Exploring How NICU Nurses in Oman Experience and Understand Neonatal Pain and Its Management

2019

Thesis submitted for the degree Doctor of Philosophy

Nasiha Marhoon Al-Braiki

C1253293

School of Healthcare Sciences

Cardiff University

Dedication

My thesis is dedicated to my children Saam and Asir.

Saam has been always by my side and has helped to look after his brother when I am away. To Asir, who has had lots of struggle throughout the PhD period. His sickness has not been only a great lesson for me to be resilient, patient and motivated, but has also shaped me to be a different person who should never give up. To my best mum in the world who has been always there with her prayers and encouragement, love and belief in me.

Acknowledgements

My sincerest thanks go to all the parents for their support and trust, and to all the healthcare professionals (ward nurses, and consultants) who gave their continuous support and time to follow-up the progress of my study. Without their generosity this study would not have been possible and I will never forget the kindness and warmth of all the participants. My special thanks go to Ms. Nima Al-Amri for being always their whenever I needed her support.

I am very grateful to my supervisors Prof. Billie Hunter and Dr Dikaios Sakellariou for their guidance, encouragement, compassion, support and belief in me is what kept me going and have given me much needed strength to keep me going. My deepest thanks to you both.

I am forever thankful to Dr Katie Featherstone who stood by my side while I experienced the highs and lows of the PhD process in the first three years, and for her empathy, compassion, and persistent support. Thank you for being always there.

Warm thanks are also extended to Dr Aled Jones for his outstanding insight throughout all the panel reviews. My thanks to my brilliant colleague Dr Ada Bonina who has offered her constant advice, support towards the end.

All my thanks for Prof. Peter Godwith for his continuous support in sharing his valuable thoughts and being always there to answer my questions. Finally, a sincere and grateful thank you to my lovely family for their prayers, constant love, support and keeping me grounded, especially my mum, and husband.

Last, but not least, I would like to acknowledge my PhD colleagues in Cardiff University for their help and support, especially Ahmed Al-Ghamdi, Dawood, Laura Goodwins for sharing her work to guide me to the right way.

Abstract

Minimising infant pain has become a significant concern worldwide. However, in Oman neonatal pain management strategies and protocols vary considerably among neonatal healthcare professionals and between neonatal intensive care units (NICUs), and they are not evidence based (EB). Moreover, there are no neonatal pain assessment tools to help staff detect and learn how to manage pain. The guidelines of care in Oman are frequently outdated, and not standardised. Moreover, they tend to be irrelevant to neonates, particularly for neonatal pain management because they are focused on the needs of adult patients.

This study used an ethnographic approach to explore how nurses' approach and interact with babies being cared for in a NICU in Oman, with a particular focus on pain. There have been very few qualitative studies of NICU nursing that have focused on neonatal pain.

An ethnographic approach enabled me to explore how organisational culture informs the management of neonatal pain; for example, how pain was perceived, assessed, and managed by nurses, the barriers or challenges the nursing staff face from implementing appropriate strategies, and the impact of NICU environment on how nurses interact with babies.

The study's primary aim was to explore the experiences and understanding of neonatal pain and its management among the nurses caring for babies who have been admitted to the NICU in 'Hope' Hospital in Oman. Data collection took place over four months. A range of qualitative data collection (observation and interviews) methods was used to answer the research questions.

Following a period of 6 weeks general observation of nurses' work in NICU, semistructured interviews were conducted with a purposive sample of 16 Omani and non-Omani neonatal nurses until data saturation was reached. The sample included nurses with different levels of training to explore whether, how and why nurses differ in their behaviours, approaches and beliefs regarding pain and pain management.

Four themes emerged from the data analysis, 'the inconsistency of pain practice', 'the NICU environment', 'the nursing culture' and 'complexity of organisational culture'. In the first theme 'the inconsistency of pain practice', the nurses described neonatal pain management in the unit as varied and inconsistent. The lack of resources, non-acceptance of EB practice, and lack of involving nurses in decision making of patients' care were major concerns to nurses and hindered their care for the babies. The babies' centrality was not visible and was not a priority in the unit's daily routines, which indicates that patient-centred care (PCC) was not applied. The participants reported hierarchical issues, doctors who dominated the nurses, nurses having

no clinical autonomy, care based on the healthcare provider's clinical judgement, no evidence-based practice, and no consistency of care due to limited neonatal pain guidelines.

The second theme showed that the NICU environment has particular environmental stressors (crowded, busy, noisy, and excessive handling) that create major challenges for the nursing staff in their practice and interaction with the babies. Most nurses reported that these stressors affect the babies' development and cause the nurses stress.

The third and fourth themes show how the nurses reacted to the unit's policy, nurse–doctor relationship, and the impact on nursing confidence and autonomy. The lack of training, years of experience and the doctors' dominance contributed to the nurses' lack of professional autonomy, lack of confidence, and lack of ownership. Although the nurses in the interviews were knowledgeable about pain and its management, the nurses showed that their actions were not consistent with their knowledge. The organisational culture had an impact on the nurses' performance and it was unhealthy, blaming and unsupportive. The participants were overwhelmed, depressed and unsatisfied. The lack of training was a major concern.

The findings suggest some areas of improvement to implement PCC. The work environment in the NICU should create a friendly and supportive climate for the nurses to ensure safety and achieve optimal outcomes for babies and their families. The patient care culture has to change from task orientation to PCC and a trusting relationship should be built between the nurses and the baby's families. The hospital organisation has to make PCC a priority by putting the babies and their families first, involve the families in the decision-making process of their own baby's care and help the nurses provide individualised care to patients and improve their own quality of life. Emotional support services should meet the nurses' and families' emotional well-being. To create a culture of PCC, the hospital should reject any behaviours that do not put the patients first. Neonatal pain training and education was found to be of great importance for the implementation of PCC. EB pain policies and guidelines, and job descriptions should be developed and evaluated periodically to ensure consistency of practice and maintain patient-centredness. This thesis emphases the importance of a person-centred approach in neonatal pain management.

Glossary

Expatriate or non-nationals: An expatriate is defined as any person living in Oman who is not a citizen of Sultanate of Oman.

Omanisation: is a process launched in 1988 by the government of Oman that aims to provide various opportunities to increase participation of Omani labour in Oman's economy and to reduce dependence on expatriate labour for self-reliance (Oman Information Centre 2018).

Willayat: are the administrative districts in Oman. There are 60 willayats in the Sultanate (Department of Health information and Statistics 2017, p.3).

Health centre: "A health centre provides primary healthcare to the people in the surrounding catchment area" (Department of Health information and Statistics 2017, p.3).

Extended Health Centre: "A health centre that provides primary healthcare services and in addition there are some specialised outpatient clinics in different specialties. They serve the people in the catchment area. They do not have inpatient services" (Department of Health information and Statistics 2017, p.3).

Regional Hospital: "A hospital that provides secondary and tertiary care to inhabitants of the health region in which it is located. It is usually built in the centre of a health region and is considered as a referral hospital for critical cases from other hospitals and health centres of the health region. Regional hospitals of the Muscat Governorate act as national referral hospitals for critical cases from other regional hospitals" (MOH 2014, p.2).

Abbreviations

ARI Acute Respiratory Infection

BFHI Baby Friendly Hospital Initiative

CCP Child Care Plan.

CDD Control of Diarrhoeal Disease.

CSGs Community Support Groups

DGHS Directorate General Health Services.

DGs Director Generals

DNMA Directorate of Nursing and Midwifery Affair

EMRO East Mediterranean Regional

EPI Expanded Program of Immunisation

HRD Human Resource Development

ICU Intensive Care Unit.

IHS Institute of Health Sciences

IMCI Integrated Management of Childhood illness.

IUGR Intrauterine Growth Retardation

LBW Low Birth Weight

MCH Maternal Child Health

MOH Ministry of Health

NICU Neonatal Intensive Care Unit.

NMCH National Maternal Child Health

NWCCP National Women and Child Care Plan.

ONC Oman Nursing Council

ONI Oman Nursing Institute

ONMC Oman Nursing and Midwifery Council

OSNI Oman Specialised Nursing Institute.

OSNI Oman Specialised Nursing Institute

PEM Protein Energy Malnutrition

SGA Small for Gestational Age

SQU Sultan Qaboos University

SQUH Sultan Qaboos University Hospital

UNFPA Fund for Population activities

UNICEF United Nations International Children's Fund

UNs United Nations

WHO World Health Organisation

Table of Content

Chapter 1: Introduction

This chapter introduces the main focus of the thesis, namely the exploration of the experiences and understandings of neonatal intensive care nurses about neonatal pain and its management in Oman from an ethnographic perspective. It outlines each chapter and reveals the main findings of this thesis. Throughout this thesis, the research hospital will be referred to as Hope Hospital to maintain confidentiality and anonymity. The researcher will refer to herself by the first person throughout the thesis.

Oman's healthcare system has gone through rapid changes during the past 46 years, signified by the speedy reduction in mortality rate particularly childhood mortality, and the control of communicable diseases (WHO 2000). As a result, the life span in the population in Oman has increased from only 49 years in 1970 to 74 years in 2007 (WHO 2000).

In a study covering 191 countries in 2000, the World Health Organisation (WHO) ranked Oman as first in the world for its highly efficient health system and for the effective and competent utilisation of the available financial resources in health services. Oman was also rated eighth for providing the most comprehensive healthcare at a global level (WHO 2000). Despite the great successes that the healthcare system in Oman has achieved in child health and in controlling the communicable diseases, neonatal pain management is an area that still needs improvement.

