nurses and patients or their families. In addition, similar high percentages of 85% nurses and 83.1% patients suggested the presence of translator in different nursing units is essential (Al-Harasis, 2013).

Importantly, rather than merely constituting a small part of the participants' nursing orientation programme, perhaps the cultural awareness instruction needs to be a more extensive, structured programme that would enable nurses to be fully familiar with the local culture from a variety of perspectives; however, it is acknowledged that this would have financial implications. Al-Yateem et al. (2015), for example, argued that the aims of such a structured programme would be to *“validate existing abilities, decrease the problems faced by nurses and patients, prepare nurses to engage with their patients competently, and thus reduce the distress of both groups”* (p. 206). When discussing the components of such a programme, they explained that it should include the *“basic Islamic principles (5 daily prayers, Ramadan fasting, Zamzam water”*, and time management skills to accommodate religious practices within care); *“kinship and social factors (family structure, gender-related issues, and social support system)”*; and *“basic Arabic language skills”* (Al-Yateem et al., 2015, p. 209).

Paternotte et al. (2015) also suggested educational programmes that aimed to minimise the challenges stemming from the discrepancy between healthcare professionals' and their patients' cultures. In their view, the components of this programme should include elements such as linguistic instruction, "*awareness of cultural differences*" (p. 427), awareness of both the host culture's and one's own culture, instruction about the roles and expectations of patients' families, and instructions related to social and intercultural interactions. The resulting miscommunication and misunderstanding between patients and nurses if nurses lack of cultural awareness can lead to inappropriate and unacceptable nursing care to patients in this context, which in turn, results in patient distrust and workplace stress for nurses (Reeves & Fogg, 2006).

Cultural awareness instruction, specifically in the Islamic context, could potentially help address the issues that the participants reported facing, as well as reduce their workplace stress. Mebrouk (2008) and Perng and Watson (2012) emphasised that culturally sensitive care based on respect and appreciation of the patients' and their families' values, beliefs, culture and behaviour is fundamental for nursing. It would enable nurses to communicate more freely with their patients' parents and families, physicians, the nursing management and their nursing colleagues in PICU; it would also increase their awareness of their own assumptions and expectations, as well as the differences between their own and the local culture.

In addition to the provision of this type of instruction in a single class during nursing orientation programmes, it could be a part of continuous professional development courses that are available to nurses and that aim to constantly develop their intercultural sensitivity and competence (Yahes & Dunn, 1996). Attending such training positively influences cultural competency (Cruz et al., 2017; Dunagan, 2012; Silvestri-Elmore, 2015; Truong et al., 2014). Importantly, rather than being a requirement for only those nurses who come from a different cultural background, this kind of

instruction could be provided to all nurses — both SA and expatriates — so that they receive education that makes them more culturally aware and helps foster an atmosphere of mutual respect.

In addition, it is suggested that all healthcare professionals, regardless of their position or national and cultural backgrounds, should attend lectures about culture awareness. Being skilled in intercultural communication should not be expected exclusively from those healthcare professionals who are considered ‘outsiders’ in a given context but rather from all healthcare professionals, including those who are local to a given context. This approach would facilitate more effective communication with expatriate healthcare professionals and vice versa, which, considering the results discussed in this chapter, would ultimately positively influence the patients’ and their families’ experiences.

Finally, a more generic approach to cultural awareness could also be considered by Schools of Nursing and University programmes in SA and potentially worldwide as a component of nursing education to enable nurses to practice cultural sensitivity and provide competent care to their patients (Al-Yateem et al., 2015; Chapman et al., 2014; Taylor, 1998); this could have positive consequences for nurses and the quality of nursing care given. As most international intercultural care training curricula are hospital based (Bombeke et al., 2012), they arguably support the cultural competency development of nurses inadequately.

7.6. Summary of the chapter

As demonstrated throughout this chapter, this research study found workplace stress to be a much more flexible and dynamic concept than previous studies have recognised. In addition to a number of the participants’ personal characteristics, it was found that, to understand the consequences and role of workplace stress comprehensively, it is essential to consider a matrix of relationships within

the notion of workplace stress itself. Although several previous studies of workplace stress have undoubtedly provided in-depth insights into both the sources and the consequences of workplace stress, they have treated both concepts as static and stable notions. Firstly, although certain elements have been determined and explored within each category (i.e. sources or consequences), the relationship between them has never previously been explored. Therefore, it has not been considered that the sources may interact and influence each other, and the similarly, this can be the case with the consequences. Nonetheless, this current research study demonstrated that a dynamic relationship indeed exists, that there is a constant interplay between various sources of workplace stress and that the same applies to the various consequences of it. Secondly, the relationship between sources and consequences of workplace stress has not been previously investigated in the manner in which it has in this current research study—i.e. in a SA PICU context, using a mixed-methods approach. The relationship has traditionally been viewed as one-directional and linear, but sources of workplace stress can impact on the consequences and vice versa as they influence each other; the relationship can be mutual and characterised by a constant interplay as found in this research study.

In addition, the use of Phase 1, quantitative data, enabled the researcher to highlight results in relation to additional variables that influence the participants' experiences. As previously noted, the use of mixed-methods was a strong advantage of this research study and is what set it apart from previous studies of workplace stress conducted in this context.

Finally, the results of this research study have enabled the identification and discussion of ways of coping with workplace stress—these have the potential to alleviate some of the workplace stress experienced by the nurses.

Chapter Eight: Conclusions and recommendations

8.1. Introduction

This chapter begins with a discussion of the main contribution of this research study to the existing body of knowledge, followed by consideration of its limitations. Subsequently, it addresses the implications for policy and practice, as well as for future research. It is hoped that these recommendations will contribute to improving SA's healthcare system by minimising the workplace stress experienced by nurses in PICUs, thereby improving the quality of nursing care. The chapter concludes with an outline of the past and future dissemination of the research study's results and offers concluding remarks.

8.2. Main contributions

The results of this research study add valuable insight to the existing knowledge of workplace stress experienced by PICU nurses internationally (Fogaça et al., 2008; Lin et al., 2016; Mokhtar et al., 2016) and to the national workplace stress studies in SA among different nursing units (for example, Al Hosis et al., 2013; Humaida, 2012; Mansour et al., 2014) and its consequences for nurses' health and the quality of nursing care.

Most importantly, it not only adds evidence by supporting the findings of several previous studies conducted in international or national settings, but it is also the first research study that has focussed on nurses' perspectives of workplace stress in PICUs in the context of SA. The sources of workplace stress and the ways people experience it may differ from culture to culture, and earlier studies have tended to be based on the Western psychological theories and models, which may not be relevant in the context of SA and in similar contexts. Therefore, the results of the present

research study will enable researchers, practitioners and academics to develop a more context-specific understanding of this issue.

In addition to supporting previous findings on the various sources and consequences of workplace stress — and their influence on the quality of nursing care — this research study sheds new light on the topic by presenting results that have never before been discussed. The most important of these is the dynamic model of workplace stress amongst nurses in PICUs in SA (see Figure 7.1, in Chapter Seven); this contributes to the already available theories and models of workplace stress and also challenges the traditional view of workplace stress as something relatively static and stable by offering a new perspective in which it is highlighted as being a dynamic entity that includes an interplay between its sources and its consequences—the sources of workplace stress could result from its consequences, and vice versa. Related to this is the second major result of the research study: The dynamic model of workplace stress (amongst nurses in PICUs in SA) identifies ‘cultural challenges’ as a source of workplace stress that directly and indirectly affects other sources of it.

The dynamic model of workplace stress also identifies ways in which participants manage workplace stress by providing insight into the critical variables that influence the experiences of it—these include individual and work characteristics as well as the factors that motivate nurses to continue working in PICUs in SA.

Finally, the present research study also contributes methodologically to the existing studies on this topic, because it is the first mixed-methods research study of nurses’ perspectives on workplace stress conducted in SA. Most previous studies conducted in SA have been cross-sectional and descriptive in design, making it impossible to draw inferences of causality about workplace stress among nurses in various nursing units in SA. This research study’s use of both the quantitative and

qualitative methods to collect and analyse its data not only generated more in-depth insight into the topic but also facilitated the development of the above-mentioned dynamic model of workplace stress.

8.3. Limitations

The limitations of the present research study need to be considered to suggest how they may be addressed and overcome in future studies. These limitations were related to the sample and the researcher's 'insider' position.

Regarding the sample, both phases of the research study contained more participants who were expatriates than SA participants and more females than males, a situation that reflects the actual characteristics of the nursing workforce in SA's healthcare system. In Phase 1 of the research study, the majority of participants were expatriates (n = 146), mainly Indian and Filipino, as opposed to SA participants (n = 26). In Phase 2, the majority of participants were Indian (n = 14), six were Filipino, two were from SA, one was Jordanian and one was Malaysian. In terms of gender, Phase 1 included 165 females and seven males, and Phase 2 included 23 females and only one male. Thus, although Phase 2 also explored the perspectives of the Filipino, SA and male participants, due to the differences between the demographic characteristics of the participants in Phases 1 and those in Phase 2, the latter may have underrepresented the views of SA, Filipino and male participants.

The second limitation relates to the researcher's position as an 'insider' in the community of PICU nurses, due to her professional background (see Section 4.7.6.1 in Chapter Four for details). Although this 'insider' status was mostly seen as an advantage regarding access to hospitals and having a good response rate. It also facilitated an understanding of the PICU environment, the

terminology the nurses used and the suitable data collection instruments for nurses in such unit. However, there were certain challenges associated with this status. For example, although the researcher believes that this status promoted a good rapport and trust between the researcher and the participants, the participants may have felt mistrust toward the researcher and her motivations for conducting this research study (Browne, 2003), as they may have felt that “*their individuality [was] stripped away*” and simplified (Brewis, 2014, p. 850). Although the researcher took measures before each interview to reduce the risk of this happening, including carefully explaining and discussing the research study’s aim, the researcher cannot be certain that the participants did not experienced negative psychological effects.

In addition, because of the researcher and participants’ shared background, potential assumptions regarding the similarity of some of their shared experiences could have led to researcher bias (Dwyer & Buckle, 2009). However, as noted in Section 4.7.6, in Chapter Four, efforts were made to minimise this possibility using member checking, prolonged involvement, peer debriefing, triangulation, engaging in reflexivity and keeping an audit trail.

8.4. Implications

The research study’s results have several implications for policy and practice that the researcher hopes will contribute in the long-term to minimising workplace stress among PICU nurses in SA.

These are:

- Improving the nurses’ working conditions, particularly in relation reviewing the policies and operational guidelines regarding nurses’ working conditions (with a particular focus on minimising their workplace stress)
- Raising healthcare professionals’ cultural awareness,
- Providing insight into coping strategies and
- Promoting respect for the nursing profession in SA.

Considering the increased budget that the government has allocated to SA's healthcare system as part of its Vision 2030 project (Al-Dossary, 2018; National Transformation Programme, 2019; Tobergte & Curtis, 2016), the researcher hopes that implementing the changes in SA public hospitals suggested by this research study will contribute to the goals of the Vision 2030 project. This would be achieved by improving nurses' working conditions and minimising their levels of workplace stress through increasing awareness of cultural differences and potential coping strategies, as well as by attempting to improve the general perceptions of the nursing profession in order to ultimately attract more SA citizens to it. Improved perceptions of the profession would also potentially increase the retention of SA nurses and decrease the costs that the MoH incurs in continually recruiting and training new expatriate nurses. In the long-term, this change would both decrease the nurse shortages and SA's dependency on expatriate nurses who are currently the majority of nurses in SA's healthcare system.

8.4.1. Improving the nurses' working conditions

In order to improve nurses' working conditions, it is crucial that the stakeholders understand the nature of workplace stress and, more importantly, its consequences on both nurses' health and the quality of nursing care (Chapters Five and Six). Therefore, the first step will be to provide the MoH with the main results of this research study so that it can consider reviewing the policies and operational guidelines regarding nurses' working conditions with a particular focus on minimising their workplace stress.

This may be accomplished by making the SNB independent from the SCFHS and considering establishing an independent nursing regulatory council. These steps may be critical to improving nurses' working conditions and to the ongoing development of the nursing profession in SA. Other possible changes include improving work-related communication practices, creating part-time

nursing jobs (which are currently unavailable in SA); this, may be able to reduce workloads and non-nursing tasks and provide opportunities for nurses to pursue higher education and continuous professional development.

The nursing literature (e.g. Brooks & Anderson, 2004; Brooks et al., 2007; Khani et al., 2008) confirms the importance of addressing these issues to improve both nurses' work lives and the quality of nursing care. As this research study's results showed, participants seemed to be particularly positively influenced by continuous education and training. Those who had education and experience were better able to cope because they had the characteristics (such as enhanced levels of confidence) that helped participants to manage workplace stress.

Implementing part-time nursing positions could help to minimise the workloads associated with the current shortage of nurses. In addition, as discussed in Section 2.4.3.1 in Chapter Two, female nurses in SA face challenges specifically related to balancing their work and home lives (Aboshaiqah, 2016; Abu-Zinadah, 2004; Alotaibi et al., 2016; Al-Sa'd, 2007; Gazzaz, 2009; Mansour, 1992; Miligi & Selim, 2014). Thus, offering part-time nursing positions, in-hospital nurseries and other resources could help female nurses to continue working while rearing children who are too young for school, thereby better balancing their work and family lives.

Furthermore, improving working conditions for nurses would include giving them the power to choose their weekly duties or their patient assignments or at least request changes when needed. According to Al-Hussami (2008) and Ulrich et al. (2005), nurses are more likely to be committed to work when they have proportionate levels of autonomy and equitable workloads, which in turn would likely improve micro-level communication practices between nurses and their superiors.

Hospitals' human-resources departments managers could also improve working conditions by increasing the nurse's workforce (as funded by the MoH based on the SA Vision 2030) to recruit both SAs and expatriates to supplement care for the SA population. The present research study found that nurse shortages affected nurses' experiences in the PICU. Overcoming these shortages and creating a balance between the number of expatriate and SA nurses could minimise the workplace stress caused by high 'workloads' and the responsibilities of 'caring for critically ill children', thereby also improving the quality of nursing care. In particular, the overall quality of nursing care could be improved by having more Arabic-speaking nurses, which would benefit communication between nurses and patients' families.