Historically, there are concerns that pain is often unrecognised and undertreated in neonates (Akuma and Jordan 2011). Although clinicians' attitudes to neonatal pain and analgesia have changed over the last decade (Purcell-Jones et al. 1988), pain management in neonates can be very challenging due to their vulnerability and inability to verbalise their pain. However, nurses are in a key position to contribute to successful pain management, although there is literature that discuss nurses' lack of knowledge about pain and pain management.

Because Person-Centred Care (PCC) is going to be integrated throughout the thesis, the following section will explore the need for PCC in a Neonatal Intensive Care Unit (NICU) to give a background to this concept.

1.1. The need for PCC in a NICU

According to Boykova and Kenner (2015), for over 30 years the NICU's routine schedules for assessment and management, and medical rounds are commonly centred on the hospital and healthcare providers' (HCPs') needs rather the needs of the baby or family.

Moreover, the NICU environment is highly technological (Lindsay et al. 2012) and the nature of NICU environment is highly stressful. This puts nurses under great pressure, which may negatively affect their communication and interaction with the babies and their parents in NICU. The nurses in intensive care units are regularly exposed to huge demands in terms of fulfilling various roles (Matlakala et al. 2014). For optimum neonatal care, it is essential to keep care for the small vulnerable babies centred through the person-centred care.

1.2 Background of PCC

Although PCC has a long history in the field of healthcare and there has been an increasing literature on PCC (Leplege et al. 2007), there is less evidence that it is widely practiced (Britten et al. 2016). In an extensive search, I found no definition of PCC, although various terms used to describe it such as PCC, patient-centredness, or family centred.

Petty (2016) states that PCC means that the patient is at the centre of nursing care using a humanistic approach that involves compassion, empathy and respecting the patient's needs. PCC is not just about meeting patient's needs, it is about respecting patient's desires, values, family needs, and emotional needs for achieving holistic approach, seeing the person as an individual, and working together as a partner with HCPs to get better outcomes (Lewis 2009). However, there are few studies that have focused on patient's outcomes.

1.3 Why is PCC important?

McMillan et al. (2013), and Mead and Bower (2002) found that PCC can have a great impact on the quality of care, as it improves the people's experiences and improve satisfaction. Putting people at the centre of care make them value the services they have and encourage them to be more involved in decisions about their care as the care is accessible. Moreover, with the increasing demands of health services putting HCPs under pressure, using PCC can help to reduce the burden on health services through collaboration and sharing responsibilities with patients and their families.

1.4 Implementation of PCC in NICU

Very little research has examined integration of PCC into a NICU. In particular, the term PCC is not well understood in NICU settings. If it is used it refers to family centred care, with the baby's needs considered within that context, rather focusing on the needs of the baby as a patient in their own right. Given what the literature review has shown about the current lack of understanding of neonatal pain in

NICUs, introducing PCC into NICUs might be an appropriate way to shift the focus onto the baby and their need.

1.5 Interest of the study

My initial interest of the topic area is derived from my prolonged clinical exposure and experiences in the field of neonatal nursing and as a neonatal lecturer. As part of my responsibility as a NICU nurse, seeing the babies' daily suffering has boosted my motivation to do something about it.

Babies are special and unique individuals that need special attention due to their vulnerability and their dependency on adults to meet their needs. Moreover, they have human rights and have to be treated equally with justice, like adults (United Nations General Assembly, the Universal Declaration of Human Rights 1948). As a result, parents, healthcare providers and the community as a whole have responsibilities and obligations to meet the best interests of these special individuals.

The approaches to pain management in Oman vary from one hospital to another. Moreover, the guidelines of care tend to be outdated, not standardised, not evidence-based (EB) and irrelevant to neonates, particularly for neonatal pain management. There is also a lack of neonatal pain training across the country, which adds to the complexity of providing pain-free care. In my clinical and professional experience, the Medical profession are at the top of the Ministry of Health hierarchy compared to nursing. Thereby, nursing practice is still dominated by the doctors and nurses suffer of lack of power

Neonates in NICU often go untreated or undertreated. They are repeatedly exposed to painful procedures that could induce various levels of pain, without adequate analgesia being given. This occurs due to the doctors' concern over the safety of using pharmacologic treatment, such as use of opioids (e.g. morphine and fentanyl). There are few studies in Oman or in Middle East countries that explore the healthcare providers' experiences and understanding of pain and its management in neonates.

1.6 Justification for the study

One of the justifications for conducting this study is to address the human rights of newborn babies, particularly in relation to pain management. Throughout my professional life, I have often been heard that children, particularly newborns (term/preterm-neonates) are incomplete adults. However, I do not share this view. Children or young people are different and unique individuals due to their dependence on adults to meet their needs. Their needs require special attention due to their vulnerability and dependence on adults. According to the Universal Declaration of Human Rights, the baby must have the basic human rights. For example, every baby is entitled to life and the best levels of health. Also, no one is entitled to put at risk the health or mental and/or physical integrity of the newborn (United Nations

General Assembly, 1948). This obligation must be respected without any racial, geographic, religious, cultural, sexual, social status or other kind of discrimination (United Nations General Assembly 1989). The baby deserves to get great attention, be advocated for and get the best care, such as pain management and being protected from irreversible harm which can occur from pain complication.

This professional view informed the choice of the topic of this current research. Failure to offer children the same rights as adults appears to be in conflict with their human rights. Children are human beings who deserve dignity and human rights (United Nations General Assembly 1989). Based on my clinical experience, the babies in a NICU are treated like an object and bombarded with painful procedures for several hours without considering their vulnerability. In addition, staff excuse their practice and actions by saying "it is for the best of interest of the babies". With the absence of a patient's charter that sets out the patients' rights, it is difficult to support the patient and their families to maintain their rights.

According to the United Nations General Assembly (1989, p. 1) "The child, by reason of his physical and mental immaturity, needs special safeguards and care". In this context, children represent a special case on account of their vulnerability and total dependence. This implies a series of responsibilities and obligations for parents, medical and nursing staff, institutions and society as a whole. The baby is a person and as such he/she is entitled to the full respect of his/her dignity. He/she is nevertheless a vulnerable citizen who has rights but no duties and who, for the recognition of his/her rights, depends totally on the attention and commitment of others. The awareness of the baby as a person and of their vulnerability and dependence constitutes the fundamental grounds for his/her rights to be recognised, protected and satisfied. Since ethical rights are a basic element to all the people, babies are as entitled to them as an adult. They have the right to be treated with dignity and equally, like adults. Moreover, the size difference between adults and children must be taken into account when caring for children and put the child's best interest first (United Nations General Assembly 1948).

Mama (2010, p.1) defines "children as human beings who deserve dignity and human rights". The United Nations General Assembly (1989) specifies that children have the right:

- To survival through adequate healthcare and the rights to non-discrimination from adults (Article 2).
- To have a safe environment to the best interests of the child (Article 3).
- The right to life, survival, and development (Articles 6 and 24).
- The right to be protected from maltreatment and neglect (Article 19) (United Nations General Assembly 1989).

There is an increasing interest in human rights and the best interests of children, particularly in providing proper management and reducing the suffering of babies (United Nations General Assembly 1948). So, it is highly important that all healthcare providers reflect on their daily practice to identify areas where patient's rights are important, taking into consideration their medical and nursing needs. It is also essential to identify the baby's vulnerability and try to provide EB intervention. The nurses play a key role as an advocate of babies because they are attending the baby's daily care. Nurses have to strive to reduce the distress and suffering of those babies and to make hospitalisation as safe an environment as possible (Hunt 2014).

This implies that neonatal rights should be at the centre of healthcare services and should be an obligation for all neonatal healthcare providers. Healthcare providers have great responsibility to play an important role in identifying any concern related to maltreatment and to take necessary action, to allow those vulnerable babies to grow and develop without physical complication in a safe environment (Hunt 2014).

NICU nurses are centrally placed to identify those babies at risk as they are more involved in caring for the babies and their families in the unit. For the nurses to be able to do that, they have to be educated about the physiology of newborns neonatal pain. It may be held that nurses require a deep education about the physiology of the newborn's neonatal pain. To understand the sensory and origin of pain in neonates, pain theory is required as a framework for their thinking.

The majority of studies have demonstrated that the inadequate knowledge of healthcare professionals in relation to pain in children and young people is a global concern. The studies that I have reviewed have identified the inadequacy of nurses' knowledge in relation to neonatal pain and the pivotal role of the nurse in pain assessment and management. The studies related to the management of pain reflect the need for more effective management of pain. So, gaps between knowledge and practice do exist (Stevens et al. 2003). This indicates that there is a need for qualitative research to explore in-depth why nurses lack knowledge in this area and what might prevent them from providing effective pain management. I will use an ethnographic approach which will enable me to observe the NICU to explore how nurses' approach and interact with babies. This study proposes to explore the gap between nurses' knowledge and practice of neonatal pain management. It will provide in-depth insights into the everyday world of nurses working in an Omani NICU. It will also throw a new light to look at the way in which the organisational culture influences the management of neonatal pain; for example, how pain is perceived, assessed, and managed by nurses, the barriers or challenges the staff face from implementing appropriate strategies, the impact of NICU environment on nurses in terms of interaction, and communication with babies.

As a result, utilisation of hospital resources is needed to meet patient's needs. This study will contribute to better pain management and may have some impact on the cost of delivery across the healthcare

system in Oman and ultimately quality of pain management is improved. Minimising neonatal pain has the potential to improve the immediate well-being of these vulnerable babies, as well as improving long-term physical and psychological outcomes. It may also draw the attention of the policy makers to see the importance of improving neonatal pain practices particularly to the work environment. It will also help to develop neonatal pain training courses for NICU nurses to improve their practice for high quality care and standardised guidelines across the country for consistency of care.

1.7 The structure of this thesis

Chapter 2 gives an overview of the historical perspective of the healthcare system in Oman since 1970. It will show that the new Vision of Sultan Qaboos bin Said Al Said of Omani people was the key to the country's development. This chapter also highlights the milestones of nursing in Oman. It will introduce the developments that occurred in nursing in particular to maternal and child health in Oman.

Chapter 3 discusses the availability of neonatal and maternal services, including the birth and mortality rate in infants, comparing it with other countries such as Middle East and Western countries. It then explains the link between model of care, and philosophy and Evidence-based practice (EBP).

Chapter 4 will present the literature review that discusses the articles pertaining to pain and its management. It particularly focuses on the nurses' knowledge and attitudes of pain, and its management. This will indicate why the nurses lack knowledge in this area and what might prevent them from providing effective pain management. This chapter begins with a historical review of neonatal pain and its management and physiology of pain, followed by the experiences and perception of NICU nurse about neonatal pain. Other themes will be discussed, such as NICU environment, impact of environment on babies and nursing staff, to elaborate how that can affect staff performance through providing a healthy environment with effective management.

Chapter 5 addresses the research strategy of the study and its methods. The rationale of choosing qualitative methodology as opposed to a quantitative research approach will be also discussed. Moreover, research design, sample size, data collection method and ethical issues are explained in this chapter.

The research findings (4 themes) will be presented in three chapters. Chapter 6 will describe theme one 'the inconsistency of pain practice in NICU'. It discusses how the doctor's practice varies from doctor to another doctor, the challenges the nurses face, and the factors that contributing to lack of pain management were also identified and described as an obstacle to delivering adequate pain care, such as absence of neonatal pain guidelines and lack of resources.

Chapter 7 will mainly focus on the NICU environment of Hope Hospital. The participants in this chapter describe how NICU environment is stressful and challenging and the negative influence of it on their practice and the babies.

In Chapter 8, two themes will be integrated as the 'the nursing culture and the complexity of the organisational culture'. The participants' feeling of powerless, doctors' dominance, and inconsistency of the application of EBP negatively influenced the nurses' professional autonomy in decision making and hindered them when providing proper pain management care in the NICU.

Chapter 9 discusses the results, in other words explores in-depth the four key themes in reference to literature and the role of the culture will be also critically discussed to explain how the culture of the healthcare in Oman contributes to the inconsistency of practice, and lack of interprofessional collaboration between doctors and nurses and how is that negatively affect the PCC.

Chapter 10 initially summarises the research aim, approach and the research questions. The research results (4 themes) will be briefly summarised, highlighting on the areas that needs attention. For example, to enhancing interprofessional collaboration between doctors and nurses, to improve the neonatal care in NICU, particularly neonatal pain management. The chapter addresses the strengths and limitations of the study, recommendation for practice and proposes areas for future research.

Chapter 2: The healthcare system in Oman

2.1 Introduction

The Sultanate of Oman evolved to become a modern country under the rule of His Majesty the Sultan, which began in 1970. Education and health became top priorities for the Sultan when he took the throne. The government of Oman is committed to providing free healthcare for every citizen. The citizens and non-nationals working in the public sector have coverage, with services financed and provided by the public sector. However, for non-nationals who do not work in the public sector or do not work at all, the healthcare service is not free of charge. Healthcare services are financed and provided by the government sector, which focuses on the prevention and treatment of diseases. It is characterised by its universal coverage. Oman's healthcare system is undergoing rapid change and the demands of adapting to the new challenges of changing demographics in terms of population growth and aging. The disease profile is showing a prevalence of noncommunicable diseases, such as diabetes and hypertension, cardiovascular disease and hypercholesterolemia (Department of Health Information and Statistics 2017 Chapter 1).

The first part of the chapter will briefly overview Oman's geography and climate. The second part will discuss the background and development of Oman's healthcare system since His Majesty the Sultan took the throne. In particular, it will explore the phases which were undertaken for the development of child healthcare. It will include a brief history of nursing and midwifery in Oman and a description of how it was developed.

2.2 Oman's geography and climate

The Sultanate of Oman is an Arab Gulf country in the Middle East. It lies in the Arabian Peninsula, located on the south-eastern coast (see Figure 2.1).

Figure 2.1 The Sultanate of Oman (MOH 2014)

The Sultanate of Oman is administratively divided into 11 Governorates, as follows: Muscat Governorate, Musandam Governorate, Dhofar, Al Buraimi Governorate, Al Dakhiliyah Governorate, Al Batinah North Governorate, Al Batinah South Governorate, Al Sharqiyah South Governorate, Al Sharqiyah North Governorate, Al Dhahira Governorate, and Al wusta Governorate. The Governorates are subdivided into cities, called Wilayates. There are a total of 61 Wilayates (Districts). Each governorate is considered to be a health region. Muscat is the centre of Oman's political, economic and commercial affairs. The population of Oman consists mainly of Arabs, who speak Arabic and are Muslims in religion (Ministry of Information 2013). Oman's total population in 2017 was 4,742,547 million, of which about 2 million are Omani nationals and the rest are expatriates working in Oman (Ministry of Health 2014). The growth of the expatriate population can be explained by the large number of projects that are under progress in the Sultanate, which requires a large additional workforce (Ministry of Health 2014).

Since His Majesty the Sultan called for unity of government and its people to work in close co-operation for the well-being of Oman (Plekhanow 2004), there has been a steady growth of healthcare services throughout the country. The map in Figure 2.2 depicts the distribution of healthcare services in the Sultanate of Oman.

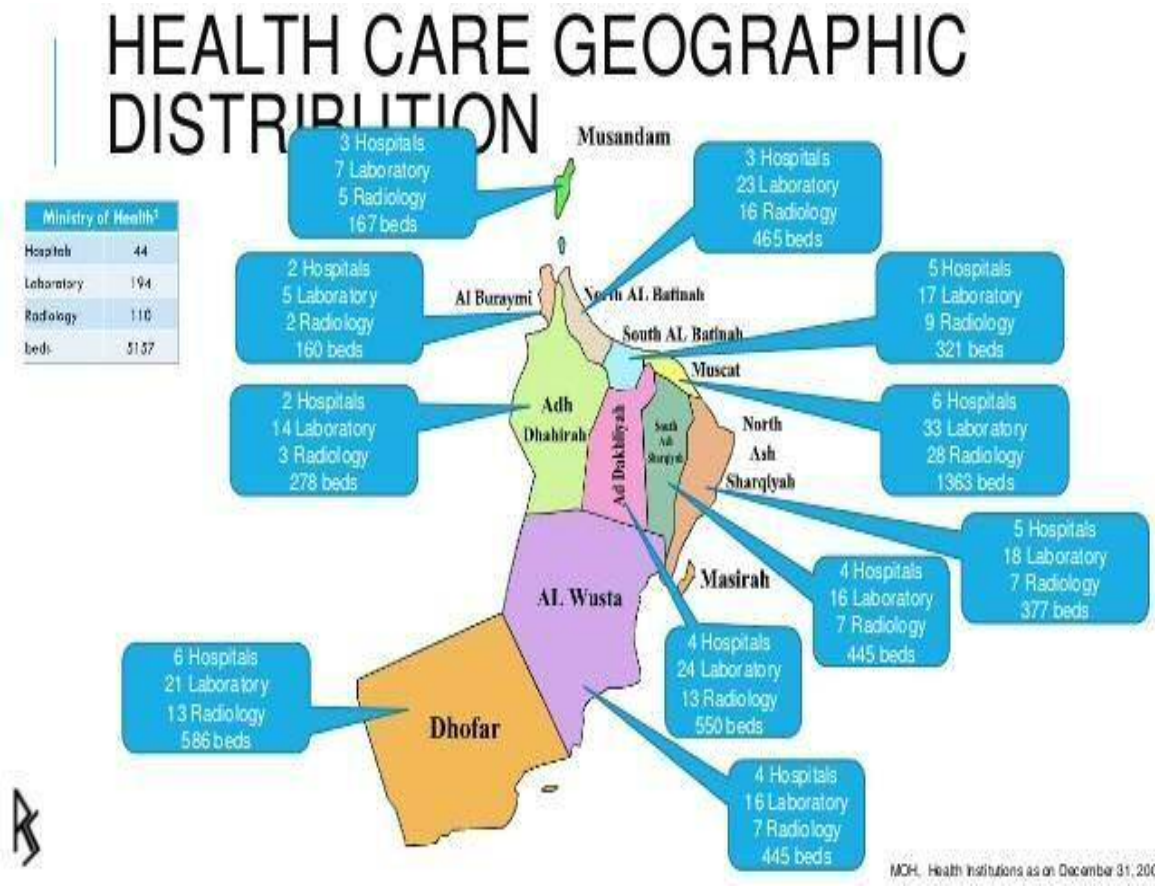


Figure 2.2 Healthcare distribution according to the regions in Oman

Oman has 13 health institutes, which are distributed throughout the regions within the Sultanate. All of these institutes teach the general nursing diploma, except for two institutes in Muscat region. The Institute of Health Sciences is one of the institutes responsible for teaching these subjects, it is also the only institute that prepares this specialty in Oman. The Oman Specialised Nursing Institute (OSNI) in Muscat is the only institute that prepares students for various specialisations after achieving the general nursing diploma and Baccalaureate degree, including critical care nursing of paediatrics and neonatology, management and administration, mental health, nephrology, midwifery, infection control, community heath, adult critical care (which includes a coronary care unit) and accident emergency.