Furthermore, socialising, promoting teamwork and bridging the divide between disciplines may all serve to result in the formation of supportive, respectful relationships, which in turn may positively influence nurses' overall well-being. Promoting nurses' health and well-being by encouraging them to engage in social-, physical- and health-related activities with other healthcare professionals and managers may also merit greater attention. The availability of recreational centres that include therapeutic opportunities, such as yoga and breath-focused meditation, may help healthcare professionals, including those who work in PICUs, to minimise and cope with workplace stress and may improve the quality of nursing care by enhancing nurses' health and wellbeing as well as teamwork (Karkar et al., 2015; Kemper et al., 2011; Krasner et al., 2009; Tang et al., 2010). An occupational-health clinic that specifically addresses professionals' health needs would be beneficial.

8.4.2. Raising healthcare professionals' cultural awareness

As explained in Chapter Seven, the dynamic model of workplace stress that was developed emphasises the need for communication at the micro and macro levels to help prevent workplace

stress. Part of the micro-level communication involved intercultural communication among healthcare professionals, between nurses and patients' parents or families (who are usually from different cultural backgrounds).

The results of this research study also identified culture as a source of workplace stress, and found that participants whose nursing orientation programmes had included cultural awareness training, particularly regarding how SA's culture is influenced by the Islamic religion, believed that such training positively influenced their experiences in PICUs because it helped them understand the practices of patients' parents and families, thereby helping them to manage workplace stress.

This result leads to the conclusion that knowing more about SA's culture would enable expatriate nurses to more effectively care for their child patients and interact with those patients' parents and families. This cultural-awareness instruction could also include some teaching about Islam and its implications for hospital practice as well as opportunities to learn the fundamentals of the Arabic language.

In addition, more care should be taken to design orientation programmes for nurses and other healthcare professionals that focus on fostering their cultural awareness which ultimately would decrease workplace stress, thereby improving the quality of care (Paternotte et al., 2015; Taylor et al., 2013). Importantly, in order to foster more-effective intercultural communication and mutual respect, cultural awareness education should involve both expatriate healthcare professionals and SA healthcare professionals as it would help SA's healthcare professionals to understand their expatriate colleagues' behaviour and perceptions, thereby bridging the cultural divide.

Ideally, it is suggested that cultural-awareness training should be introduced in undergraduate programmes at the university level and then continued throughout the healthcare professionals'

careers. In hospitals, elements of cultural awareness could be included in orientation programmes and then could be part of ongoing professional development.

Addressing these educational needs is particularly important for culturally empowering nurses; improving their communication competence, by adding a fundamental knowledge of Arabic, will increase patients' physical and psychological well-being (Blake et al., 2013; Sermeus et al., 2011).

8.4.3. Providing insight into coping strategies

The present research study's results found that participants' coping strategies may contribute to their development of support mechanisms that prevent them from experiencing high levels of workplace stress (Zander et al., 2010).

The research also found that implementing the other changes suggested in Section 8.4 could both minimise the level of workplace stress and help nurses to cope with it. However, it is advocated that nurses and nursing students be taught methods of coping with workplace stress.

Nurse educators and managers need to develop a plan aimed at enhancing nurses' awareness of both strategies for minimising workplace stress and mechanisms for coping with it. This could take the form of, for example, a structured educational programme that covers methods of managing workplace stress in hospitals—this approach has been found to help nurses develop the ability to effectively overcome the professional obstacles they may face (Jackson et al., 2007).

8.4.4. Promoting respect for the nursing profession in Saudi Arabia

Both the healthcare community and the public in SA should be encouraged to value the nursing profession, an initiative that the MoH should support and fund. It should do this as part of the SA Vision 2030, specifically accomplished this via a nationwide initiative using the media and academic institutions to improve the image of nurses (Lamadah & Sayed, 2014).

These campaigns could be led by nurses, educators and MoH leaders with the aim to improve the nursing profession's image and its role in providing care to the community and advancing the general health of SA's population (Alboliteeh et al., 2017; Hassan, 2017). In addition, emphasise could be placed on the fact that nursing requires considerable knowledge and skill and that those who become nurses must be highly competent practitioners (Gordon, 2006; Rhodes et al., 2011); this would help to challenge the current negative views of nurses in SA (see Section 2.4.3.1 in Chapter Two).

In addition to educating the general public, the MoH, nurses and hospital managers need to recognise and appreciate nurses' work. This could be done informally by, for example, sending them messages about how their work is valued or formally, by recognising extraordinary nurses in SA's healthcare system with an accolade, such as the UK Daisy Award (<https://www.daisyfoundation.org/daisy-award>) received by nurses in recognition of performance that exemplifies the best qualities of the nursing profession (Barnes et al., 2016). Alternatively, support and recognition could be offered at nurses' meetings with celebrations held to acknowledge special occasions, including Nurses' Day (Biggs & Schriener, 2010; Blegen et al., 1992).

8.5. Future research

The present research study results have laid foundations for future studies and helped identify certain areas that warrant further investigation. However, before any changes outlined in the previous sections are implemented, more studies are needed to strengthen these results by assessing their transferability to other settings, including the acute and critical paediatric nursing units, as well as to a broader population of PICU nurses. In addition, studies of acute or critical care paediatric nursing units could improve the understanding of how workplace stress affects

nurses' health and the quality of nursing care delivered to child patients in other environments. These studies could include the participation of children, their parents/other family members or physicians in order to capture their perceptions regarding high quality of nursing care. Studies could also be conducted at multiple sites in other cities or regions of SA or in different healthcare sectors, such as OGH or PHCS, to further strengthen this research study results in relation to the dynamic model of workplace stress. Finally, different sampling decisions, including one to recruit more Filipino and male nurses, could be considered in order to obtain further insights into workplace stress from the perspectives of diverse participants.

The dynamic model of workplace stress could be used to inform future studies and to assess the applicability of the model to these other contexts; it would also enable exploration of the model's elements and the relationships among them.

In addition, considering that the results of this research study identified various effective ways of coping with workplace stress, these methods should be further investigated, because, despite the importance of these results, they were not the main focus of the present research study.

8.6. Dissemination of the results

The results of this research study will be disseminated to the MoH management team to inform their planning strategies that can minimise the sources of workplace stress, particularly the workload resulting from the nursing shortage. In addition, to improve the overall quality of nursing care, strategies are needed to enhance nurses' communication, interpersonal relationships and wellbeing. The researcher will summarise and share the research study results with the participating hospitals and their PICUs as well as attempt to publish the results in two articles in

relevant nursing journals by the end of 2020. The researcher has already presented the results at national and international nursing conferences in SA and the UK (Table 8.1).

Table 8.1: Presentation of the research study

Conference (and dates)	Date of presentation	Title of presentation	Mode of presentation	Organisation (and venue)/publication, if any
5 th Annual Research Conference (7 July 2017)	7 July 2017	Workplace Stress among Nurses in Paediatric Intensive Care Units in Saudi Arabia	Oral	School of Health and Social Care, University of Hertfordshire (Lindop Building, University of Hertfordshire, Hatfield, UK)
47 th Global Nursing & Healthcare Conference (1–3 March 2018)	2 March 2018	Workplace Stress amongst Nurses in Paediatric Intensive Care Units in Saudi Arabia	Oral	Conference Series Organiser (Park Inn Radisson Hotel and Conference Centre, London, UK)/ <u>Abstract publication</u>
RCN International Nursing Research Conference (16–18 April 2018)	18 April 2018	Workplace Stress amongst Nurses in Paediatric Intensive Care Units in Saudi Arabia	Oral	Royal College of Nursing Research Society (College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK)/ <u>Abstract publication</u>
32 nd Annual Scientific Meeting of the Paediatric Intensive Care Society (19–21 September 2018)	21 September 2018	Workplace Stress among Nurses in Paediatric Intensive Care Units in Saudi Arabia	Oral–poster	Paediatric Intensive Care Society (Ashton Gate Conference Centre, Bristol, UK)/ <u>Abstract publication</u>
Vision and Voice Competition (Post-Graduate Research Student Conference)	15 October 2018	Workplace Stress among Nurses in Paediatric Intensive Care Units in Saudi Arabia	Photographic	Doctoral College, University of Hertfordshire (Weston Auditorium), Hatfield, UK
Research Gallery Exhibition	November 2018	Workplace Stress among Nurses in Paediatric Intensive Care Units in Saudi Arabia	Photographic	de Havilland Campus, University of Hertfordshire, Hatfield, UK
International Nursing Conference (22–24 November 2018)	22–24 November 2018	Workplace Stress among Registered Nurses in Paediatric Intensive Care Units in Saudi Arabia	Poster	King Fahad Specialist Hospital (Le Meridien Hotel, Al Khobar, SA)

8.7. Conclusions

This research study, the first mixed-methods one that has focussed on PICU nurses' perceptions of workplace stress in SA, used an explanatory sequential design that comprised of two phases – Phase 1 involved the distribution of questionnaires and in Phase 2 face-to-face, semi-structured interviews were undertaken to obtain in-depth insight into nurses' perceptions. No previous study in SA had addressed the issue of workplace stress specifically among PICU nurses, nor the relationship between the sources of workplace stress and the quality of the nursing care delivered to child patients. This research study has met that omission.

The results of this research study (Chapter Five and Six) and the dynamic model of workplace stress (Figure 7.1 in Chapter Seven) show that workplace stress is a dynamic process rather than a static concept (as had been identified in previous studies of nurses in SA). The sources of workplace stress identified had consequences for the quality of nursing care and nurses' physical, psychological and behavioural health. This research study provided new knowledge and empirical evidence regarding the sources and consequences of workplace stress-not only did these sources of workplace stress have consequences, but the consequences are also sources of workplace stress. Most importantly, the results of this research study showed that cultural factors can, directly and indirectly, influence workplace stress.

In addition, this research study found that nurses suffer from a medium level of workplace stress in the PICUs of public hospitals in Riyadh and Dammam cities, SA. This result is in-line with findings from international studies of nurses' workplace stress. However, it seems that in stressful situations, nurses in PICU (both SA and expatriate) practice effective strategies that are characterised by spontaneous, creative behaviour and that help them to cope very well with

workplace stress and remain working in PICUs for a long time; interestingly, and importantly, nurses perceived the PICU environment to be a most rewarding place to work.

The research study's results include a number of recommendations for improving the nurses' working environments in complex, specialist-nursing units in the unique socio-cultural context of SA that are also aligned with the vision of SA's government's Vision 2030 project. These recommendations include raising healthcare professionals' cultural awareness, providing insight into coping strategies and promoting respect for the nursing profession in SA. As discussed in Section 8.5, much remains to be investigated in the future, but this research study undoubtedly contributes to the existing studies on workplace stress and provides invaluable insights that have the potential to enhance nursing care for child patients and their families.

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Appendix A: Written approval letter from the author for use of the Expanded Nursing Stress Scale

From: sudon.french@ns.sympatico.ca
To: aasa31@hotmail.com
Subject: Re: (SCL > 3): use your tool ENSS-project
Date: Tue, 23 Aug 2016 11:54:41 -0300

Dear Amany

Thank you for your interest in the ENSS. You have permission to use the ENSS. For your information I am attaching files containing a copy of the ENSS, scoring instructions and how the items grouped within the factors when we tested the ENSS

I wish you every success with your study and with your doctoral studies in general

Regards

Susan

----- Original Message -----

From: Amany Alabdullah

To: susan.french@mcgill.ca

Sent: Tuesday, August 23, 2016 11:35 AM

Subject: (SCL > 3): use your tool ENSS-project

Dear Doctor French,

My name is Amany Alabdullah. I am a PhD student in the UK at the University of Hertfordshire working on a project about workplace stress in paediatric intensive care units in Saudi Arabia.

It is a mixed method study and I would like to use your tool, ENSS, if you agree, in the quantitative data collection as it is (with no changes) or with slight changes to words or by omitting certain questions so that it will be suitable for paediatric intensive care unit nurses I would be happy to send you a copy of any changes made for your comments and approval..

I hope you agree to my request and can forward the tool to me. Thank you for your time and consideration in this matter.

Regards,

Amany

Appendix B: Expanded Nursing Stress Scale information and analysis process

Grouping of Items within Factors in the Expanded Nursing Stress Scale

Factor 1: Death and Dying

- Performing procedures that patients experience as painful.
- Feeling helpless in the case of a patient who fails to improve.
- Listening or talking to a patient about his/her approaching death.
- The death of a patient.
- The death of a patient with whom you have developed a close relationship.
- Physician not being present when a patient die.
- Watching a patient suffer.

Factor 2: Conflict with Physicians

- Criticism by a physician.
- Conflict with a physician.
- Disagreement concerning the treatment of a patient.
- Making a decision concerning a patient when the physician is unavailable.
- Having to organize physicians' work.

Factor 3: Inadequate Emotional Preparation

- Feeling inadequately prepared to help with the emotional needs of a patient's family.
- Being asked a question by a patient for which I do not have a satisfactory answer.
- Feeling inadequately prepared to help with the emotional needs of a patient.

Factor 4: Problems Relating to Peers

- Lack of an opportunity to talk openly with other unit personnel about problems in the work setting.
- Lack of an opportunity to share experiences and feelings with other personnel in the work setting.
- Lack of an opportunity to express to other personnel on the unit my negative feelings toward patients.
- Difficulty in working with a particular nurse (or nurses) outside my immediate work setting.
- Difficulty in working with a particular nurse (or nurses) inside my immediate work setting.
- Difficulty in working with nurses of the opposite sex.

Factor 5: Problems Relating to Supervisors

- Conflict with a supervisor.
- Lack of support from my immediate supervisor.
- Lack of support by nursing administrators.
- Lack of support by other health care administrators.
- Criticism by a supervisor.
- Being held accountable for things over which I have no control.
- Criticism by nursing administration.

Factor 6: Work Load

- Unpredictable staffing and scheduling.
- Too many non-nursing tasks required such as clerical work.
- Not enough time to provide emotional support to a patient.
- Not enough time to complete all of my nursing tasks.
- Not enough staff to adequately cover the unit.
- Not having enough time to respond to the needs of the patients' families.
- Demands of patient classification system.
- Having to work through breaks.
- Having to make decisions under pressure.

Factor 7: Uncertainty Concerning Treatment

- Inadequate information from a physician regarding the medical condition of a patient.
- A physician ordering what appears to be inappropriate treatment for a patient.
- Fear of making a mistake in treating a patient.
- A physician not being present in a medical emergency.
- Not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment.
- Being exposed to health and safety hazards.
- Uncertainty regarding the operation and functioning of specialized equipment.
- Feeling in adequately trained for what I have to do.
- Being in charge with inadequate experience

Factor 8: Patients and their Families

- Patients making unreasonable demands.
- Patients' families making unreasonable demands.
- Being blamed for anything that goes wrong.
- Being the one who has to deal with patients' families.
- Having to deal with violent patients.
- Having to deal with abusive patients.
- Having to deal with abuse from patients' families.
- Not knowing whether patients' families will report you for inadequate care.

Factor 9: Discrimination

- Being sexually harassed.
- Experiencing discrimination because of race or ethnicity.
- Experiencing discrimination on the basis of sex.

Instructions for the Scoring of the 57 item ENSS:

There are a total of 57 items in the Expanded Nursing Stress Scale. Two items (breakdown of computers and floating to other units/services that are short staffed) that were on the original NSS, under Workload and Conflict with supervisors respectively, did not appear to be related to any of the nine subscales that emerged in the study of Ontario nurses (Susan French, Rhonda Lenton, John Eyles and Vivienne Walters. "An Empirical Evaluation of an Expanded Nursing Stress Scale". *Journal of Nursing Measurement*, Vol. 8, No. 2, 2000), We deleted them from the scale, but other investigators may wish to retain those items as separate indicators. Subsequent applications would be able to assess whether these two items load on the subscales in any situations or among different populations of nurses. The nine subscales that emerged, and the items in each subscale are as follows:

- a) Death and Dying - items 1,9,17,27,37,47 and 53
- b) Conflict with physicians - items 2, 10, 28, 38, 48
- c) Inadequate preparation - items 3, 11, and 19
- d) Problems with peers - items 4, 12, 20, 21, 22, and 50
- e) Problems with supervisors - items 5, 30, 31, 40, 46, 49 and 54
- f) Workload - items 13, 23, 32, 41, 42, 45, 51, 55 and 57
- g) Uncertainty concerning treatment - items 6, 14, 18, 24, 29, 33, 36, 39 and 43,
- h) Patients and their families - items 7, 15, 25, 34, 35, 44, 52 and 56
- i) Discrimination - items 8, 16 and 26

In order to compute total stress score, we added together the scores on all 57 items. In order to measure scores on specific subscales, the appropriate items should be added together. In all cases, the category “not applicable” was scored as 0. Addressing missing data depends on the extent of the problem. While several options are available (some more complicated, such as using a regression method to estimate missed scores), we substituted missing values with mean scores for individual items, and proceeded to calculate the subscale score for any individual who had answered the majority of items in any subscale. In the case of the “Death and Dying” subscale, for example, an individual would have to have answered at least 4 of the 7 items that comprise the subscale. Otherwise, the subscale was not constructed, and the individual received was scored “missing” for that specific subscale. Items were scored so that the higher the score, the greater the frequency of stress on any subscale.

Expanded Nursing Stress Scale
(Final Version)

by

Susan E. French, RN, PhD¹
Rhonda Lenton, PhD²
Vivienne Walters, PhD²
John Eyles, PhD³

1995

¹School of Nursing, McMaster University

²Department of Sociology, McMaster University

³Department of Geography, McMaster University

Expanded Nursing Stress Scale

Below is a list of situations that commonly occur in a work setting. For each situation you have encountered in your **PRESENT WORK SETTING**, would you indicate **HOW STRESSFUL** it has been for you:

(Enter the number in the right hand column that best applies to you. If you have not encountered the situation, write '0'.)

Never	Occasionally	Frequently	Always	Does Not
Stressful	Stressful	Stressful	Stressful	Apply
1	2	3	4	5

1. Performing procedures that patients experience as painful..... ____
2. Criticism by a physician..... ____
3. Feeling inadequately prepared to help with the emotional needs of a patient's family..... ____
4. Lack of opportunity to talk openly with other personnel about problems in the work setting..... ____
5. Conflict with a supervisor..... ____
6. Inadequate information from a physician regarding the medical condition of a patient..... ____
7. Patients making unreasonable demands..... ____
8. Being sexually harassed..... ____
9. Feeling helpless in the case of a patient who fails to improve..... ____
10. Conflict with a physician..... ____
11. Being asked a question by a patient for which I do not have a satisfactory answer..... ____
12. Lack of opportunity to share experiences and feelings with other personnel in the work setting..... ____
13. Unpredictable staffing and scheduling..... ____
14. A physician ordering what appears to be inappropriate treatment for a patient..... ____
15. Patients' families making unreasonable demands..... ____
16. Experiencing discrimination because of race or ethnicity..... ____
17. Listening or talking to a patient about his/her approaching death..... ____
18. Fear of making a mistake in treating a patient..... ____

Never	Occasionally	Frequently	Extremely	Does Not
Stressful	Stressful	Stressful	Stressful	Apply
1	2	3	4	5

19. Feeling inadequately prepared to help with the emotional needs of a patient..... _____
20. Lack of an opportunity to express to other personnel on the unit my negative feelings towards patients..... _____
21. Difficulty in working with a particular nurse (or nurses) in my immediate work setting..... _____
22. Difficulty in working with a particular nurse (or nurses) outside my immediate work setting..... _____
23. Not enough time to provide emotional support to the patient..... _____
24. A physician not being present in a medical emergency..... _____
25. Being blamed for anything that goes wrong..... _____
26. Experiencing discrimination on the basis of sex..... _____
27. The death of a patient..... _____
28. Disagreement concerning the treatment of a patient..... _____
29. Feeling inadequately trained for what I have to do..... _____
30. Lack of support of my immediate supervisor _____
31. Criticism by a supervisor..... _____
32. Not enough time to complete all of my nursing tasks..... _____
33. Not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment..... _____
34. Being the one that has to deal with the patients' families..... _____
35. Having to deal with violent patients..... _____
36. Being exposed to health and safety hazards..... _____
37. The death of a patient with whom you developed a close relationship..... _____
38. Making a decision concerning a patient when the physician is unavailable..... _____
39. Being in charge with inadequate experience..... _____
40. Lack of support by nursing administration..... _____
41. Too many non-nursing tasks required, such as clerical work..... _____
42. Not enough staff to adequately cover the unit..... _____
43. Uncertainty regarding the operation and functioning of specialised equipment..... _____
44. Having to deal with abusive patients..... _____

Never	Occasionally	Frequently	Extremely	Does Not
Stressful	Stressful	Stressful	Stressful	Apply
1	2	3	4	5

- 45. Not enough time to respond to the needs of patients' families.....___
- 46. Being held accountable for things over which I have no control..... ___
- 47. Physician(s) not being present when a patient dies..... ___
- 48. Having to organise doctors' work..... ___
- 49. Lack of support from other health care administrators..... ___
- 50. Difficulty in working with nurses of the opposite sex..... ___
- 51. Demands of patient classification system..... ___
- 52. Having to deal with abuse from patients' families..... ___
- 53. Watching a patient suffer..... ___
- 54. Criticism from nursing administration..... ___
- 55. Having to work through breaks..... ___
- 56. Not knowing whether patients' families will report you for
inadequate care..... ___
- 57. Having to make decisions under pressure..... ___

Appendix C: Participant package for the research study of workplace stress among nurses in paediatric intensive care units in Saudi Arabia — (questionnaire)

Dear Participant,

This is Amany A. Alabdullah, a PhD student in nursing at the University of Hertfordshire, United Kingdom. This is an invitation to be part of my PhD research study concerning workplace stress for registered nurses working in Paediatric Intensive Care Units in Saudi Arabia. The study will be conducted in two phases. This is Phase One (questionnaire), and Phase Two will be an individual interview. If you agree, you may be involved in both phases. Otherwise, if you are not invited to participate in Phase Two, or if you decline to participate in Phase Two, you will only be asked to complete this questionnaire (Phase One). Before you decide to be part of this study, please read the attached participant information sheet to understand the purpose of this questionnaire and what it will involve. If you have any further questions, please do not hesitate to contact me via mobile work phone, WhatsApp: Saudi Arabia+966 (0) 0000000000, or E-mail (AASA31@hotmail.com).

The study has received ethical approval from the University of Hertfordshire (cHSK/PGR/UH/02682) and from the Saudi Arabia Ministry of Health (H-01-R-012).

Participant Information Sheet – (Questionnaire)

Dear Participant,

Thank you for taking the time to read the participant information sheet that relates to Phase One of my PhD research. Before you decide whether or not to be a part of this study, you need to read the following points to understand the questionnaire's purpose and what it will require from you. Please take your time to carefully read the following information and to discuss it with me or others if necessary.

Purpose:

This study will be the first to explore workplace stress among registered nurses working in Paediatric Intensive Care Units in Saudi Arabia. The information gathered will be intended to enhance the current understanding of workplace stress experienced by registered nurses working in Paediatric Intensive Care Units in Saudi Arabia, and will fill an important gap in Saudi Arabian nursing research and strengthen the existing body of the literature in the nursing field.

Participation details:

You are invited to participate in this study because you are a registered nurse working in a Paediatric Intensive Care Unit. There are two phases to this study: a questionnaire and an interview. If you agree, you may be involved in both phases. Otherwise, if you are not invited to participate in Phase Two, or if you decline to participate in Phase Two, you will only complete the questionnaire in English; you will do this privately in an environment of your choice and at a time to suit you.

The questionnaire contains 63 questions divided into two sections. Section A, developed by me, will ask you for demographic information and work characteristics. Section B will ask about your feelings towards workplace stress. The questions in Section B are taken from a validated survey tool that has been used to study workplace stress among nurses in Paediatric Intensive Care Units and other acute and critical care units in many parts of the world, including the United States, Canada, Serbia, Saudi Arabia and Thailand. The questionnaire should take no more than 20 minutes to complete. When finished, please seal the questionnaire in the envelope provided and place it within the drop off locked box located in your unit. You will have one month after receiving the questionnaires to complete it. Please be aware that completing this questionnaire and returning it to the provided locked box indicates your consent to participate in this study. If you wish to participate in Phase Two of the research, please add your name and contact information to page 4 of this document and you will be contacted two to eight months after the questionnaire has been collected.

Benefit:

There is no direct benefit to you for taking part in this study. However, your participation is appreciated and will help develop a clear picture and an in-depth understanding of workplace

stress, this will help in the formulation of the questions that will be asked during the Phase Two interviews. The findings from the research may be used to formulate recommendations to the Saudi Arabia Ministry of Health about ways to reduce workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia.

Confidentiality:

All collected data will be confidential and stored securely by me. I will personally collect the questionnaires from the locked boxes. The data collected from the questionnaires will be stored electronically on my secure, password-protected personal computer. All other hard copy materials will be kept in a locked filing cabinet and all the data will be destroyed by me under secure conditions five years after data collection.

This study's data will be coded to maintain confidentiality. I will personally analyse the data. The only other people with whom data may be shared are members of the University of Hertfordshire supervisory team, and it will be presented in my final PhD dissertation. Some of the findings may be used in journal publications or conference presentations, and nothing will be published in a way that would allow you or your hospital to be recognised. Please be assured that the data will not be used in any further studies.

Volunteering to be part of this study:

Your participation is completely voluntary. You may miss answering any question that makes you feel uncomfortable. You withdraw from the study at any point without giving a reason. If you do not want to participate in the study, there is no consequence.

Risk of injury:

I do not anticipate or expect that you will incur any harm from participating in this study. However, in the unlikely case of anxiety or distress while completing the questionnaire, you may miss a question or simply end your participation. If you wish to personally discuss any aspect of the research, need further information or experience distress while participating, please feel free to contact me by work phone or email, and I will help you find the appropriate support within the hospital organisation or with an outside specialist.

Contact information:

Ms Amany Alabdullah,

Mobile work phone and WhatsApp: Saudi Arabia +966 (0) 0000000000

E-mail: AASA31@hotmail.com

Although we hope it is not the case, if you have any complaints or concerns about how you were approached or treated during this study, please write to the University's Secretary and Registrar:
Sue Grant

Secretary and Registrar

Hertfordshire University+44 (0) 1707284032

l.toon@herts.ac.uk

I would like to thank you for taking the time to read this information sheet.

Study Tool

Thank you very much for reading the Participant information sheet and for considering participating in this study. You will find the questionnaire on pages 5 to 10, and it consists of two sections (A and B). The questions in section A will ask for demographic information and work characteristics, and section B will ask about your feelings towards workplace stress and the factors that may affect you while working in Paediatric Intensive Care Units in Saudi Arabia. The questionnaire should take no more than 20 minutes to complete.

Please follow the instructions given in each section.

Returning the questionnaire:

Once you have completed the questionnaire, please seal it in the envelope provided and place it in the drop off locked box supplied for this purpose in your Paediatric Intensive Care Unit.

Please note that questionnaires should be returned by: DD/MM/YYYY.

Please be aware that completing this questionnaire and returning it to the locked box indicates your consent to participate in this study.

If you are willing to participate in Phase Two of the research, please write your name and contact information in the area below so that I can get in touch with you. Your information will be securely saved, and only I will have access to it.

Participant's contact information:

Participant's name:

Hospital name:

Mobile number:

or

Email:

Thank you very much for your time.

Section A: This part of the questionnaire is about your **DEMOGRAPHIC INFORMATION** and **WORK CHARACTERISTICS**¹. Please answer the following questions by selecting the pertinent information or filling in the blank.

1. What is your gender?

- Male
- Female

2. To which nationality group do you belong?

- Saudi
- Indian
- Philippine
- South African
- North American
- Australian
- British (UK)
- Malaysian
- Egyptian
- Jordanian
- Other: (please fill in the blank) _____

(1) Developed by the researcher

3. What is the highest level of nursing qualification that you have received?

- A certificate level programme
- Diploma in Nursing
- Bachelor's degree in Nursing (BSc/ BA)
- Master's degree in Nursing
- Ph.D. degree in Nursing
- Other: (please fill in the blank) _____

4. How long have you been working as a registered nurse in Paediatric Intensive Care Units **in total in Saudi Arabia?** (years of experience)

(Fill in the blank) _____

5. Have you worked as a paediatric intensive care nurse **elsewhere (not in Saudi Arabia)?**

- Yes
- No

6. How long have you been working as a registered nurse in Paediatric Intensive Care Units **in total outside Saudi Arabia?** (years of experience)

(Fill in the blank) _____

Thank you for completing section A.

Now please complete section B of the questionnaire.

Section B: Expanded Nursing Stress Scale (French et al., 2000)².