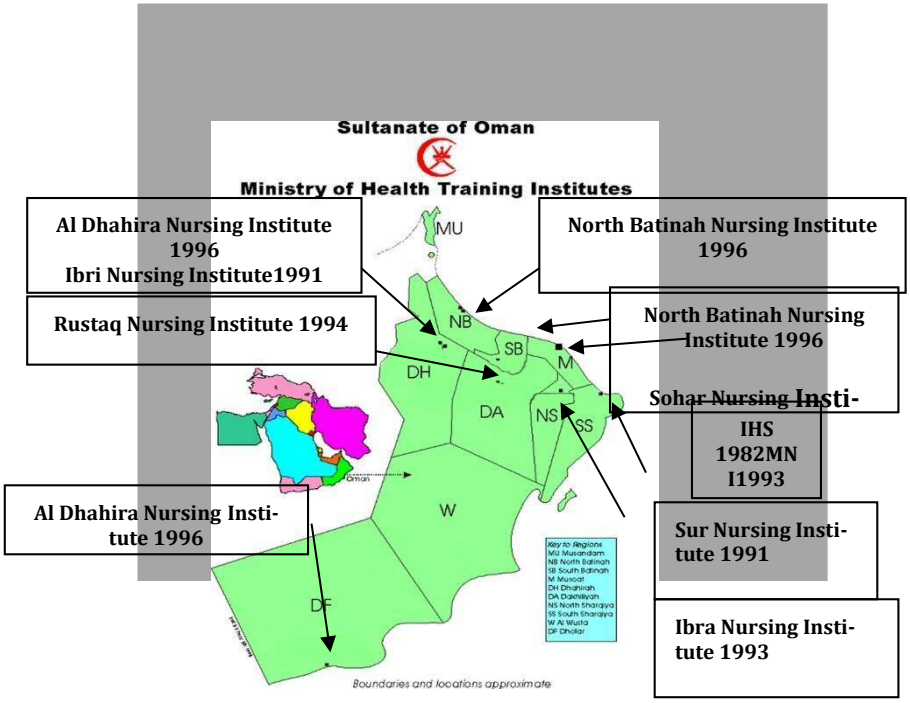


Figure 2.3 The distribution of nursing institutes in the Sultanate of Oman (MOH 2014)

2.3 Introduction to healthcare in Oman

Although the population of Oman is concentrated in large urban centres, many people live in scattered, small and isolated villages (outreach areas). This makes the creation of healthcare infrastructure expensive. Oman has a young population with a median age of 19 (MOH 2014). The crude mortality rate, age of marriage, fertility rates and natural growth have been significantly reduced after the rapid development of Oman healthcare system, with an increase in life expectancy (74.2 years). Oman has managed to control and fight serious infectious diseases and it is recognised as a country that has achieved health development in just three decades (Department of Health Information and Statistics 2017). A change in population health is evident in the reduced incidence of morbidity and mortality from infectious diseases and major infections due to lifestyle and aging-related noncommunicable diseases. However, the problem of malnutrition in children is still persistent (MOH 2014). 2.3.1 Background and development of healthcare in Oman At the start of the 1970s, Oman's healthcare system was extremely inadequate and it lacked the basic facilities to serve the whole community. The period between 1971–1980 marked significant early progress in the development of healthcare systems after the creation of the Ministry of Health (MOH), which granted healthcare as a basic right of citizens and provided free health services. The MOH has established several government hospitals and health centres, and it is still committed to the nation's health. Significant planning for health and human resources has started at this time. Between 1981– 1990, Oman was able to achieve a two-thirds reduction in the under 5 mortality rates in only 10 years, with a figure of 86 to 29/1000 live births. The period between 1991–2000 was characterised by modernisation, organisational strengthening through

decentralisation and production of human resources, delegating a number of financial and administration responsibilities to the health governorate. With the advent of the twenty-first century, Oman's healthcare system has entered a consolidation phase.

The MOH is the main agency in the country responsible for the health sector. It develops policies, and plans and implements them in coordination with all members of the health sector. The public sector accounts for 90% of hospitals and 98% of hospital beds, and it employs most doctors and nurses. The MOH is also a major provider of prevention, promotion and rehabilitation services. Drug testing, collection and distribution of mass drugs are managed by the MOH. It directs educational institutions for nurses and related specialists and works with Sultan Qaboos University (SQU) and Oman Medical Specialty Board (OMSB) in undergraduate and postgraduate medical education. Health services provided by the MOH are complemented by other government hospitals and clinics. Most private hospitals and clinics, which are accredited by the MOH, operate in large cities and provide mainly primary care and some aspects of specialised care.

The organisational structure of the MOH has been designed to correspond to its role and functions. The MOH is responsible for policy development, planning, monitoring and support for regional Wallis (i.e. village chiefs) to coordinate the overall healthcare system in the regions. The Willayat health offices operate in selected large Willayats. Large hospitals act as autonomous entities in regional Directorate Generals (DGs) as chairpersons. There is an accountability system for the Omani health sector, which is supported by the Ministry of Foreign Affairs and other specialised ministries, and which is overseen by independent supervisory authorities such as the Attorney General and the courts. The MOH is primarily responsible for public health services. The comprehensive healthcare program includes preventive and awareness-raising care, as well as a number of community initiatives.

The MOH provides comprehensive healthcare through its multi-level integrated healthcare facilities, which are integrated into the referral chain. Primary healthcare, which is considered to be the main point of departure for other levels of care, is provided mainly in health centres and local hospitals. The Extended Health Centre Co-ordinator is the Primary Care Directorate and the Central Committee for Extended Health Centres. The Social Support Group and Willayat Health Committees work together to facilitate inter-sectoral collaboration and community engagement at the local level. Secondary healthcare (or specialised care) is provided by regional and sub-regional hospitals (Willayat). Third-level care (i.e. specialised care) is provided by the national referral hospitals.

Human resources planning in the Department of Health aims to optimise the human resources subsystem in the health sector (planning, production and utilisation of the workforce) through the application of scientific planning principles. It develops human resources policies and programs related to health policies and plans. It also conducts detailed human resources planning in the healthcare system. The MOH has developed workforce planning plans and hospital staff planning templates that use available

service statistics (Regional Health System Observatory-WHO 2006). In the same year, MOH made detailed plans for further human resources production, and for gradual and smooth Omanisation in both categories of medicine and nursing.

Omanisation is a policy that is carried out by the government of Oman aiming at replacing expatriate workers with a trained Omani workforce. Omanisation allows Oman to be self-reliant in human resources and it increases Omani people's participation by reducing their dependency on expatriates.

The Omanisation policy of the Government of Oman reflects His Majesty the Sultan's firm commitment to develop young Omanis, both male and female, to equip them with the knowledge and skills that they need to function within a changing economy and create a society that can share the responsibilities and challenges that come with economic development. This commitment is summed up in the following quote from His Majesty's address:

> *As we pursue our priority of rehabilitating and training our human resources to conform with our development plans and satisfy the demands of our national development, we shall, with God's will, also pursue our care for our Omani youth. (Marjan 2004, p.2).*

Therefore, to achieve this vision, medical education in Oman has developed progressively. This enables Omanis to achieve increased self-reliance in the physician workforce. The OMSB along with MOH, SQU and other agencies have developed postgraduate residency programs in the country.

As the healthcare infrastructure reaches the consolidation phase, it is expected to accelerate the pace of Omanisation. The Omanisation level in nursing will increase to more than 80%, and several regions will reach 100%, while the number of physicians was planned to increase to 46% by 2016 reached to 54% (Department of Health Information and Statistics 2017). Fortunately, this was achieved in most of the regional hospitals, except for Muscat region. Omanisation in the specialities is expected to reach reasonable figures (40–47%) in the case of general paediatrics and internal medicine by 2020. In 1998 MOH had 7,453 nurses of which less than a quarter (24%) were Omani. By 2006, the total number of nurses serving in the MOH had grown to 8,278 and 63% of them were Omani. In addition, the nurse-to-population ratio has risen from 32.6 nurses per 10,000 population in 1998 to 37 nurses per 10,000 by 2005. There are around 12,000 nurses working in Oman with an overall Omanisation rate of 65% in 2016. However, despite ongoing efforts to increase the numbers of both national and foreign nurses, Oman's healthcare services still have a 30% shortage in nursing staff (Alghemini and Denham, 2008). Although Omanisation is a remarkable achievement and it has supported and developed Omanis, the process has been very rapid. Consequently, many Omani hospitals may face challenges from increased numbers of inexperienced nurses in many fields, which may affect quality of care.

From 2000 to 2018, the initiation and consolidation of the health system's infrastructure development was achieved. This was characterised by further expansion of the public healthcare system through

primary healthcare network extension (e.g. health centres and extended healthcare centres). Oman began their collaboration with the United Nations Fund for Population Activities (UNFPA) in 2005. The UNFPA focuses on capacity building and strategy development, particularly in reproductive health and health education. In Oman, the focus has been on targeting young people, including strengthening the peer health education efforts, particularly with MOH and Ministry of Education. In addition, MOH make the most use of the UNFPA facilities for contraceptives and other reproductive health items (WHO 2010).

2.4 Oman's healthcare system: a work in progress

Before His Majesty the Sultan took the throne (1970), Oman had basic signs of modernisation, particularly in the aspect of health. In the last 42 years, the infant mortality rate has dropped to less than onetenth of its value and the under-five mortality rate has dropped to one-sixteenth (MOH 2014). In 2016, these rates are just 9.2 and 11.7/1,000 live births (Department of Health Information and Statistics 2017).