Below is a list of situations that commonly occur in a Paediatric Intensive Care Unit (PICU). For each situation that you have encountered in your **PRESENT PICU SETTING**, please indicate **HOW STRESSFUL** it has been for you:

(Enter the number in the right-hand column that best applies to you. If you have not encountered the situation, write '0'.)

Never happened	Never Stressful	Occasionally Stressful	Frequently Stressful	Extremely Stressful	Does Not Apply
0	1	2	3	4	5

1. Performing procedures that paediatric patients experience as painful.....___
2. Criticism by a physician.....___
3. Feeling inadequately prepared to help with the emotional needs of a paediatric patient's family.....___
4. Lack of an opportunity to talk openly with other unit personnel about problems in the PICU setting.....___
5. Conflict with a supervisor.....___
6. Inadequate information from a physician regarding the medical condition of a paediatric patient.....___
7. Paediatric patients making unreasonable demands.....___
8. Being sexually harassed.....___
9. Feeling helpless in the case of a paediatric patient who fails to improve.....___
10. Conflict with a physician.....___
11. Being asked a question by a paediatric patient for which I do not have a satisfactory answer.....___
12. Lack of an opportunity to share experiences and feelings with other personnel in the PICU setting.....___

(2) French, S. E., Lenton, R., Walters, V., & Eyles, J. (2000). An empirical evaluation of an expanded nursing stress scale. *Journal of Nursing Measurement*, 8(2), 161-178.

Never happened	Never Stressful	Occasionally Stressful	Frequently Stressful	Extremely Stressful	Does Not Apply
0	1	2	3	4	5

13. Unpredictable staffing and scheduling....._____
14. A physician ordering what appears to be inappropriate treatment for a paediatric patient....._____
15. Paediatric patients’ families making unreasonable demands....._____
16. Experiencing discrimination because of race or ethnicity....._____
17. Listening or talking to a paediatric patient about his/her approaching death....._____
18. Fear of making a mistake in treating a paediatric patient....._____
19. Feeling inadequately prepared to help with the emotional needs of a paediatric patient....._____
20. Lack of an opportunity to express to other personnel on the PICU unit my negative feelings towards paediatric patients....._____
21. Difficulty in working with a particular nurse (or nurses) inside my immediate PICU setting....._____
22. Difficulty in working with a particular nurse (or nurses) outside my immediate PICU setting....._____
23. Not enough time to provide emotional support to the paediatric patient....._____
24. A physician not being present in a medical emergency....._____
25. Being blamed for anything that goes wrong....._____
26. Experiencing discrimination on the basis of gender....._____
27. The death of a paediatric patient....._____
28. Disagreement concerning the treatment of a paediatric patient....._____
29. Feeling inadequately trained for what I have to do....._____

Never happened	Never Stressful	Occasionally Stressful	Frequently Stressful	Extremely Stressful	Does Not Apply
0	1	2	3	4	5

- 30. Lack of support from my immediate supervisor___
- 31. Criticism by a supervisor.....___
- 32. Not enough time to complete all of my nursing tasks.....___
- 33. Not knowing what a paediatric patient or a paediatric patient’s family ought to be told about the paediatric patient’s condition and its treatment.....___
- 34. Being the one that has to deal with paediatric patients’ families.....___
- 35. Having to deal with violent paediatric patients.....___
- 36. Being exposed to health and safety hazards.....___
- 37. The death of a paediatric patient with whom you have developed a close relationship.....___
- 38. Making a decision concerning a paediatric patient when the physician is unavailable.....___
- 39. Being in charge with inadequate experience.....___
- 40. Lack of support by nursing administrators.....___
- 41. Too many non-nursing tasks required, such as clerical work.....___
- 42. Not enough staff to adequately cover the unit.....___
- 43. Uncertainty regarding the operation and functioning of specialised equipment.....___
- 44. Having to deal with abusive paediatric patients.....___
- 45. Not having enough time to respond to the needs of the paediatric patients’ families.....___
- 46. Being held accountable for things over which I have no control.....___
- 47. Physician not being present when a paediatric patient die.....___

Never happened	Never Stressful	Occasionally Stressful	Frequently Stressful	Extremely Stressful	Does Not Apply
0	1	2	3	4	5

- 48. Having to organise physicians' work.....___
- 49. Lack of support by other healthcare administrators.....___
- 50. Difficulty in working with nurses of the opposite gender.....___
- 51. Demands of paediatric patient classification system.....___
- 52. Having to deal with abuse from paediatric patients' families.....___
- 53. Watching a paediatric patient suffer.....___
- 54. Criticism by nursing administration.....___
- 55. Having to work through breaks.....___
- 56. Not knowing whether paediatric patients' families will report you for inadequate
care.....___
- 57. Having to make decisions under pressure.....___

**Thank you for participating in this study; please place your completed
questionnaire in the drop off locked box in your unit.**

Workplace Stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia

Announcement

Are you a registered nurse working in the Paediatric Intensive Care Unit?

You may be eligible to participate in a study that aims to enhance current understanding of workplace stress experienced by registered nurses working in Paediatric Intensive Care Units in Saudi Arabia. You are eligible to participate in the study if you:

- Are a male or female qualified registered nurse working in a Paediatric Intensive Care Unit on morning and night shifts
- Have completed the orientation period and work independently in the Paediatric Intensive Care Unit
- Hold an active registered licence from the Saudi Commission for Healthcare Specialties.
- Read, understand and speak English fluently
- Are NOT management personnel

For more information and to take part in the study, please join me in

Room _____ On _____
from _____.

Amany A. Alabdullah, PhD student

Department of Nursing
School of Health and Social care
University of Hertfordshire
Hatfield, United Kingdom
E-Mail: AASA31@hotmail.com
Cell Phone: +9660000000000

Workplace Stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia.

Announcement

Dear registered nurse,

If you wish to participate in research Phase One (questionnaires) of the study about workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia, please remember to seal the questionnaire envelope and place it in the drop-off locked box in your unit, before the questionnaire submission deadline on **DD/MM/YYYY**.

For more information or questions, please feel free to contact me.

Amany A. Alabdullah, PhD student

Department of Nursing
School of Health and Social care
University of Hertfordshire
Hatfield, United Kingdom
E-Mail: AASA31@hotmail.com
Cell Phone: +966000000000

Appendix E: Participant package for the research study of workplace stress among nurses in paediatric intensive care units in Saudi Arabia — (interview)

Dear participant,

A few months ago you kindly agreed to participate in Phase Two of my PhD research study on workplace stress among registered nurses in Paediatric Intensive Care Units, which aims to enhance understanding of workplace stress experienced by registered nurses in Paediatric Intensive Care Units in Saudi Arabia.

I am now writing to inform you that the next stage of the study has started. I would very much like to arrange an interview with you within your hospital at a time that suits you.

The interview will last between one hour and an hour and a half and involve answering questions about workplace stress in the field of Paediatric Intensive Care Units and the impact on the nursing care delivered to paediatric patients.

I have enclosed a consent form as well as a participant information sheet with this letter to explain Phase Two of the study in more detail. Please take the time to read this and if you want to discuss this stage of the study in more detail please don't hesitate to contact me. Either of your decision please return Page -2- within a week of receiving this package to the secured locked box in your unit.

One aweek after reciving this package I will collect the Interview consent form to find out whether or not you would like to take part in the study. If your answer is yes, I will contact you to arrange a mutually convenient time to interview you in one of your hospital meeting rooms. I do hope that you will continue to be involved with this research and I appreciate all your help in making data collection for the study successful so far .All the information will be analysed confidentially by me.

The study has received ethical approval from the University of Hertfordshire (cHSK/PGR/UH/02682) and from the Saudi Arabia Ministry of Health (H-01-R-012).

Thank you.

Yours sincerely,

Amany A. Alabdullah, PhD student

Mobile work phone and WhatsApp: +966 (0) 0000000000

E-mail: AASA31@hotmail.com

Department of Nursing

School of Health and Social care

University of Hertfordshire

Hatfield, United Kingdom

Interview consent form – (Interviews)

Dear Participant,

The undersigned consents to participate in a research study about workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia – Phase Two

Do you agree to participate?

Participant agrees

Participant does NOT agree

Please fill out the following if you would like to participate in Phase Two

Participants phone number: _____

Suitable time to contact you to arrange for the interview: _____

I, _____, have read and understood this participant information sheet. All my questions have been clearly answered. I agree to participate in this study.

Signature of participant _____ Date:

Signature of the researcher _____ Date:

Name of the researcher: Amany Alabdullah

Thank you for agreeing to participate in this study and for your cooperation.

*Copy for the researcher

Interview consent form - (Interviews)

Dear Participant,

The undersigned consents to participate in a research study about workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia – Phase Two

Do you agree to participate?

Participant agrees

Participant does NOT agree

I, _____, have read and understood this participant information sheet. All my questions have been clearly answered. I agree to participate in this study.

Signature of participant _____ Date:

Signature of the researcher _____ Date:

Name of the researcher: Amany Alabdullah

Thank you for agreeing to participate in this study and for your cooperation.

*Copy for the participants.

Participant Information Sheet – (Interviews)

Dear Participant,

Thank you for taking the time to read the participant information sheet that relates to Phase Two of my PhD research. Before you decide whether or not to be a part of this study, you need to read the following points to understand the interview's purpose and what it will require from you. Please take your time to carefully read the following information and to discuss it with me or others if necessary.

Purpose:

This study will be the first to explore workplace stress among registered nurses working in Paediatric Intensive Care Units in Saudi Arabia. The information gathered will be intended to enhance the current understanding of workplace stress experienced by registered nurses working in Paediatric Intensive Care Units in Saudi Arabia, and will fill an important gap in Saudi Arabian nursing research and strengthen the existing body of the literature in the nursing field.

Participation details:

You are invited to participate in this study because you are a registered nurse working in a Paediatric Intensive Care Unit. This is Phase Two of the study, and it involves an individual interview that will be conducted in English in one of your hospital meeting rooms at your convenience. If you agree to be a part of Phase Two, your interview will be recorded, and the entire process will take between 60 and 90 minutes.

Benefit:

There is no direct benefit to you for taking part in this study. However, your participation is appreciated and will help develop a clear picture and an in-depth understanding of workplace stress. The findings from the research may be used to formulate recommendations to the Saudi Arabia Ministry of Health about ways to reduce workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia.

Volunteering to be part of this study:

Your participation is completely voluntary. You may skip answering any question that makes you feel uncomfortable. You withdraw from the study at any point without giving a reason. If you do not want to participate in the study, there is no consequence. If you decide to participate, you will be asked to sign a consent form before being interviewed. Agreeing to join the study does not mean that you must complete it.

Confidentiality:

All collected data will be confidential and stored securely by me. The data collected from the interviews will be stored electronically on my secure, password-protected personal computer. All other hard copy materials will be kept in a locked filing cabinet and all the data will be destroyed by me under secure conditions five years after data collection.

This study's data will be coded to maintain confidentiality. I will personally analyse the data. The only other people with whom data may be shared are members of the University of Hertfordshire supervisory team, and it will be presented in my final PhD dissertation. Some of the findings may be used in journal publications or conference presentations, and nothing will be published in a way that would allow you or your hospital to be recognised. Please be assured that the data will not be used in any further studies.

Risk of injury:

I do not anticipate or expect that you will incur any harm from participating in this study. However, in the unlikely case of anxiety or distress during the interview, I will stop the recording and give you the choice to end the interview or continue. You may miss any problematic questions or choose to withdraw from the interview at any time, and none of the information you shared during the interview will be used if you ask.

If you wish to personally discuss any aspect of the research, need further information or experience distress while participating, please feel free to contact me by work phone or email, and I will help you find the appropriate support within the hospital organisation or with an outside specialist at no cost to you.

Contact information:

Ms Amany Alabdullah,

Mobile work phone and WhatsApp: Saudi Arabia

+966 (0) 0000000000

E-mail: AASA31@hotmail.com

Although we hope it is not the case, if you have any complaints or concerns about how you have been approached or treated during this study, please write to the University's Secretary and Registrar:

Sue Grant

Secretary and Registrar

Hertfordshire University+44 (0) 1707284032

l.toon@herts.ac.uk

I would like to thank you for taking the time to read this information sheet.

Appendix F: Interview schedule

Introduction, welcome and appreciation for the respondent's participation in Phase Two of the research, including the following:

- Purpose of the interview and benefits of the research
- Clarification of the topic under discussion
- Format of the interview
- Approximate length of the interview (60–90 minutes)
- Assurance of confidentiality
- Purpose and use of the digital recorder (including consent for its use)
- Assurance that the participant can seek clarification of the questions
- Assurance that the participant can decline to answer a question or multiple questions, and can terminate the interview at any time
- Assurance that the participant can ask questions at any time
- Assurance that the researcher does not anticipate or expect that this interview will cause harm (i.e. stress), but if it does occur, the researcher will direct the participant to helpful resources
- The taking of two copies of written consent—one for the researcher and another for the participant

This interview aims to achieve the following:

Identify perceptions of workplace stress among registered nurses within paediatric intensive care units (PICUs) in Saudi Arabia and their potential impact on the quality of care delivered to paediatric patients

Opening question (this is designed to encourage the participant to talk in a focused way; it will then prompt and facilitate further discussion):

A few months ago, you completed a questionnaire on workplace stress. Thank you for your participation. I would appreciate your further assistance in exploring some issues which emerged from the questionnaires. To begin, please describe a typical workday in the PICU.

Prompts (the prompt questions will be drawn on, as required; it is acknowledged that some participants will talk more freely and in greater detail than others will):

- Please tell me how and why you began working in the PICU.
- Overall, do you consider your job as a nurse in the PICU in Saudi Arabia to be stressful?
- If so, what aspects of your job do you feel are especially stressful? Please share a specific example of a stressful situation (If appropriate, another example will be requested).
- How often do you experience workplace stress in the PICU? Can you please give me more details about when workplace stress occurs in your unit?
 - If you experience workplace stress in your unit, how does it affect you?
 - Do you think workplace stress affects you physically, emotionally or both? Can you give an example? (If appropriate, another example will be requested).
 - Do you think workplace stress affects the quality of care which you give to paediatric patients and/or their families? If yes, in what way? Can you give an example? If not, why not? Can you give an example?