Many people in Oman suffered from communicable diseases such as malaria, mumps, trachoma, diphtheria, neonatal tetanus, polio, gastroenteritis and diarrhoea due to the lack of healthcare facilities (MOH 2012). Therefore, the staff had to confront enormous challenges to extend medical care to these people because Oman had many outreach areas in the mountains. As a result, Omani people had to rely on traditional medicine, such as Wasam (cauterization) and herbal medicine. Throughout the Sultanate, traditional medicine still exists alongside modern healthcare (Groves 2003) and the Omani people have a strong belief in it. In particular, it is very popular in the treatment of fractures due to its speed and effectiveness. The old ways of healing have been passed from one generation to the next. There are healers in every village, town and city who have learned and gained these skills from other family members. The main fields of the Omani traditional medicine are herbal and faith healing. However, herbal medicine practice is the most popular and it has contributory function in traditional midwifery and bone fractures (Groves 2003). Oman has also 53 licensed Chinese medicine and Indian medicine clinics. These clinics and pharmacies are distributed all over the country, particularly in the larger cities. However, the majority of these clinics only practice primary healthcare (WHO 2006). This indicates that Omani people have a strong faith in traditional medicine. Unfortunately, there are no valid statistics to support this view.

The support of the WHO has helped in prioritising health problems and in designing, implementing, and monitoring health programmes in Oman. In addition, a participating approach was used to develop the strategic planning at the central level and regional planning led by WHO. The use of the Willayat (region) team problem-solving approach to train the local staff to implement the planning approach at

the district level has helped to improve planning, formulation, monitoring and implementation. Moreover, there has been long co-operation between and UNICEF with the MOH in certain areas of child health, such as childhood illnesses, baby friendly hospital initiatives, infant and child feeding, school health, road safety and injury prevention (WHO 2010). Their mission focuses on nutrition and the prevention of risky behaviour in relation to child health because the Omani community still suffers from some diseases related to nutritional problems and congenital disorders, such as protein energy malnutrition and iron deficiency anaemia (Regional Health Systems Observatory- EMRO 2006).

2.5 Public health focus in Oman

Based on Oman's health priority, the following strategic agenda for WHO collaboration for the period 2010–2015 was developed.

2.5.1 Child health in Oman

The MOH has initiated many public health programs, including a national birth spacing program and health education programs. Since the Ministry's Expanded Immunisation Programme (EPI) was introduced in 1981, diphtheria, neonatal tetanus and polio have been eradicated. In 1985, the National Primary Health Committee was established and given responsibility to further strengthen and establish primary healthcare in the community. The committee has considered children below 5 years of age as the most vulnerable to changes in the environment, and to social and economic changes. Children were also an important target group for most communicable diseases.

In 1985, the committee has suggested the introduction of a comprehensive Child Care Plan (CCP). The CCP had three main pillars in the form of three health programs. The first was the "Child Health Programme" which was newly launched at that time and aimed to improve the physical, mental and emotional health of children. The second new programme that was introduced in 1985 was the "Control of Diarrhoeal Diseases Programme (CDD)". This was directed to reduce morbidity and mortality in children below 5 years from diarrhoeal diseases. The EPI programme was then added to these two programmes to accomplish the third goal of the CCP. Two years later, the programme of the control of Acute Respiratory Infections (ARI) was established to standardise case management of ARI. This reduced morbidity and mortality in children below 5 years. Because infant and child health is highly dependent on mothers' health, the CCP was expanded in 1988 into the National Woman and Child Care Plan (NWCCP).

In1985, the National Maternal and Child Health (NMCH) Committee was established within MOH and regional MCH committees in the health regions of Oman followed. Consequently, the first drafts of manuals of health programmes were prepared. These drafts documented polices, objectives, logistics,

and detailed description of management and referral of cases, as well as data collection procedures for each health programme. This was a major step towards standardised case management among all health workers (MOH 2012).

Malnutrition among children under 5 years was of great concern. According to the Oman Family Health Survey that was conducted in 1995, about one-fourth of children were underweight for their age, 13% suffered wasting and 22.9% were stunted (Suleiman, Al-Riyami and Farid 1995). In another qualitative study, which was conducted in 2002, perceptions, attitudes and beliefs, and causes of malnutrition in children in Oman was examined (Gohar and Ismail 2002). This study showed that the most important causes of malnutrition in children were lack of awareness of protein energy malnutrition (PEM) among community caregivers and health workers, frequent pregnancies and short birth spacing periods, and lack of safe sanitary water sources in some areas of the country causing recurrent infections and affecting children's appetite.

To tackle malnutrition among children and other important risk groups of the population, certain measures were undertaken, which included the promotion of breast feeding, a breastfeeding hospital initiative, the establishment of PEM registers in primary healthcare facilities for early screening, and the follow-up and management of malnourished children. These measures have resulted in a remarkable improvement in the nutritional status of Oman's children. The incidence of underweight children under 5 years has declined in 2009 to about half its value in 1999 (8.9%) and in 2012 the percentage dropped to 4.6 (Department of Nutrition 2004).

Indicators	**1995**	**2000**	**2005**	**2010**	**2012**
PEM Rate (/1000 children aged < 5 years)	128	15	22	6.9	4.6
For treatment of malnutrition	3.5%	4.8%	5.7%	3.7%	0.6%
For associated diseases		18.2%	10.3%	10.5%	2.8%
Deaths related to PEM (number)	10	0	3	0	1
PEM Cases improved to normal (% of total cases)			18.5%	29.3%	25.6%

Table 2.1 Cases of PEM in children aged less than 5 years (MOH 2014)

By the late-1980s, there had been a considerable degree of integration between curative and preventive services within MOH. The introduction of the Child Health Card in August 1988 has encouraged mothers to follow their children's progress towards health, to early detect any decline in the weight and to observe the overall well-being of their child.

The Baby Friendly Hospital Initiative (BFHI) programme was one of the key achievements of the MOH. The BFHI was launched by WHO and UNICEF in 1991 in response to the Innocenti Declaration. This initiative is a global effort to protect, promote and support breastfeeding (WHO 2009). In Oman, this initiative was first implemented in 1992 and within two years all hospitals in Oman had been declared as BFHI (MOH and UNICEF 2012). BFHI was promoted in Oman to improve infant and child health and survival, and also to reduce the cases of PEM. Its impact contributed greatly in reducing overall infant and child morbidity, especially regarding diarrhoeal disease and ARI. The BFHI committee of MOH created the Community Support Groups (CSGs), consisting of female volunteers from the community who are trained to assist women in breast feeding and complementary feeding (MOH 2012). Complementary feeding refers to the initiation of food and liquids when the baby completes 6 months of exclusive breast feeding because breast milk is not enough to meet the baby's nutritional requirements. According to the National Nutrition Survey in 2017, the rate of breast feeding is 96.1%.

It can be seen from this that Oman healthcare system has made a lot of efforts to improve and promote the health of mothers and the children, and it has reduced morbidity and mortality. What was not seen was patient-centredness. According to Health Vision (2050), the health system in Oman was originally designed to address communicable diseases and it has partially developed to address the increasing burden from noncommunicable diseases that were managed essentially in hospitals. Because the noncommunicable diseases need prolonged management, the health system has developed to respond to the ongoing needs of such patients. The Oman healthcare system has recognised that there is a need for individual patients to be centrally and actively involved in their own management because they believe that such an approach (patient-centred care) results in patients being more committed to adhering to their treatments and making behavioural changes. This will promote patient responsibility, optimal use of services, and improve health outcomes and cost efficiency (MOH 2014).

2.6 Nursing development in Oman

This section will give a historical overview of nursing development in Oman. In terms of nursing training, a small group of United States nurses serving in the American Missionary Association in Muscat began training Omani nationals to become nurses in the 1950s. This marked the beginning of modern nursing in Oman. In 1959, 10 health centres were inaugurated in Sohar, Ibra, Nizwa, Seeb and Rustaq. The American nurses joined the staff of the two hospitals in 1959 and a 6–9 months training

programme was established at Al-Rahma Hospital for 16 Omani nurse trainees (6 females and 10 males) and they graduated as assisted nurses. That training centre continued to educate nurses until 1970. An initial batch of five male nurses graduated from Al-Rahma School of Nursing in 1972 after completing a twoyear training programme. Then, in 1972, the Al-Rahma School of Nursing (based in Al-Rahma Hospital) was taken over by the MOH. The MOH increased the number of nurse trainees at the school and upgraded it to a three-and-a-half-year programme that offered a certificate in nursing. The course was still mainly based on the apprentice model (MOH, 2007; Alghemini and Denham, 2008). To become a nurse, there were certain criteria that the candidates have to meet, as follows:

- Secondary school certificate with grade not less than B (very good).
- Pass English exam not less than 60%.
- Pass the interview.

The Ministry of Higher Education Institutes upgraded the current diploma into a Bachelor's degree as the basic entry to nursing 2013 and the SQU is currently preparing to offer Master's and Doctoral nursing programmes. The rapid development in health services was accompanied by an increased demand for the healthcare workforce, including nurses. This led to the establishment of the Directorate of Nursing Affairs at MOH.

Because the nursing profession was not popular in the Omani community in 1970, and due to the need for females to join to help female patients, Omani girls were encouraged to join the nursing profession and contribute to its development through providing many privilege-like free accommodation, and monthly benefits. A milestone in nursing education within the MOH was achieved in 1982 with the inauguration of the Institute of Health Sciences in Muscat, which included a Department of Nursing Studies (see Table 2.2). The Department of Nursing Studies was separated from the Institute of Health

Sciences in 1994 to become the Muscat Nursing Institute. In 2000, another nursing institute called the Oman Nursing Institute was established in Muscat, which accepted students from all over the country to cover the shortages across the regions (MOH 2007). In 1990, nursing education progressively moved into its own nursing institutes with outreach into the regions. Since then, the length of nursing education has expanded from two years (graduating assisted nurses) to three years (diploma level). Currently, there are a total of 12 nursing institutes located in different regions of the country with an annual intake of 540 students (MOH 2007).