- Have your colleagues talked about experiencing workplace stress in the PICU? Have they mentioned whether this has affected the quality of care they provide to paediatric patients and/or their families? Can you give an example?
- Does workplace stress in the PICU affect your home life? If so, in what way?
- Do you feel supported in the PICU? If not, what do you think could be done to support you in your unit?
- The questionnaire revealed that the workload of nurses in the PICU is one of the most stress-inducing factors for them. Have you encountered workplace stress which was caused by workload issues? Can you give an example? Were you able to handle the workplace stress associated with workload? What helped you handle this workload issue in your unit? What could have helped minimise or prevent what you mentioned as a workload issue in your unit?
- Do you think your colleagues encounter workplace stress caused by workload issues? Can you give an example? What do you think helps your colleagues handle this type of stress?
- Another issue which emerged from the questionnaire was the death of a paediatric patient. Have you been involved in the care of a paediatric patient (or patients) who has/have died in the PICU?
- Do you feel comfortable discussing this experience?
- How many times do you think you have cared for a paediatric patient who has died in the PICU? Can you tell me about one of your experiences in caring for a paediatric patient who died in the PICU? (If appropriate, another example will be requested).
- Did you find this experience stressful? If so, what was the most stressful part of it?
- As you have gained more experience of working in a PICU, has caring for a paediatric patient who eventually dies become less stressful, more stressful or remained the same?
- Were you able to handle the workplace stress associated with the death of a paediatric patient(s)? What helped? Is there anything else which could have helped?
- What do you think helps your colleagues handle this type of stress?
- From your experience, do you think nurses in other paediatric departments and units experience the same stress factors that you have in the PICU? Can you explain your reasons and give an example? (If appropriate, another example will be requested).
- Do you feel you have the relevant knowledge and skills to provide quality care for paediatric patients in the PICU?
- Do you think the nurse education programme you undertook prepared you to effectively handle workplace stress in the PICU? If so, how? If not, why not?
- Did you receive any preparation or orientation from the hospital before working in the PICU? If so, how long did it last? Did this orientation help you in any way? If so, how?
- When were you exposed to a PICU for the first time? Where? What was your position and role? Did this exposure to a PICU help you in any way? If so, how?
- Did you have any work experience in a PICU as a registered nurse prior to your current job? Did it help you?
- Did you have any previous work experience as a registered nurse in a unit other than a PICU? If so, in what unit? Did it help prepare you in any way for working in this PICU?
- Have you taken any post-qualification courses related to a PICU? If so, what were these courses? Have they helped you in any way? If so, how? Has this helped you handle workplace stress in the PICU? If so, how?
- Have you undertaken a training programme whilst working in the PICU? If so, what was the programme? Has it helped you in any way? If so, how? Has it helped you handle workplace stress in the PICU? If so, how?

- What preparation do you think would be useful for a registered nurse to have prior to working in a PICU in Saudi Arabia?
- Every job has its positive and negative aspects. What would you say are the most positive aspects of your job as a registered nurse in the PICU?
- What aspects motivate you to continue working in a PICU in Saudi Arabia?
- What advantages do you think working in a PICU brings compared with working in other paediatric departments and/or units?
- How do you feel the nursing profession is viewed in Saudi Arabia? Do you feel you are valued? If not, does this lead to workplace stress? If you feel valued, does this lead to workplace stress? Can you give an example of when you felt disrespected because of your profession? Can you give an example of when you felt valued because of your profession? (If appropriate, another example will be requested).
- How would you describe your work relationships with your colleagues (doctors, nurses, etc.)?
- How would you describe your work relationships with paediatric patients, their parents and/or other family members?
- How do you feel about having more female than male nurses in your PICU?
- How do you feel about having more expatriate nurses than Saudi nurses in your PICU?
- Does having more female than male nurses in your PICU affect your work environment? If yes, why? If not, why?
- Does having more expatriate nurses than Saudi nurses in your PICU affect your work environment? If yes, why? If not, why?
- Does having more female than male nurses in your PICU affect your work relationships in any way? If yes, why? If not, why?
- Does having more expatriate nurses than Saudi nurses in your PICU affect your work relationships in any way? If yes, why? If not, why?
- Do you think your current work situation in a PICU in Saudi Arabia could be improved? If so, how? If not, why?
- Is there anything else you would like to add?

Thank you for your time. In sincere appreciation for your participation, please accept this thank you letter and gift card (coffee card).

Appendix G: Thank you poster for questionnaire participants and thank you letter for interview participants

Thank you poster to participants of the research on workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia – (questionnaires)

Dear Nurses,

I would like to inform you that Phase One of the research study about workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia has been completed.

Thank you very much for participating in Phase One of my research, I appreciate the time you took from your busy nursing schedules to fill in the questionnaires.

The information you shared constitutes a valuable contribution to the research study. I hope the knowledge yielded by the study will ultimately help to improve the nurse's practices in Paediatric Intensive Care Units in Saudi Arabia. The results of the study will also become an empirical reference-point for both registered nurses in Paediatric Intensive Care Units and for the Ministry of Health.

Sincerely,
Amany A. Alabdullah, PhD student
Department of Nursing
School of Health and Social care
University of Hertfordshire
Hatfield, United Kingdom

Thank you letter to participants of the research on workplace stress among registered nurses in Paediatric Intensive Care Units in Saudi Arabia – Phase Two (Interview)

Dear Nurse,

Thank you very much for participating in an interview about workplace stress issues in a Paediatric Intensive Care Unit in Saudi Arabia. I appreciate the time you took from your busy nursing schedule to spend with me. The information you shared will be very helpful to the research study. I hope the new knowledge will help to improve the nurse's practice in Paediatric Intensive Care Units in Saudi Arabia and become an empirical reference point for both registered nurses in Paediatric Intensive Care Units and the Ministry of Health.

Thank you again for your assistance with my research. Please accept this coffee gift card as a token of my appreciation for your participation in this study.

Sincerely,

Amany A. Alabdullah, PhD student
Department of Nursing
School of Health and Social care
University of Hertfordshire
Hatfield, United Kingdom

Appendix H: Ethical approval from the University of Hertfordshire and the Ministry of Health

Kingdom of Saudi Arabia
Ministry of Health
King Fahad Medical City
(162)



المملكة العربية السعودية
وزارة الصحة
مدينة الملك فهد الطبية
(١٦٢)

IRB Registration Number with KACST, KSA: H-01-R-012
IRB Registration Number with OHRP/NIH, USA: IRB00010471
Approval Number Federal Wide Assurance NIH, USA: FWA00018774

December 20, 2016
IRB Log Number: 16-452E
Department: External
Category of Approval: EXEMPT

Dear Amany Al-Abdullah,

I am pleased to inform you that your submission dated December 20, 2016 for the study titled '**Workplace Stress among Nurses in Paediatric Intensive Care Unit in Saudi Arabia**' was reviewed and was approved. Please note that this approval is from the research ethics perspective only. You will still need to get permission from the head of department or unit in KFMC or an external institution to commence data collection.

We wish you well as you proceed with the study and request you to keep the IRB informed of the progress on a regular basis, using the IRB log number shown above.

Please be advised that regulations require that you submit a progress report on your research every 6 months. You are also required to submit any manuscript resulting from this research for approval by IRB before submission to journals for publication.

As a researcher you are required to have current and valid certification on protection human research subjects that can be obtained by taking a short online course at the US NIH site or the Saudi NCBE site followed by a multiple choice test. Please submit your current and valid certificate for our records. Failure to submit this certificate shall a reason for suspension of your research project.

If you have any further questions feel free to contact me.

Sincerely yours,

Prof. Omar H. Kasule
Chairman, Institutional Review Board (IRB)
King Fahad Medical City, Riyadh, KSA
Tel: + 966 1 288 9999 Ext. 26913
E-mail: okasule@kfmc.med.sa



HEALTH & HUMAN SCIENCES ECDA

ETHICS APPROVAL NOTIFICATION

TO Amany Anwar Alabdullah
CC Brian Littlechild
Lisa Whiting
FROM Dr Richard Southern , Health and Human Sciences ECDA Acting Chair
DATE 07/02/2017

Protocol number: cHSK/PGR/UH/02682

Title of study: Workplace Stress among Registered Nurses in Paediatric Intensive Care Units in Saudi Arabia.

Your application for ethics approval has been accepted and approved with the following conditions by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Approval Conditions:

Permission must be obtained prior to recruitment and data collection.

This approval is valid:

From: 07/02/2017

To: 30/06/2017

Additional workers: no additional workers named.

HEALTH SCIENCE ENGINEERING & TECHNOLOGY ECDA

ETHICS APPROVAL NOTIFICATION

TO Amany Anwar Alabdullah
CC Professor Brian Littlechild, Dr Lisa Whiting
FROM Dr Simon Trainis, Health, Sciences, Engineering & Technology ECDA Chair
DATE 17/10/17

Protocol number: acHSK/PGR/UH/02682

Title of study: Workplace Stress among Registered Nurses in Paediatric Intensive Care Units in Saudi Arabia.

Your application to modify and extend the existing protocol as detailed below has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Modification: As described in your EC2 application

This approval is valid:

From: 17/10/17

To: 30/04/18

Additional workers: no additional workers named.

HEALTH SCIENCE ENGINEERING & TECHNOLOGY ECDA

ETHICS APPROVAL NOTIFICATION

TO Amany Anwar Alabdullah
CC Professor Brian Littlechild
FROM Dr Simon Trainis, Health, Science, Engineering & Technology ECDA Chair.
DATE 10/05/2018

Protocol number: acHSK/PGR/UH/02682(2)

Title of study: Workplace Stress among Registered Nurses in Paediatric Intensive Care Units in Saudi Arabia.

Your application to modify and extend the existing protocol as detailed below has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

Modification: Extend dates of study.

This approval is valid:

From: 10/05/2018

To: 30/08/2018

Additional workers: No additional workers named.

Appendix I: Detailed explanation of quantitative data analysis

The quantitative data analysis was accomplished in three phases as explained in Chapter Four. A detailed explanation of each phase of the analysis and of the decisions that lead to the quantitative results for this research study, as given in Chapter Five, are presented below.

Descriptive analysis

A descriptive statistical analysis was applied to calculate and summarise the participants' personal characteristics, including their demographic profiles, employment backgrounds characteristics and frequency of workplace stress. The participants had all worked in PICUs in public hospitals and the variables extracted were based on their responses to the ENSS. The results from this quantitative analysis presented in Chapter Five included sample size, frequencies and percentages for all categorical variables (gender, nationality and academic nursing qualification), while continuous variables were presented as a mean (SD) (years of PICU work experience in SA and previously, outside of SA). The distribution of the continuous variables was normally distributed.

For the ENSS, frequency and percentage were first calculated for each question in each subscale. High scores indicated that the participants perceived more frequent workplace stress; low scores indicated that they perceived less frequent workplace stress (French et al., 2000).

Any score of '5 = Does not apply' (i.e., not applicable) in the ENSS was removed from the analysis to preserve the original data entry. The participants' responses were then calculated by using the means and SD for each question and for each subscale. The latter was calculated by adding together all the participants' responses to each question on the specific subscale and then dividing this by the number of questions in the subscale. The total ENSS was calculated by adding the participants' responses to each of the nine subscales together and then dividing by the number of subscales.

In this section on the analysis of workplace stress, a continuous measure was used. Each mean was identified in a frequency range that reflected the participant's experience of the work situation in PICU. The participants' perceptions were given in mean ranges, as follows:

- (0) to (1): identified as ‘never happened’ to ‘never stressful’
- (1) to (2): identified as ‘never stressful’ to ‘occasionally stressful’
- (2) to (3): identified as ‘occasionally stressful’ to ‘frequently stressful’
- (3) to (4): identified as ‘frequently stressful’ to ‘extremely stressful’

Therefore, a mean score of 2.5 indicated that the nurse found their situation to range from ‘occasionally stressful’ to ‘frequently stressful’, as classified by the author of the ENSS (French et al., 2000). Because these scores reflect a strictly continuous variable, the mean is generally not recommended, but it makes an interesting first approximation for the data.

In addition, the mean \pm SD for each question in each subscale and for the total ENSS, was obtained from a modified ‘normalised’ mean. However, the researcher initially used the direct scores, which were the sums of the scores for each question on each subscale. Based on the advice of other researchers (Saleh et al., 2013; Kamal et al., 2012; Alsaqri, 2014), and of the author of the ENSS (French et al., 2000), the researcher used the modified ‘normalised’ mean scores, as previously described, because these were similar to those used by previous researchers and described by the author guidelines; in addition, the scores were easier to read. This decision did not affect the t-values, so these scores were used instead of the direct ones.

Because no specific total ENSS cut-off score was identified by the author of the ENSS for determining whether or not the participants were stressed, the researcher calculated the levels of workplace stress from the total means of ENSS by using the direct scores and a statistical test called data-driven rank classification. Specifically, the researcher divided the sample into three ordinal categories (low, medium, and high levels of workplace stress) and assigned approximately one-third of the participants to each category based on their score in the total ENSS scale. This reduced the variance and limited the explanatory power of the analysis. It also helped to simplify the analysis and to discover thicker patterns, similar to those in the study by (Dagget et al., 2016). In this section of the analysis on workplace stress, ordinal variables were measured and presented. The researcher also identified the minimum and maximum mean scores for the total direct score of ENSS.

To maximise the potential of the data collected, both levels the continuous and the ordinal variables for workplace stress measurement were used simultaneously. Hence, the characteristics of each type were used, and the effect of their respective limitations

was reduced. Lastly, with the intention of checking the reliability of the different subscales of ENSS and of the total ENSS, a factor analysis test was carried out for this part of the analysis.

Bivariate analysis

The results from the bivariate analysis showed whether relationships existed between the different variables. First, the relationship was assessed: 1) between the participants' demographic profiles and their employment background characteristics; 2) between the participants' demographic profiles, their employment background characteristics and the ENSS; and 3) between the demographic profiles, the employment background characteristics and the levels of workplace stress. For this, several inferential statistical tests were used, including the chi-square test. This was used to compare the frequency of the categorical distribution, and a bivariate analysis with independent t-tests was used to compare the two categories of variables. The bivariate analysis with independent t-tests included three dual variables: gender (male and female), nationality (SA and expatriate), and academic nursing qualification (Diploma in Nursing and BSN).