In 2000, a professional code of conduct for practicing nurses and midwives was nationally introduced. In 2001, the Oman Nursing and Midwifery Council was established, mainly to promote professionalism in the service by enforcing the professional code of conduct for nurses, as well as developing high standards in education and nursing practice to safeguard the public. This council licenses nurses and

midwives to practice in the Sultanate of Oman (MOH 2007). However, in 2013 the Nursing and Midwifery Council was cancelled for unknown reasons.

Based on the increasing demands in the critical care areas and the increasing numbers of cases in both specialties NICU and PICU with the shortage of nursing staff in both areas, post-basic specialised nursing began in 1995. The OSNI prepares nurses to take on more advanced roles (i.e. professional autonomy in decision making), such as expanding role of the nurse in critical care units—particularly in paediatric and NICUs.

In 2002, SQU started a nursing Baccalaureate (BSc) programme in the College of Medicine and Health Sciences, which was the first in Oman (under the Ministry of Education). The College of Nursing also provides a nursing diploma bridging programme. Nursing graduates from MOH institutes mainly work in MOH primary, secondary and tertiary health organisation located in different regions of Oman, while SQU Baccalaureate graduates work exclusively for SQUH located in Muscat (MOH 2009). A one-year BSc (Hons) in Nursing Studies for nurses already holding basic and post-basic specialty diplomas began in 2009 (under DGET).

Another seven post-basic programmes were established in 2001 and they moved to the new building of OSNI. These programmes are midwifery, adult critical care, administration programme, mental health, nephrology, community health and infection control. The present intake capacity is over 130 candidates. Graduates are awarded a post-basic diploma in a respective specialty. Villanova University, University of Central Lancashire, Cardiff University and Glasgow Caledonian University have all contributed to the development of specialty programmes, and they have helped to build the capacity and capabilities of the teachers. A total of 10 nursing institutes throughout the regions are spread throughout the Sultanate.

Place	Year	Duration	When to enter	Authority
Institute of Health Sciences (IHS)	1982	1982- Assisted nurses (two years) From 1990, three years General Nursing Diploma, upgraded to BSN in 2013	Before secondary school Post-Secondary school	DGET–MOH Total of graduates from all the nursing institutes in Oman in 2016

Place	Year	Duration	When to enter	Authority
Muscat Nursing Institute(MNI)	1994 TO 2014	Three years General Nursing Diploma	Post-secondary school	DGET–MOH (Does not exist, merged with ONI) in 2011
Oman Nursing Institute (ONI)	2000	Three years diploma, upgraded to BSc in 2013 (four years programme).	Post- secondary school	DGET–MOH Number of graduates from all nursing institutes: 2244
College of Medicine and Nursing Science	2002	1st Baccalaureate nursing programme	Post-secondary school	SQU–MOE
OSNI	2001	One-year specialised diploma (includes eight specialities)	Post general nursing diploma	DEGT–MOH Number of graduates: 1639
OSNI	2009	One-year BSC in nursing studies.	From basic and post-basic diploma	DGET–MOH Number of graduates: 502
Place	Year	Duration	When to enter	Authority
OSNI	2013	All eight nursing specialities programmes moved to degree level	Post-basic nursing diploma	DGET–MOH

Table 2.2 Nursing programmes

In 2016, there were around 12,000 nurses working in Oman with an overall Omanisation rate of 65% (i.e. over 65% of nurses are now of Omani origin). Over 150 new nurses graduate every year (Ghosh 2009; MOH 2013).

Until the 1980s, nursing services were dominated by expatriate nurses, mainly from India (MOH 2007). Nurses from different backgrounds have contributed to the development of the nursing profession in Oman. This may have both a positive and negative impact on nursing. Based on clinical exposure, interacting with expatriate nurses may bring various experiences to the country. However, expatriate nurses working in Oman are novices in respect to Omani society, culture, religion and healthcare needs. Moreover, they face communication barriers with the parents and patients due to language differences because they do not speak Arabic, which might hinder their contribution to nursing development.

Oman has experienced many challenges in relation to the nursing workforce. Initially the solution was to bring in expatriate nurses. However, evidence suggests that this may present other challenges. A more recent solution has been to increase the number of young Omani recruits, this brings both advantages and disadvantages (Yi and Jezewski 2000; Maben et al. 2010). According to Maben et al. (2010), increasing the number of national healthcare professionals who share the same culture with the Omani population is thought to improve communication with patients and results in providing a more culturally sensitive care. However, rapid Omanisation with young and less experienced Omani nurses may adversely affect the quality of patient care and the future of healthcare provision. Conversely, an infusion of younger workers into the nursing workforce who are properly trained in teamwork development, interpersonal communication, collaboration skills and emotional intelligence, may positively impact upon the culture within the healthcare environment, particularly in relation to the empowerment of nurses within multi-professional teams.

The following section discusses the challenges that may be encountered with the diversity of nursing in the clinical areas.

2.7 Challenges of the diversity of Oman's nursing programmes

When MOH started, its nursing programmes were developed based on the community's and population's health needs and the available resources including the budget. Consequently, nursing has been developing to meet with the international rapid advances in medical knowledge and technology, and to update Oman's healthcare services and meet the community's needs. With the growing population, the healthcare demands increase with critically ill patients, as a result the MOH strove to accomplish a diversity nursing training and upgrade nursing education from a nursing diploma to Baccalaureate level to meet the current demands of the practice environment and enable the nurses to work effectively in an interdisciplinary team within the healthcare system.

According to NACNEP (2010), Baccalaureate programmes offer more advanced education that prepares the nurses for critical thinking, clinical reasoning, and analytical skills; prepares the nurses for a broader scope of practice; further professional development; and which facilitates understanding of the complex issues affecting healthcare delivery.

Because MOH has a vision to move the healthcare culture in Oman from task oriented to parson centred care (MOH 2014), nursing education must keep pace with practice innovations and other changes in the healthcare delivery system to ensure the delivery of high quality, safe, and effective patient-centred care (NACNEP 2010). However, with the current lack of scope of practice and lack of a job description in Oman, there are a number of barriers to a diverse nursing training in Oman's healthcare system, including role confusion and ambiguity, which may lead to ineffective patient care. Another challenge is that an appropriate educational plan has to be made available for these nurses so that they can meet their roles and fill the skill gap. The nurses may face barriers to fit themselves into the healthcare system, which may create a lack of team collaboration.

To overcome these challenges, it is necessary to have a scope of practice to direct these nurses with various specialities and qualifications to be able to prepare them to contribute and facilitate integration of PCC in patients' care to achieve the MOH's vison. In the work of McCormack et al. (2009); McCormack et al. (2011), emphasis is placed on the value of the nurses relationships with the person and their family, they also the need to see how to overcome the barriers that hinder the implementation of person-centred practice. These elements were identified as the organisational support, the care environment, appropriate skill mix, effective staff relationships and shared values within the team (McCormack and McCance 2006, 2010). Several researchers have identified other factors to strengthen the role of the nurses, such as relationships in the care setting, involvement in decisions about patient's care and the culture of the care environment (Edvardsson 2009; Slater et al. 2009). This can be achieved if the nurses work in an in encouraging environment where the nurses are respected and trusted, and their training needs are met (Ross et al. 2015). Developing a culture of family centred care is crucial, particularly in the NICU where the nurses have to deal with the baby's family and actively allow the parents to be part of their baby's care.

2.8 Conclusion

This chapter has developed a historical perspective of Oman's healthcare system in the context of its geography and climate, and since it beginnings in the 1970s. Under the new vision of co-operation and people engagement that was issued by His Majesty the Sultan Qaboos, Omani people have been key to the country's development.

The Sultanate's system of government gave rise to the modern healthcare system that is in place today, such as: incorporating public infrastructure, a focus upon health education, information systems, youth and most importantly women being inextricably connected to the health and well-being of Oman's children. Traditional medicine is intrinsic to the fabric of public healthcare in Oman and it is widely sanctioned and practiced (MOH 2014).

The health system in Oman was originally designed to address communicable diseases and has partially been adapted to address the increasing pressure from noncommunicable diseases, which are managed essentially in hospitals (MOH 2014). There is an increasing need to move the nation's healthcare out of the hospitals and into the community, to provide specialist services, support patients with chronic diseases, and to reduce expensive hospital utilisation. In addition, there is a great necessity to apply patient-centredness to meet the patient's needs and improve their outcomes (MOH 2014).

Chapter 3: Neonatal care in Oman

3.1 Introduction

This chapter discusses neonatal care in Oman. Recently, Oman has experienced rapid economic development, which has been accompanied by an improvement in many health indicators, including infant mortality rate (Abdellatif et al. 2013). However, there are few studies that have described the neonatal mortality rates in Oman. The survival rate in infants has tremendously decreased from 29/1000 to 9.2/1000 live births in 2016 in Oman (Department of Health Information and Statistics 2016). This fall was likely due to the increased employment of experienced staff, modern equipment in the NICU, and continuous staff training (Rahman et al. 2015).

The first part of this chapter will discuss neonatal care in Oman, including the secondary and tertiary health services. It will then describe the criteria of babies admitted in NICU in Oman. The second part of this chapter will discuss maternal services, including the birth and infant mortality rate in Oman and in other countries in the Gulf, the Middle East, and in some Western countries, such as the United Kingdom and United States. Consanguinity, and maternal nutrition will also be explored. Finally, this chapter ends with a personal reflection on the context of Oman context to justify the need for the study.

To maintain anonymity, the description of the research site was changed and it was called Hope Hospital. Some information on the criteria of admission in NICU and current neonatal care services was not referenced so as not to compromise the anonymity of the site.

3.2 Current neonatal care services and practice in Oman

Oman has 12 neonatal units across the country: two are located in the capital area and the other eight are distributed in the regional hospitals. There are two additional units; one is within the Army Hospital in Muscat and the other is in the Sultan Qaboos University Hospital (Training hospital) in Muscat, which is under the jurisdiction of the Ministry of Education. In terms of health institutions, at a national level there are 74 hospitals in Oman. Out of these, 49 governmental hospitals under the MOH, 10 regional referral hospitals mainly provide secondary medical care, while four national referral hospitals mostly provide tertiary medical care.

All the regional neonatal units across Oman have the same facilities, with 17 bed capacity. They are have three levels of provision. Level 3 is a NICU (for high dependency) with six beds, but only four beds are attached to cardiorespiratory monitors. Level 2 is a special care baby unit (for intermediate dependency care) with six beds, one bed has cardiorespiratory monitors but all of the other babies are attached to portable apnoea monitors. Level 1 is a special care baby unit (for low dependency care) with four cribs but no cardiorespiratory monitors; and one isolation room with one bed and cardiorespiratory monitor. This room is mainly used for infants who may have an infection and for those infants referred from outside the hospital. This strategy is used to control cross infection to the other babies. Once the

baby's investigation reports negative, then the baby can be put in the right room based on its needs. There are only 12 to 14 nursing staff in the hospital in the NICU: five in the morning, and four nurses for afternoon and night duty distributed in all of the levels. The type of care provided is only secondary medical care. However, all of the regional NICUs are equipped with three to four ventilators in high dependency. For further intervention, babies have to be sent to tertiary hospitals in Muscat. The bed capacity in the NICU in the tertiary hospital is larger than the regional hospitals.

All of the hospitals in Oman are decentralised and autonomous in terms of administration and budget. Muscat has four main tertiary hospitals, each hospital covers certain specialties such as psychiatric, ENT, orthopaedic and plastic surgery, medical and surgical with paediatrics and all are under the Directorate General of Health Services (DGHS) of Muscat Governorate.

MOH is the main health sector organisation. It is responsible for developing policies and plans, such as increasing bed capacity, speciality and sub-specialities coverage and staffing. It implements these policies in coordination with all constituents of the health sector, including all the hospitals in Oman. MOH is also the principal controller of preventive, promotive and rehabilitative services. In addition, MOH manages medication control and distribution of drugs (MOH 2014).

The infant mortality rate in Oman has dramatically reduced, from 29/1000 in 1990 to 9.2/1000 live births in 2016. Neonatal mortality is a reliable indicator to evaluate the overall progress of neonatal and perinatal care in a community, which reflects positively on the standard of a country's educational, social health system, the nutritional status of the population and the national medical programmes in obstetrics and neonatal care (Abdellatif et al. 2013).

3.3 Babies admitted in NICUs

Based on the research hospital statistics of the 6,500 babies delivered each year, approximately 934 (20%) babies were admitted to the Hope NICU in 2016. A total of 150 (5%) neonates were also admitted from the regional referral hospitals and private healthcare institutions in the capital area. The average bed occupancy in Hope Hospital is 90%, which means that for the majority of months the unit is full. The occupancy in level 111B (high dependency) is very high, this unit cares for very sick newborn babies

In comparison with another tertiary hospital, the number of neonatal admission is higher (1045) because there is more bed capacity in that unit than in the research hospital (Department of Health information and Statistics 2017). When compared with the regional hospitals, the number of babies admitted in the NICU varies from one hospital to another. In some hospitals, their admission rate was nearly the same or higher, although their bed capacity was lower, such as: Sohar Hospital 906, Nizwa Hospital 1045, Sur Hospital 744, and Rustaq Hospital 920 babies. Al Buraimi 275 and Bahla Hospital 211 had the least number of admissions (Department of Health information and Statistics 2017). Unfortunately,

information regarding the reasons for admission of the babies in each unit could not be retrieved and which dependency they were admitted to was not mentioned (i.e. high or intermediate or low), which prevented the comparison.

The literature does not well-document the basic demographic information or the risk factors for admission of infants to NICUs in the Middle East. However, every year, over 95,000 babies are admitted to neonatal units in the UK because they have either been born prematurely (i.e. before 37 weeks of pregnancy) or full-term (after 37 weeks) but sick. This indicates that around 1 in 8 babies who are born in the UK each year are admitted to neonatal units.

Due to the difficulties in retrieving data related to the number of babies in NICUs worldwide, the data were not presented for comparison. In Oman, most babies admitted to the NICUs are premature babies who are born before 37 weeks of gestation or babies with low birth weight (LBW), less than 2.5 kilogram (kg) with intrauterine growth retardation (IUGR). In 2016, the number of premature births in Oman was 8.6/1000 per live births. Meanwhile the LBW percentage in 2016 was 9.4/1000. There are some factors that should be considered that can place a baby at high risk and increase the chances of admission to the NICUs. However, each baby must be evaluated individually to determine the need for admission. The high-risk factors include maternal, delivery or baby factors **(see Appendix A)**

3.4 Who are the healthcare providers working in the NICUs?

The healthcare professionals who are involved in the care of NICU baby include doctors, nurses, respiratory therapists and medical orderlies. However, neonatologists are rarely available in the regional hospitals. As the NICUs across the Sultanate are run by paediatricians, not all the paediatricians have special training in caring for sick infants.

Respiratory therapists are only involved in tertiary hospitals. The nurses who care for babies in the NICU have various educational qualifications, such as general diplomas in nursing with minimum of a year of experience, post-basic diplomas for nurses, Baccalaureate degrees in nursing, and Master's degrees.

When the nurses join the NICU, they have to work from one month to three months with a preceptor who provides support and guidance. Some units provide a proper and organised training programme for their own staff to prepare them for the work but this differs from one hospital to another. From my knowledge of NICU, other hospitals provide training programmes, particularly in the regions of intravenous therapy, resuscitation programme, and basic life support for nurses, which improves their knowledge and skills, and enables them to manage their patients.

3.5 Maternity services

During 2016, there were a total of 88,854 births in MOH institutions, out of which 88,346 were live births and 508 were still births. There were 72,077 births in MOH institutions (81.6%), 7,980 in the government sector (9%), 8,281 in the private sector (9.4%), and there were eight other (not specified) births (0%). There were 67,633 spontaneous deliveries, 2,336 assisted deliveries, and 18,387 Caesareans. Muscat Governorate accounted for almost 22% of these deliveries. This is expected because of the large population of Muscat Governorate, as well as the presence of tertiary care hospitals that manage high risk or complicated pregnancies referred from other regions (Department of Health Information and Statistics 2017).

Oman has achieved a significant reduction in under-five mortality and infant mortality figures over the past two decades, which may be associated with the high standards of preventive and curative maternal and child health. According to the Departments of Health Information and Statistics (2017) the crude death rate in Oman per 1000 population reached 3 in 2016; however, there was a dramatic decline in infant mortality rate from 29/1000 live births in 1990 to 9.2/1000 live births in 2016.

The World Health Organisation Statistics report similar figures in other Gulf countries, including Qatar, Kuwait, Bahrain and the United Arab Emirates, who had a neonatal mortality rate of 8/1000, 8.6/1000, 6.2/1000, 6.8/1000 lives births, respectively. Other countries in the Middle East report a very high neonatal death rate, including Iraq, Jordan and Yamen as 32/1000, 17.9/1000 and 41.9/1000 live births, respectively. However, when compared with some Western countries, the most current estimate of the United States, neonatal mortality rate (deaths under age 28 days per 1000 live births) is around 6.5 per 1000, Canada 4.9/1000, Australia 3.8/1000, New Zealand 5.7/1000 and United Kingdom 4.2/1000 live births in 2015 (WHO 2017), which indicates a lower percentage than Oman. However, the current mortality rate in Oman can be considered as great achievement because this rate was just achieved in 47 years.

The death rate of infants with congenital anomalies is still challenging in Oman. About 63% of infant deaths take place during the first week of life and 79% occur during the first month. These deaths are mainly due to congenital malformation and other causes related to disorders during gestation (Department of Health Information and Statistics 2017).

The mortality rate of infants' rate with congenital malformation (birth defects) in 2016 was about 167 cases 2/1000 (perinatal), or 11.8% (Department of Health Information and Statistics 2017). However, in 2015, there were a total of 2,905 cases, with one or more congenital anomaly notified in the United Kingdom. In 2015, the infant mortality rate in England was 39 per 10,000 live births, of which an estimated 17% had a congenital anomaly, based on the mortality rate in the four reporting regions-Northern, South-West, Thames Valley and Wessex (National Congenital Anomaly and Rare Disease Registration Service 2015). This represents a coverage of 21% of the total births in England. This gives

a provisional overall birth incidence of 205 per 10,000 total births (95%), or 1 in 49 births. The most common congenital malformation in the four reporting regions were classified as chromosomal reasons, such as Down's, Edwards', Patau's syndrome, and congenital heart defects in 2015, both of which have an incidence of 50 per 10,000 total births (National Congenital Anomaly and Rare Disease Registration Service 2015).

As will be discussed in the next section the number of congenital malformations in Oman was high when compared to countries such as the UK because termination is forbidden due to religious concerns. For example, Surah Isra, Ch. 17, Verse No. 31, says that,

> *Kill not your children for want of sustenance, for it is Allah that will provide sustenance to you and your children, for killing of infants is a major sin. (Zarrabi-Zadeh 2013)*

Based on the Holy Quran in Surat Al-Maa'da (5:32:p113)

> *For this reason; We decreed for the Descendants of Israel that whoever kills a human being except in lieu of killing or causing turmoil in the earth, so it shall be as if he had killed all mankind; and whoever saves the life of one person, is as if he had saved the life of all mankind; and undoubtedly Our Noble Messengers came to them with clear proofs – then after this indeed many of them are oppressors in the earth. (Zarrabi-Zadeh 2013)*

This Sura is also applied to the idea of having a termination during pregnancy. Religiously, ethically and by law, termination is strictly forbidden in Oman. In Islam, planned termination is a major sin. The mother is not allowed to abort the foetus if she does want the pregnancy because the Muslim religion does not leave it as an option. By law and in the Islamic religion, termination of a foetus during pregnancy is a crime. But if it is a danger to the life of the mother, then termination is allowed because in Islam the life of the mother is more precious than the life of the child which has not yet come into being on its own.