When it was not possible to apply the independent t-test because the variables that needed to be compared included more than two categories, an ANOVA test was used to compare the mean values of three or more groups for a given variable. This test was applied to compare the scores that reflected the number of years of PICU work experience in SA and previous, PICU work experience outside SA, and these were arranged into three broad categories. ANOVA was used to consider the participants' nationalities only when the nationalities of the expatriate participants were identified in different groups (i.e. Filipino, Indian and 'other') and these were compared to SA nationality participants.

In this part of the analysis, frequencies, percentages, mean values and SDs were identified for each variable (demographic profile and employment background) that affected the ENSS or level of workplace stress among the participants. Finally, correlation coefficients were calculated to indicate the strength and direction of the relationships between all variables in this research study. They were calculated to assess the correlations between the ENSS subscales and the total ENSS score and also to detect how these subscales correlated with each other.

To identify any multicollinearity issues, a correlation matrix that illustrated the variables relationship between the demographic profile and employment background

characteristics was analysed. Any correlation over 0.9 should be considered an indication of multicollinearity (Hair et al., 2014).

Multiple regression analysis

This section of the analysis was conducted to achieve a deeper statistical analysis of the quantitative data of this research study. Multiple regression analysis was applied to test the relationships between the dependent and independent variables (Chatterjee et al., 2000; Coladarci et al, 2011; Montgomery et al., 2012). Regression analysis is defined as ‘a statistical technique for investigating and modelling the relationship between variables’ (Montgomery et al., 2012, p. 1). It examines the association or relationship between the independent and dependent variables, including a measurement of the direction of difference and the size of the effect of each independent variable on the dependent variables. This cannot be done through bivariate analysis. There are two values associated with this relationship: the regression coefficient, which indicates the change in the dependent variable for each unit of increase in the independent variable, and the beta coefficient, which is a standardization of the regression coefficient, so that the effect sizes of all independent variables can be directly compared. Additionally, the adjusted coefficient of determination (R^2) of each model is reported, which refers to the variance of the dependent variable explained by the set of independent variables included in the model, adjusting for the number of independent variables and the sample size (Hair et al., 2014).

In this section of the analysis, multiple linear regression analysis was used first. It was performed to assess whether a relationship existed between the independent variables of the demographic profile, the employment background characteristics and the ENSS. It was run in SPSS version 25 and included all dependent variables (i.e. each subscale in the ENSS and the total ENSS). This was done to identify whether a statistically significant relationship existed between these variables and the independent variables. To evaluate all possible regressions in relation to the computational mission, backward stepwise multiple linear regression analysis was performed by SPSS to observe the significance of differences in variability and to create a model that would predict workplace stress. This analysis started with an equation that included all variables. Each variable was then removed separately. At each step, the regression was computed, and the variable with the smallest F ratio was removed, provided it did not exceed a specific value.

In this section of the analysis, the variables coded as independent were the demographic profile characteristics, including gender (male or female) and academic nursing qualification (Diploma in Nursing or BSN). In addition, nationalities were dummy-coded as follows: the participants' nationalities (SA, Filipino, Indian and 'other') were used rather than using only two groups of participants, SA nationals and expatriates, as this yielded more detailed results. For the nationality analysis, the researcher created dummy codes for nationality variables (0 = no, 1 = yes). A dummy variable is 'an artificial variable created to represent an attribute with two or more distinct categories/levels' (Skrivanek, 2009, p. 1). The purpose is to represent the nominal variable in order to run the regression analysis and to interpret the results in a meaningful way by comparing the category with the dummy variable.

The variable 'other', indicating nationality other than SA, Indian or Filipino, was not included in this analysis for several reasons: first, since it was a combination of different nationalities it did not provide useful information; second, the sample size of this group was too small ($n = 12$); and third, the regression collapses when there are too many dichotomous variables. Nationalities other than SA, Indian and Filipino were therefore excluded from further analysis because of the low sample size of those groups.

The independent variables included the employment background characteristics, namely, the number of years of PICU work experience in SA and the number of years of PICU work experienced previously, outside of SA.

The dependent variables included the total ENSS and each of the nine subscales. Although individual analyses of the nine ENSS subscales were not among the primary aims of the research study, they are of interest in understanding trends in workplace stressors among nurses in PICUs in public hospitals in SA. Table II illustrates the independent and dependent variables included in the multiple linear regression analysis in the third section of the quantitative data analysis of the research study.

Table 11: Independent and dependent variables in multiple linear regression analysis

Independent Variables	Dependent Variables
Gender	Death and dying
Nationality	Conflict with physicians
Academic nursing qualification	Inadequate emotional preparation
Years of PICU work experience in SA	Problems relating to peers
Years of PICU work experience previously, outside SA	Problems relating to supervisors
	Workload
	Uncertainty concerning treatment
	Patients and their families
	Discrimination
	Total ENSS

In addition, a multinomial logistic regression analysis was performed to identify significant independent predictors in the variables for demographic profile and employment background characteristics as associated with levels of workplace stress (low, medium and high) and as categorised in this research study.

The independent variables for demographic profile characteristics were gender, academic nursing qualification and nationality. The independent variables for employment background characteristics included years of PICU work experience in SA and prior PICU work experience outside SA. An interaction effect was added to control for the confounding effects of all independent variables, which were calculated by the researcher to determine the effects of the various participants' personal characteristics (demographic profile and employment background characteristics) on their levels of workplace stress.

The regression method used for the multinomial logistic regression was backward elimination, in which all variables are considered and those that are useless are removed in successive steps, which results in a more compact and clearly defined model. As noted in Chapter Five, the backward elimination method possesses some interesting characteristics for an exploratory research study such this. Specifically, the backward elimination method reduces the risk of excluding predictive variables based on a suppression effect (Field, 2009).

In addition to the regression coefficients (B-values), the Wald statistics were used to assess whether any given predictive variable included in the model made a significant contribution to the outcome variable. This statistic is similar to the t-test used in linear regression, using a special distribution known as chi-square distribution. Finally, the

odds ratio (OR) could be compared to the beta-value in linear regression, although it is simpler in the sense that it does not require a logarithmic transformation of the regression coefficient. The OR is the change in the odds of the occurrence of a given event (the dependent variable) when the independent variable increases by one unit (Field, 2009). So, for example, if a given predictive variable showed an $OR > 1$, the odds of occurrence of the comparison group (e.g., medium level of stress) increases when compared to the odds of occurrence of the reference group (e.g., low level of stress) when that particular predictive variable increases.

As a result of this analysis, the years of PICU work experience in SA and the interaction effect were the only two variables to be excluded by the system. There were no interactions in this model. When an interaction effect was added to the model, the difference was not significant ($p = 0.592$), and so it was eliminated. The variable of PICU work experience in SA was also excluded by the system because it was non-significant in the model ($p = 0.810$).

It was noticed that when the small ‘other’ nationality category was removed, it completely modified the distribution pattern of the sample and radically changed the results. A partial correlation controlling for the ‘other’ variable was therefore used. In greater detail: at one point, a problem arose in terms of the interpretation of the model. After eliminating the ‘other’ nationality category, the system stopped ruling out the variable of prior years of PICU work experience outside of SA; however, this was not significant. When the ‘other’ nationality category was removed manually, the model no longer fitted, and the variable for nationality was no longer meaningful. Different variations of the model were tried, but the models achieved were always less adjusted. Once it was found that the presence of a non-significant variable improved a significant variable, and that the presence of the non-significant variable improved the fit of the model as compared to other models, it became clear that the variable of prior PICU work experience outside SA had a suppressive effect, which was characterised precisely by these two points. The explanation for this effect may be that adding the variable of prior years of PICU work experience outside SA makes the model work better. In addition, nationality was found to be a significant predictor of levels of workplace stress as there was a significant negative correlation between being from SA and the level of workplace stress when there were no prior years of PICU work experience outside of SA. Indeed, when running a bivariate correlation between being an expatriate participant and the level of workplace stress, a significant correlation ($r = 0.228$, $p =$

0.030) was found among the participants who did not have prior years of PICU work experience outside of SA, in the sense that expatriate participants showed higher levels of workplace stress than the SA participants, and a non-existent correlation among those who did have prior years of PICU work experience outside of SA, since this group included only expatriate participants. Therefore, the correlation test between nationality and level of workplace stress made no sense. In other words, having or not having prior years of PICU work experience outside of SA did not impact the level of workplace stress directly, but the prior years of PICU work experience outside of SA was affected by the relationship between the level of workplace stress and nationality. That is why it cannot be removed from the model despite not being significant (and it is, therefore, a suppressor variable). In Chapter Five, section (5.4), the complete model is explained, with an outline of both its significant variables and those that are not significant.

Appendix J: More results from the bivariate statistical analysis

In this appendix, more results from the bivariate analysis of the quantitative data as presented in Chapter Five of the research study are given. It has three sections showing first, the results of the bivariate analysis of the differences between ENSS and the participants' personal characteristics variables. Second, it presents the differences between levels of workplace stress and participants' personal characteristics variables; and third, the correlation matrix is described: first, between the ENSS subscales and second, between the participants' personal characteristics variables.

Differences between ENSS and participants' personal characteristics variables

The participants' personal characteristics include their demographic profile and their employment background. These were divided according to the tests used to assess the differences in ENSS and the demographic profile and employment background characteristics variables among participants. The following tables summarise the results of these tests to illustrate the significant differences between participants' personal characteristics (demographic profile and employment background) of gender, nationality, academic nursing qualification and years of PICU work experience both in SA and outside SA prior to the current work experience and also for ENSS. For the purposes of the research study, the significance threshold is set at $p < 0.05$, $p < 0.01$ and $p < 0.001$.

The independent sample t-test outputs shown in Table 1J reflect the statistically significant differences between the means for male and female participants for subscales and overall ENSS scores. There were significant differences for the 'death and dying', 'inadequate emotional preparation', 'problems relating to peers', 'uncertainty concerning treatment', 'patients and their families' and 'discrimination' subscales. Three of those subscales showed highly significant differences ($P < 0.001$) between the genders. All subscales, as well as the total ENSS, indicate that male participants reported higher level of workplace stress than female participants. However, the results showed no significant differences between the means for male and female participants in the 'conflict with physicians', 'problems relating to supervisors', or 'workload' subscales, meaning that those subscales reflect similar responses by both male and female participants in PICU.

Table1J: Comparison of the Expanded Nursing Stress Scale and gender among the participants in this research study

Subscale variable	Gender				T	P
	Male (n = 7, 4.1%)		Female (n = 165, 95.9%)			
	Mean	SD	Mean	SD		
Death and dying	2.63	0.61	2.05	0.77	1.978	0.050*
Conflict with physicians	2.29	0.40	1.90	0.88	1.144	0.254
Inadequate emotional preparation	2.86	0.72	1.97	0.80	2.867	0.005**
Problems relating to peers	2.50	0.75	1.65	0.80	2.763	0.006**
Problems relating to supervisors	2.45	0.82	1.97	1.02	1.220	0.224
Workload	2.76	0.95	2.27	0.80	1.564	0.120
Uncertainty concerning treatment	2.59	0.54	1.91	0.90	1.982	0.049*
Patients and their families	2.66	0.43	1.99	0.79	2.207	0.029*
Discrimination	2.10	0.96	1.11	0.98	2.633	0.009**
Total scale	2.57	0.46	1.94	0.72	2.294	0.023*

Note. For all subscales and the total scale, df = 170.

* p < 0.05, ** p < 0.01, *** p < 0.001

The independent sample t-test output, as shown in Table 2J indicates that there was no statistically significant relationship between the means for the total ENSS score and for each subscale and individual nationality (SA or expatriates), which suggests that the severity of workplace stress is similar among participants from SA and expatriates. However, the expatriates (n = 146, 84.9 %) did describe higher levels of workplace stress overall than the SA participants. Furthermore, expatriate participants had higher rankings on all subscales for workplace stress except for ‘problems relating to peers’, indicating that this issue was more stressful for participants from SA. The expatriate participants (n = 146) included those of Indian and Filipino nationality who together made up the majority of expatriate participants in the research study. ‘Other’ expatriate nationalities (n = 12) included participants from Malaysia (n = 1), Egypt (n = 2), Jordan (n = 7), and Pakistan (n = 2). The group labelled ‘other’ were included in the analysis together with expatriate participants from Indian and Filipino and the SA participants in Table 2J.

Table 2J: Comparison of the Expanded Nursing Stress Scale and nationality (Saudi Arabia or expatriate) among the participants in this research study

Subscale variable	Nationality – Mean (SD)				T	P
	SA (n = 26, 15.1%)		Expatriates (n = 146, 84.9%)			
	Mean	SD	Mean	SD		
Death and dying	1.94	0.76	2.10	0.78	-0.951	0.343
Conflict with physicians	1.82	0.87	1.94	0.87	-0.648	0.518
Inadequate emotional preparation	1.83	0.66	2.04	0.84	-1.199	0.232
Problems relating to peers	1.76	0.54	1.67	0.85	0.709	0.481
Problems relating to supervisors	1.98	0.92	1.99	1.03	-0.045	0.965
Workload	2.16	0.85	2.32	0.80	-0.902	0.368
Uncertainty concerning treatment	1.91	0.75	1.94	0.92	-0.181	0.856
Patients and their families	1.84	0.74	2.05	0.80	-1.279	0.203
Discrimination	1.10	0.54	1.15	1.05	-0.368	0.714
Total SCALE	1.88	0.66	1.98	0.73	-0.621	0.536

Note. For all subscale and the total scale, df = 170.

* p < 0.05, ** p < 0.01, *** p < 0.001

The ANOVA outputs in Table 3J reflect statistically significant differences between the means for individual nationalities and the total ENSS score. There were statistically significant differences in the ‘conflict with physicians’, ‘problems relating to peers’, ‘workload’, and ‘uncertainty concerning treatment’ subscales. In general, the ‘problems relating to peers’ and ‘workload’ subscales with the total ENSS score suggested that ‘other’ nationalities reported higher level of workplace stress than participants from SA, Indian and Filipino. The other nationalities (n = 12,7 %) were excluded from the analysis shown in Table 4J.

Table 3J: Comparison of the Expanded Nursing Stress Scale and individual nationality of the participants in this research study

Subscale variable	Nationality – Mean (SD)								F	P
	SA (n=26,15.1%)		Indian (n=76,44.2%)		Filipino (n=58,33.7%)		Others (n=12, 7%)			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Death and dying	1.94	0.76	2.06	0.70	2.08	0.88	2.39	0.62	0.958	0.414
Conflict with physicians	1.82	0.87	1.72	0.84	2.21	.087	1.97	0.77	3.884	0.010**
Inadequate emotional preparation	1.83	0.66	2.03	0.81	2.01	0.84	2.25	1.05	0.767	0.514
Problems relating to peers	1.76	0.54	1.50	0.89	1.86	0.73	1.90	0.95	2.689	0.048*
Problems relating to supervisors	1.98	0.92	1.79	1.00	2.17	1.07	2.46	0.80	2.565	0.056
Workload	2.16	0.85	2.15	.078	2.50	0.79	2.56	0.86	2.793	0.042*
Uncertainty concerning treatment	1.91	0.75	1.67	0.89	2.23	0.87	2.23	0.90	5.140	0.002***
Patients and their families	1.84	.074	1.96	0.69	2.15	0.94	2.15	0.71	1.203	0.310
Discrimination	1.10	.054	1.02	0.95	1.28	1.16	1.42	1.12	1.073	0.362
Total SCALE	1.88	0.66	1.82	0.67	2.13	0.79	2.22	0.64	2.797	0.042*

Note. For all subscales and the total scale, df = 3.

* p < 0.05, ** p < 0.01, *** p < 0.001

A second ANOVA, which excluded the variable ‘others’, is presented in Table 4J. This confirms the results obtained the first time, showing there were statistically significant differences in the subscales ‘conflict with the physicians’, ‘problems relating to peers’, ‘workload’, ‘uncertainty with treatments’ and total ENSS. However, in each subscale and the total ENSS, Filipino participants obtained significantly higher means than participants from SA and India.

Table 4J: Comparison of the Expanded Nursing Stress Scale and individual nationalities (Saudi Arabia, Indian and Filipino) of the participants in this research study

Subscale variable	Nationality – Mean (SD)						F	P
	SA (n = 26)		Indian (n = 76)		Filipino (n = 58)			
	Mean	SD	Mean	SD	Mean	SD		
Death and dying	1.94	0.76	2.06	0.70	2.08	0.88	0.317	0.729
Conflict with physicians	1.82	0.87	1.72	0.84	2.21	0.87	5.729	0.004***
Inadequate emotional preparation	1.83	0.66	2.03	0.81	2.01	0.84	0.620	0.539
Problems relating to peers	1.76	0.54	1.50	0.89	1.86	0.73	3.663	0.028*
Problems relating to supervisors	1.98	0.92	1.79	1.00	2.17	1.07	2.349	0.099
Workload	2.16	0.85	2.15	0.78	2.50	0.79	3.538	0.031*
Uncertainty concerning treatment	1.91	0.75	1.67	0.89	2.23	0.87	6.992	0.001***
Patients and their families	1.84	0.74	1.96	0.69	2.15	0.94	1.619	0.201
Discrimination	1.10	0.54	1.02	0.95	1.28	1.16	1.149	0.320
Total SCALE	1.88	0.66	1.82	0.67	2.13	0.79	3.306	0.039*

Note. For all subscales and the total scale, df = 2.

* p < 0.05, ** p < 0.01, *** p < 0.001

There were statistically significant differences in the academic nursing qualification and total ENSS score, and also in a few subscales. Table 5J shows that these differences manifested in the ‘conflict with physicians’, ‘problems relating to peers’, ‘workload’ and ‘uncertainty concerning treatment’ subscales. In all subscales, a higher level of workplace stress was described by participants with a BSN than by participants with a Diploma in Nursing.

Table 5J: Comparison of the Expanded Nursing Stress Scale and academic nursing qualification among the participants in this research study

Subscale variable	Academic nursing qualification				T	P
	Diploma in Nursing		BSN			
	(n = 73, 42.4%)		(n = 99, 57.6)			
	Mean	SD	Mean	SD		
Death and dying	2.04	0.71	2.10	0.82	-0.511	0.610
Conflict with physicians	1.74	0.90	2.05	0.83	-2.329	0.021*
Inadequate emotional preparation	1.95	0.76	2.06	0.85	-0.890	0.375
Problems relating to peers	1.53	0.84	1.80	0.78	-2.162	0.032*
Problems relating to supervisors	1.84	1.03	2.11	0.99	-1.744	0.083
Workload	2.14	0.75	2.41	0.83	-2.237	0.027*
Uncertainty concerning treatment	1.68	0.86	2.12	0.88	-3.233	0.001***
Patients and their families	1.94	0.71	2.08	0.85	-1.161	0.247
Discrimination	1.07	0.93	1.20	1.04	-0.820	0.413
Total SCALE	1.82	0.67	2.06	0.74	-2.186	0.030*

Note. For all subscales and the total scale, df = 170.

* p < 0.05, ** p < 0.01, *** p < 0.001

The ANOVA output shown in Table 6J shows the ENSS means for each subscale and the total ENSS score for years of PICU work experience in SA without previous PICU work experience outside of SA. Table 6J shows no significant difference in ENSS subscales or in the total ENSS score in relation to years of PICU work experience in SA.

However, while participants with 0–10 years of PICU work experience had a total ENSS mean of 1.95 ± 0.71 , participants with 11–20 years of PICU work experience had a total ENSS mean of 2.09 ± 0.79 , which makes them the group showing the highest level of workplace stress. Both these groups showed that ‘workload’ was the most stressful area in the PICU work setting (2.28 ± 0.80 and 2.45 ± 0.89 , respectively). In contrast, participants with 21–30 years of PICU work experience had a total ENSS mean of 1.52 ± 0.64 and said they could manage their workloads very well (1.64 ± 0.57). Surprisingly, the ‘inadequate emotional preparation’ subscale indicated the most stressful area for this group (1.83 ± 0.69). Notably, the sample for this third category was small ($n = 3, 3.3\%$).

Table 6J: Comparison of the Expanded Nursing Stress Scale with years of paediatric intensive care units work experience in Saudi Arabia for the participants with no previous paediatric intensive care units work experience outside Saudi Arabia

Subscale variable	Years of PICU work experience – Mean (SD)						F	P
	Participants with no previous PICU work experience in any country other than SA							
	0-10 years		11-20 years		21-30 years			
	Mean	SD	Mean	SD	Mean	SD		
Death and dying	2.03	0.74	2.35	0.87	1.54	0.63	2.99	0.053
Conflict with physicians	1.89	0.87	2.07	0.91	1.65	0.57	0.67	0.511
Inadequate emotional preparation	2.00	0.82	2.10	0.85	1.83	0.69	0.26	0.771
Problems relating to peers	1.69	0.78	1.75	0.97	1.21	0.55	0.78	0.461
Problems relating to supervisors	1.98	0.99	2.12	1.12	1.64	1.22	0.47	0.629
Workload	2.28	0.80	2.45	0.89	1.64	0.57	1.85	0.161
Uncertainty concerning treatment	1.93	0.89	2.02	0.97	1.42	0.68	0.78	0.460
Patients and their families	2.00	0.78	2.13	0.88	1.81	0.79	0.41	0.667
Discrimination	1.17	1.00	1.14	1.01	0.42	0.32	1.12	0.330
Total SCALE	1.95	0.71	2.09	0.79	1.52	0.64	1.21	0.300

Note. For all subscales and the total scale, $df = 2$.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7J shows a statistically significant relationship between some ENSS subscales and the years of PICU work experience; the subscales indicated here include ‘conflict with physicians’, ‘problems relating to peers’ and ‘uncertainty concerning treatment’. No other significant differences were found in the other subscales or in the total ENSS score. However, participants who had previous PICU work experience outside of SA showed an interesting pattern: those with more experience outside SA (11–20 years) tended to score higher on all ENSS subscales. However, this group was small (n = 6).

Table 7J: Comparison of the Expanded Nursing Stress Scale and years of paediatric intensive care units work experience in Saudi Arabia for the participants with previous paediatric intensive care units work experience outside of Saudi Arabia

Subscale variable	Years of PICU work experience – Mean (SD)						F	P
	Participants with previous PICU work experience in a country other than SA							
	None		0-10 years		11-20 years			
	Mean	SD	Mean	SD	Mean	SD		
Death and dying	2.14	0.79	1.96	0.75	2.50	0.75	2.012	0.137
Conflict with physicians	2.07	0.85	1.71	0.85	2.20	1.07	3.998	0.020*
Inadequate emotional preparation	2.06	0.74	1.92	0.90	2.44	0.78	1.526	0.220
Problems relating to peers	1.77	0.71	1.52	0.86	2.39	1.13	4.434	0.013**
Problems relating to supervisors	2.12	0.99	1.81	1.00	2.24	1.26	2.167	0.118
Workload	2.37	0.80	2.18	0.84	2.54	0.48	1.503	0.225
Uncertainty concerning treatment	2.12	0.82	1.71	0.92	1.96	1.23	4.358	0.014**
Patients and their families	2.07	0.81	1.95	0.78	2.10	0.85	0.490	0.614
Discrimination	1.18	0.94	1.03	0.99	2.00	1.37	2.855	0.060
Total SCALE	2.06	0.70	1.82	0.71	2.27	0.86	2.992	0.053

Note. For all subscales and the total scale, df = 2.

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 8J shows that although the statistical difference between the total years of PICU work experience subscale and all other subscales is non-significant, there is an interesting pattern regarding total years of PICU work experience. The participants who had a total of 21–30 PICU work experience years showed the lowest mean for the total ENSS score 1.71 ± 0.81 , and this observation was also true for all the ENSS subscales

variables. The only subscale that was slightly higher than other groups was the ‘inadequate emotional preparation’ subscale at 2.13 ± 0.80 .

Participants with less than 10 years of PICU work experience or with 11–20 years of PICU work experience showed similar responses on the total ENSS score and on all other subscales’ variables. However, the participants with 11–20 years of PICU work experience showed slightly higher total ENSS means than the other two groups, with 1.98 ± 0.77 .

In addition, the participants with 11–20 years of PICU work experience had slightly higher means on some subscale variables, namely, ‘death and dying’, ‘problems relating to peers’, ‘workload’, ‘patients and their families’ and ‘discrimination’, than participants with fewer than 11 years or those with more than 20 years of PICU work experience. However, participants with fewer than 11 years of PICU work experience had slightly higher means in the subscales ‘conflict with physicians’, ‘problems relating to supervisors’ and ‘uncertainty concerning treatment’ than the other two groups.

Table 8J: Comparison of the Expanded Nursing Stress Scale and total years of paediatric intensive care units work experience in Saudi Arabia for the participants together with previous paediatric intensive care units work experience outside of Saudi Arabia

Subscale variable	Years of PICU work experience – Mean (SD)						F	P
	Participants’ total years of PICU work experience, both in SA and outside SA							
	0-10 years		11-20 years		21-30 years			
	Mean	SD	Mean	SD	Mean	SD		
Death and dying	2.04	0.72	2.17	0.83	1.64	0.76	1.911	0.151
Conflict with physicians	1.94	0.85	1.92	0.91	1.65	0.91	0.410	0.664
Inadequate emotional preparation	2.02	0.75	1.98	0.92	2.13	0.80	0.113	0.893
Problems relating to peers	1.68	0.68	1.70	0.96	1.63	1.08	0.038	0.963
Problems relating to supervisors	2.04	0.97	1.95	1.07	1.77	1.17	0.362	0.697
Workload	2.29	0.77	2.34	0.88	2.00	0.68	0.652	0.522
Uncertainty concerning treatment	2.01	0.84	1.87	0.98	1.61	0.94	1.018	0.364
Patients and their families	1.98	0.80	2.11	0.77	1.69	0.87	1.270	0.284
Discrimination	1.14	0.95	1.16	1.05	1.04	1.13	0.052	0.949
Total SCALE	1.97	0.68	1.98	0.77	1.71	0.81	0.522	0.594

Note. For all subscales and the total scale, $df = 2$.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The second section of this analysis is presented below and presents the differences between variables for levels of workplace stress and participants' personal characteristics.

Differences between levels of workplace stress and participants' personal characteristics

The participants were divided into three levels of workplace stress (low, medium and high), and these groups were compared using the same participants' personal characteristics variables (demographic profile and employment background characteristics) as detailed in the previous section (i.e. gender, nationality, academic nursing qualification, and years of PICU work experience inside SA and, previously, outside SA). Because all variables were categorical, a chi-squared test was used. The following tables present the results obtained for each of these tests.

The participant's gender distribution is shown in Table 9J. There was a statistically significant difference in the levels of workplace stress distribution by gender; interestingly, most of the male participants were suffering from high level of workplace stress, whereas the largest group of female participants showed low level of workplace stress.

Table 9J: Comparison of levels of workplace stress and gender among the participants in this research study

Gender	Levels of workplace stress						Statistical test		
	Low		Medium		High		χ^2	Df	P
	n	%	n	%	n	%			
Male	0	0.0%	1	14.3%	6	85.7%	9.346	2	0.009***
Female	60	36.4%	54	32.7%	51	30.9%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

* p < 0.05, ** p < 0.01, *** p < 0.001

The participants' nationality distribution is shown in Table 10J. There was no statistical difference in the levels of workplace stress distribution by nationality (SA/expatriates), although there was a higher proportion of highly stressed expatriates among the aggregated participants. Half of the participants from SA experienced only low level of workplace stress. Looking at the two largest expatriate nationalities (Indian and Filipino), most Indian participants had low level of workplace stress, while most Filipino participants suffered from high level of workplace stress.

Table 10J: Comparison of levels of workplace stress and nationality (Saudi Arabia/expatriate) among the participants in this research study

Nationality	Levels of workplace stress						Statistical test		
	Low		Medium		High		χ^2	Df	P
	n	%	n	%	n	%			
SA	13	50.0%	6	23.1%	7	26.9%	3.122	2	0.210
Expatriates	47	32.2%	49	33.6%	50	34.2%			
Indian	30	39.5%	28	36.8%	18	23.7%			
Filipino	16	27.6%	17	29.3%	25	43.1%			
Malaysian	1	100%	0	0.0%	0	0.0%			
Egyptian	0	0.0%	2	100%	0	0.0%			
Jordanian	0	0.0%	0	0.0%	7	100%			
Pakistani	0	0.0%	2	100%	0	0.0%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

¹The test compared participants from SA with the aggregate variable ‘Expatriates’.

* p < 0.05, ** p < 0.01, *** p < 0.001

Regarding the testing of each individual nationality for its average level of workplace stress, the number of expatriate participants in the ‘other’ nationalities was so low that no test would be statistically significant. Even nonparametric tests, such as a chi-squared test, can fail when there are categories with only one or two subjects (as would be the case with Malaysians, Egyptians and Pakistanis). It was safer to use the ‘expatriates’ aggregate variable. However, the following tables show individual nationalities tested in two different ways (Tables 11J and 12J).

The first analysis considered the association between the variables levels of workplace stress and nationality, once again the option ‘others’ was used, which combined nationalities whose representation was too low to be included individually. This included (n = 1), Egyptian (n = 2), Jordanian (n = 7), and Pakistani (n = 2) participants together (see Table 11J). The chi-square test showed that there was an association between nationality and levels of workplace stress ($\chi^2 = 13.204$, $P = 0.040$), which seemed to contradict the results shown in Table 10J.

Table 11J: Comparison of levels of workplace stress and individual nationalities among the participants in this research study

Nationality	Levels of workplace stress						χ^2	df	P
	Low		Medium		High				
	n	%	n	%	n	%			
SA	13	50.0%	6	23.1%	7	26.9%	13.204	6	0.040*
Indian	30	39.5%	28	36.8%	18	23.7%			
Filipino	16	27.6%	17	29.3%	25	43.1%			
Other	1	8.3%	4	33.3%	7	58.3%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

* p < 0.05, ** p < 0.01, *** p < 0.001

Considering this apparent contradiction, the researcher raised the possibility that the variable ‘others’, as was seen before, distorts the results due to its particular configuration. Therefore, the test was repeated, and the following table presents the results once the variable ‘others’ was excluded.

Once the ‘others’ variable was excluded, the chi-square test confirmed once again that there was no statistical significant association between nationality and level of workplace stress ($\chi^2 = 8.206$, $P = 0.084$) in table 12J. The reason for this was the strong association between the variable ‘others’ and the levels of workplace stress, which suggested a spurious pattern of association between nationality and levels of workplace stress.

Table 12J: Comparison of levels of workplace stress and nationality (Saudi Arabia, Indian, Filipino) among the participants in this research study

Nationality	Levels of workplace stress						χ^2	df	P
	Low		Medium		High				
	n	%	n	%	n	%			
SA	13	50.0%	6	23.1%	7	26.9%	8.206	4	0.084
Indian	30	39.5%	28	36.8%	18	23.7%			
Filipino	16	27.6%	17	29.3%	25	43.1%			
Overall sample	59	36.9%	51	31.9%	50	31.3%			

* p < 0.05, ** p < 0.01, *** p < 0.001

For greater clarity, the researcher has illustrated these associations in Figure 1J below; although some trends are apparent there does not seem to be a clear association between the variables. However, when the option ‘others’ is added, as shown in Figure 2J, an apparent association arises, by which being either Filipino or of ‘others’ nationality is associated with a high level of workplace stress, while being an Indian or SA participant is associated with a low level of workplace stress. Given that the inclusion of ‘others’ does not provide additional value to the analysis and generates a distortion in the data, it seemed prudent to eliminate participants from the nationalities labelled ‘others’ from this analysis.

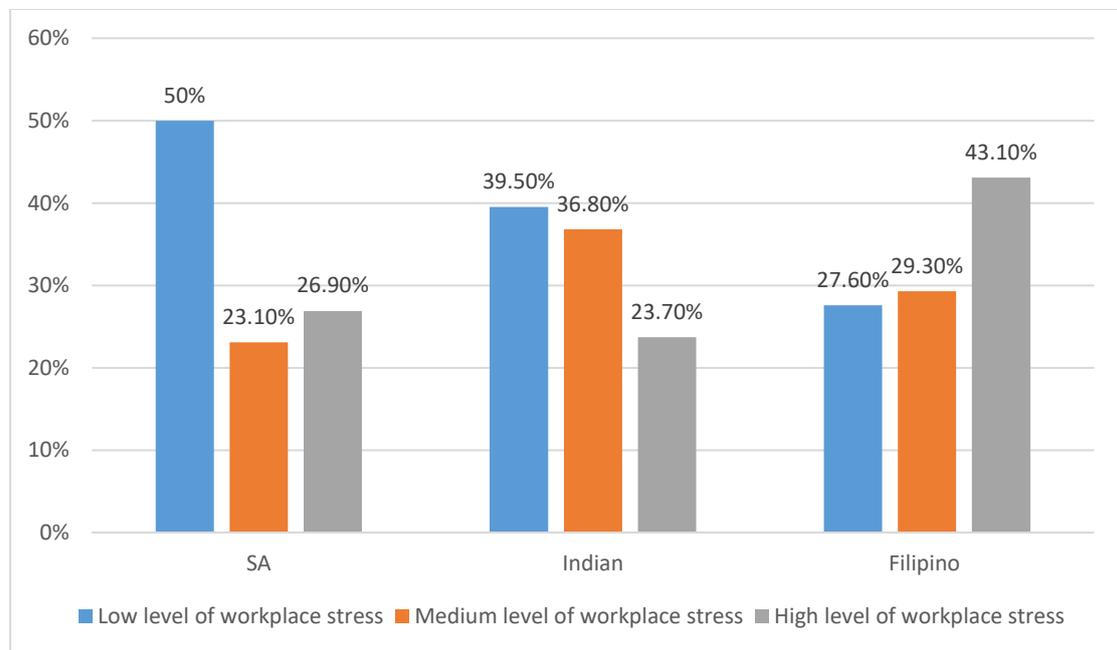


Figure 1J: Distribution of the variables of nationality and levels of workplace stress, without the category ‘others’ among the participants in this research study

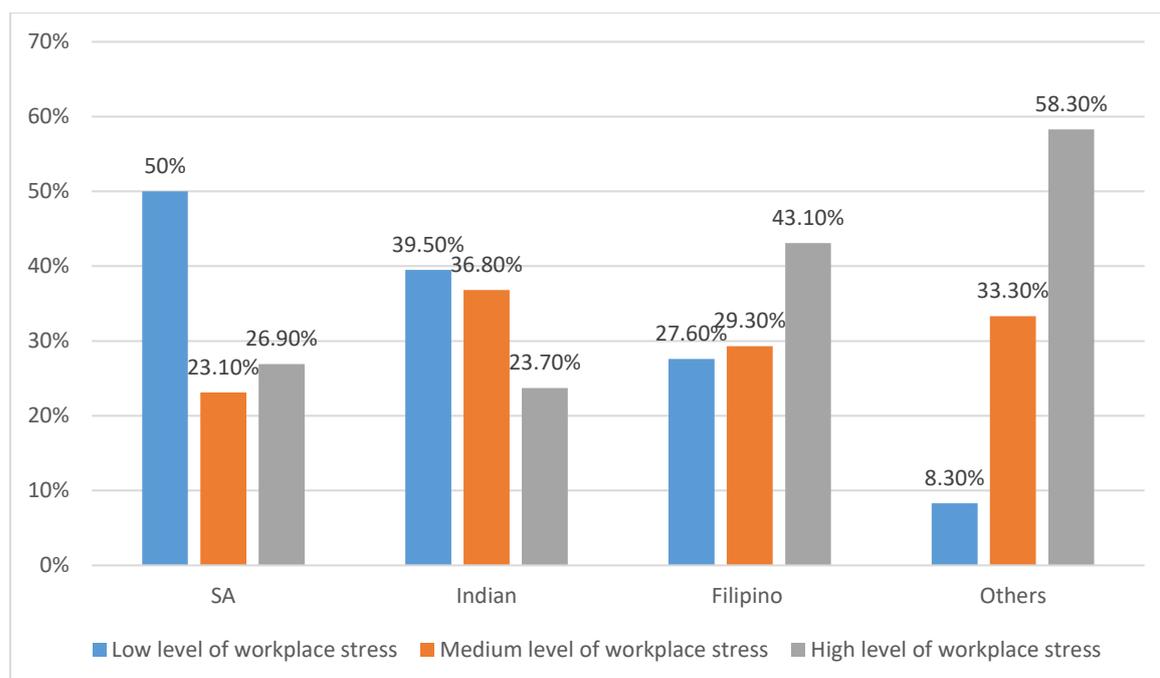


Figure 2J: Distribution of the variables of nationality and levels of workplace stress, including the category ‘others’ among the participants in this research study

The participants’ academic nursing qualification distribution is shown in Table 13J. Statistically significant differences were observed related to the participants’ academic nursing qualifications. Counter-intuitively, a higher proportion of participants with a BSN had high level of workplace stress. Of participants with a Diploma in Nursing, the highest proportion had medium level of workplace stress.

Table 13J: Comparison of levels of workplace stress and academic nursing qualifications among the participants in this research study

Academic nursing qualification	Level of workplace stress						Statistical test		
	Low		Medium		High		χ^2	df	P
	n	%	n	%	n	%			
Diploma in Nursing	27	37.0%	31	42.5%	15	20.5%	10.592	2	0.005***
BSN	33	33.3%	24	24.2%	42	42.5%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

* p < 0.05, ** p < 0.01, *** p < 0.001

Tables 14J, 15J and 16J show comparisons of the levels of workplace stress in relation to years of PICU work experience. There was no statistically significant difference between the levels of workplace stress and the years of PICU work experience in all three categories in these three tables. All tables show that participants had low levels of

workplace stress; however, tables 14J and 16J show that the participants had low level of workplace stress during their first 10 years of PICU work experience. After this time, the level of workplace stress became medium to high for participants with 11–20 years; after that, the level of workplace stress returned to the previous low level. In Table 15J, participants who had fewer than 10 years of previous PICU work experience outside of SA showed low level of workplace stress.

Table 14J: Comparison of levels of workplace stress levels and years of paediatric intensive care units work experience in Saudi Arabia among the participants with no previous paediatric intensive care units work experience outside of Saudi Arabia

Years in PICU for participants with no previous PICU work experience outside of SA	Levels of workplace stress						Statistical test		
	Low		Medium		High		χ^2	df	P
	n	%	n	%	n	%			
0-10 years	50	35.7%	44	31.4%	46	32.9%	0.945	4	0.918
11-20 years	8	28.6%	10	35.7%	10	35.7%			
21-30 years	2	50.0%	1	25.0%	1	25.0%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 15J: Comparison of levels of workplace stress and years of paediatric intensive care units work experience in Saudi Arabia among the participants with previous paediatric intensive care units work experience outside of Saudi Arabia

Years in PICU for participants' with previous PICU work experience in a country other than SA	Levels of workplace stress						Statistical test		
	Low		Medium		High		χ^2	df	P
	n	%	n	%	n	%			
None	28	30.8%	29	31.9%	34	37.4%	3.644	4	0.456
0-10 years	31	41.3%	23	30.7%	21	28.0%			
11-20 years	1	16.7%	3	50.0%	2	33.3%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 16J: Comparison of levels of workplace stress and total years of paediatric intensive care units work experience among the participants in this research study

Total years of PICU work experience, both inside SA and previously outside SA	Levels of workplace stress						Statistical test		
	Low		Medium		High		χ^2	df	P
	n	%	n	%	n	%			
0-10 years	36	36.7%	30	30.6%	32	32.7%	1.591	4	0.810
11-20 years	20	30.3%	23	34.8%	23	34.8%			
21-30 years	4	50.0%	2	25.0%	2	25.0%			
Overall sample	60	34.9%	55	32.0%	57	33.1%			

* p < 0.05, ** p < 0.01, *** p < 0.001

Correlation matrix

Lastly, this appendix describes the results of the correlation matrix. Table 17J presents correlation matrix results that illustrate the relationship between the ENSS subscales and the results at the two-tailed $p < 0.01$, and $p < 0.05$ significance levels. Any correlation above 0.9 would strongly suggest the presence of multicollinearity (Hair et al., 2014). This matrix illustrates the strongest correlations among the ENSS subscales. Especially noteworthy is the high correlation between the subscales ‘conflict relating to physicians’ and ‘uncertainty concerning treatment’ ($r = 0.846$, $p < 0.01$). Although this value does not reach the cut-off threshold of 0.9, it does raise some concerns regarding the independence of both variables. In contrast, the subscales ‘inadequate emotional preparation’ and ‘problems relating to supervisors’ present the lowest correlation ($r = 0.390$, $p < 0.01$). In fact, the ‘inadequate emotional preparation’ dimension shows the fewest correlations with all other subscales and with the total ENSS score.

Table 17J: Factor correlation matrix among Expanded Nursing Stress Scale subscales

Subscale variable	1	2	3	4	5	6	7	8	9
Death and dying	1								
Conflict with physicians	0.666**	1							
Inadequate emotional preparation	0.604**	0.549**	1						
Problems relating to peers	0.517**	0.665**	0.599**	1					
Problems relating to supervisors	0.597**	0.717**	0.390**	0.650**	1				
Workload	0.621**	0.714**	0.530**	0.628**	0.730**	1			
Uncertainty concerning treatment	0.707**	0.846**	0.628**	0.675**	0.696**	0.758**	1		
Patients and their families	0.727**	0.735**	0.615**	0.613**	0.631**	0.690**	0.764**	1	
Discrimination	0.518**	0.638**	0.453**	0.709**	0.633**	0.569**	0.637**	0.619**	1
Total SCALE	0.802**	0.882**	0.681**	0.795**	0.838**	0.864**	0.916**	0.864**	0.751**

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Secondly, to identify any multicollinearity issue between the participants' personal characteristics (demographic profile and employment background), a Pearson correlation matrix was calculated that illustrates the relationship between all the predictor variables (demographic profile and employment background characteristics). Since the variables are mostly ordinal and the nominal variables (such as nationality) are dummy-coded, an analysis of the two-tailed ($p < 0.01$ and $p < 0.05$) significance levels was done. Table 18J shows that all the correlations are below 0.9, which does not indicate any multicollinearity issue for the participants' personal characteristics, specifically including the variables for demographic profile and employment background characteristics.

Table 18J: Correlation matrix using demographic profile and employment background characteristics variables among the participants in this research study

Demographic profile and employment background characteristics	1	2	3	4	5	6	7
Gender	1						
Academic nursing Qualification	-0.177*	1					
Years of PICU work: experience in SA	-0.047	-0.251**	1				
Years of PICU work: previous experience outside SA	-0.046	-0.256**	0.074	1			
SA nationality	0.005	-0.130	-0.327**	-0.296**	1		
Indian nationality	0.183*	-0.515**	0.188*	0.441**	-0.375**	1	
Filipino nationality	0.147	0.563**	0.040	-0.265**	-0.301**	-0.635**	1

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).