3.6 Consanguinity

According to the Annual Health Report (2016), the estimated incidence of children born with congenital and genetic disorders in Oman is 11.8% as compared to 4.4% in Europe (EUROCAT 2012). The difference is suggested to be due to the high occurrence of inherited red cell disorders such as sickle cell anaemia and Thalassemia, advanced maternal age, and traditional consanguineous marriages (Alwan and Modell 1997). In Islam, termination of pregnancy is not an option, even when the foetus is known to have a congenital and genetic disorder.

Omani society has a long tradition of consanguinity. Culturally, marriage between cousins was strongly supported and preferred by the Omani community to maintain family unity. According to Rajab and Patton (2000), marriage among tribal members was preferred in the Omani community. The consanguinity rates among 60,635 couples were determined using a questionnaire in hospitals. In Rajab and Patton's (2000) large survey, which included all sections of the community, 24.1% of marriages were reported between first cousins and 11.8% of marriages were between second cousins. A further 20.4% of marriages were between tribal groups. Because of the strict nature of the tribal groups in Oman, The marriages would be expected to be consanguineous to some degree. Rajab and Patton (2000) state that significant reduction of consanguinity would be expected in the next generation due to high level of education and urbanization. Their study was conducted 18 years ago and the situation is now changing. Nowadays, tribal marriages are not strictly followed due to the increased level of education. Moreover, some families even seek genetic counselling to avoid and reduce the chances of passing genetic disorders onto their family. In comparison to the recent statistics of the Department of Health Information and Statistics (2017), consanguinity across the Sultanate had reduced from 24% in 2000 to 16.1% in 2016.

After the establishment of the Community Genetic service in 1999, particularly for the control of genetic blood disorders, MOH has put in a lot of resources into controlling genetic disorders at a national level. An integrated strategy has been used that combines the best possible patient care, as a first objective, tied with community education, high-risk population screening and genetic counselling. Regional teams with administrative control have been formed to carry out the program in the regions of Oman. These regional teams have been trained to provide contemporary care, premarital screening, counselling, health education, and data collection (Rajab and Jaffer 2000**).**

3.7 Maternal nutrition

Maternal nutrition is an important factor in the development of the foetus and for the birth of a healthy new born. Indeed, unhealthy nutrition may have a deleterious effect upon the unborn foetus, giving rise to LBW in babies (Savitri 2016). The following section will explore the impact of the mothers' poor nutrition on the overall health of newborns and young children in Oman. According to WHO (2006), the members of Omani society still suffer from some diseases related to nutritional problems and congenital disorders. It is deemed that these are related to certain behavioural aspects of the population, such as eating junk food, which requires strong health promotional measures (Cecchini et al. 2010).

According to the findings of Al- Ryiami et al. (2000) maternal nutrition continues to be a major concern in Oman. They found that about 42.7% of pregnant women aged 15–49 and 30.0% of women aged 20–49 years suffer from anaemia. However, the annual Department of Health Information and Statistics

(2017 Chapter 8) found that 26.7 % of pregnant women had anaemia. Prenatal education is available in all health centres.

In addition, Suleman et al. (2001) and Alasfoor et al. (2007) found that the occurrence of underweight children was 17.9% while for stunting and wasting the figures were 10.6% and 7.0%, respectively. According to the 2016 MOH annual report, the nutrition situation has improved and among children is not a big issue because the percentage of malnutrition in children below 5 years has dropped dramatically from 23% to 3% (MOH 2017). Based on the National Nutrition Survey (2017), this achievement can also be credited to the breast feeding rate programme as Oman, which has reached 82% for early breast feeding within 1 hour of birth, continued breast feeding at 1 year 80%, 2 years 45%. This compares with 23% in Germany, 56% in Brazil and 99% in Senegal. In the United Kingdom, 81% of mothers had tried breastfeeding but only 34% were breastfeeding at six months and 0.5% at 12 months. In the United States, 79% started, 49% were still going after six months and 27% after a year. The United Kingdom has the lowest percentage in the countries presented. In low-income countries, most infants are still breastfed at 1 year, compared with less than 20% in many high-income countries, such as less than 1% in the United Kingdom (Gallagher 2016). Senegal had the highest breastfeeding rate, followed by Oman. Also. This shows that breast feeding is not common in developing countries.

While it seems feasible that poor maternal nutrition could potentially be a contributory factor in the high percentage of prematurity and LBW babies, and hence the number of admissions in NICUs, there is as yet no empirical evidence to confirm this. The following section will elaborate the changing practice of neonatal care in Oman,

3.8 Link between EBP, philosophy and model of care

Sackett et al. (2000) find that EBP is more than just the best evidence, it is the integration of high quality clinical skills, such as communication and evaluation of clinical skills, as well as application of evidence to particular belief systems, values and context or a person's life. This indicates the greatest need to create a philosophy and model of care to integrate the beliefs and values of the unit staff with updated evidence that is based policies and guidelines, to achieve high quality of care.

A philosophy is defined as a particular system or set of beliefs or a personal rule of life/practice (Early Childhood and Education 2010). The existence of both are essential in all NICUs to guide the nurses to accomplish their role (Early Childhood and Education 2010; Davidson et al. 2006). The availability of philosophy in NICU is vital to ensure that the nursing teams are working towards the same goals, delivering care using a shared approach in which it is clear what quality of care the parents can expect. The essential reason to develop a philosophy of care is to make considerable decisions when emergency situations arise. The unavailability of philosophy in the unit may make decisions in certain situations difficult because there is no guide for staff and parents. Moreover, defining care goals and values will

enhance the parents' communication with the healthcare team, including doctors and nurses (Nyqvist and Karlsson 1997). Any information related to the unit's philosophy at Hope Hospital will be discussed in the findings chapter

Having a model of care in the NICU is also of great importance to ensure that the staff in the unit strive towards the same goal of consistent care. According to Davidson et al. (2006), a model of care describes the delivery of healthcare within the broader context of the health system. It is shaped by a theoretical basis, EBP and defined standards. It consists of defined core elements and principles, and it has a framework that provides the structure for the implementation and subsequent evaluation of care. A clearly defined and articulated model of care will help to ensure that all of the health professionals are all working towards a common set of goals and, most importantly, are able to evaluate their performance on an agreed basis. It facilitates sensitive, individualised care rather than tasks and schedules. It also emphasises family attachment. It encourages the staff to continually review their practice and update it (Suhonen et al. 2002). However, philosophies and models of care are rare in Oman.

3.9 Personal Reflection on the context of the Sultanate of Oman

Minimising infant pain has become a significant concern worldwide (Hall and Anand 2015). Although there are guidelines of care in Oman, they are not standardised EB and they are irrelevant to neonates and neonatal pain. Pain management strategies continue to vary considerably among neonatal healthcare professionals. Meanwhile, pain management protocols vary between NICUs and they are not evidence-based. Moreover, there are no pain assessment tools for neonates to help the staff detect pain, and to teach the new neonatal nurses and doctors to manage pain. Consequently, care is more "traditional" in its approach towards babies, particularly in pain and pain management. For example, in my clinical work as a nurse in Oman, some professionals were observed to have done nothing to reduce the pain for infants especially those undergoing minor procedures.

Omani nurses are increasingly studying the Post-Basic Diploma in Neonatal Intensive Care, which trains them in the NICU specialty. From my personal experience, it appears that these nurses do want to change neonatal pain practices and they are trying to practice evidence-based nonpharmacological strategies, such as Kangaroo care, quiet hour, clustering care, minimising noise and lights. However, many nurses reported that the environment is not supportive because the doctors have control over the ward and the nurses' practices. To achieve the necessary changes in neonatal practices related to nursing, the doctors' consensus is always necessary. This has consequences in delaying changes in the unit.

One of the main issues in Omani healthcare is that there is no clear partnership between education and clinical areas in nursing. There is no co-operation, and each part works independently and separately. This makes it difficult to bring evidence from academic research into practice. In addition, clinical areas

are not actively involved in building the nursing curricula. Therefore, based on my professional experience, it seems that nursing teachers may be seen as threats and outsiders in the clinical areas, particularly if they try to reflect on or question the practice for the sake of improvement. However, an improvement in education has been started in the last two years. Some programmes have begun to become involved the clinical areas in renewing and building curricula to make sure that those programmes that are run in OSNI are based on the demands of healthcare needs. According to Bvumbwe (2016) academic clinical partnership is essential for establishing nursing education, practice and research. Bvumbwe (2016, p. 1) argued that "the nursing education implemented within an academic clinical partnership becomes relevant to the needs and demands of the healthcare system". This can be achieved through collaboration while also developing the nursing curriculum. It can also be achieved when the curriculum meets the needs of the clinical area.

Academic clinical partnership has been shown to improve competencies among students, it also improves the safety and health outcomes of the patients. It can also reduce the gap between theory and practice by the sharing of expertise and by increasing evidence-based practice (Bvumbwe 2016). Failing to develop education and clinical partnership may result in a lack of clinical expertise co-operation with students (Msiska et al. 2014), which may lead to a failure to produce competent graduates who are ready to face the challenges to provide safe and effective care for patients and be the agents of change.

One of the main roles of the healthcare provider is to provide high quality care to meet the patients' needs and satisfaction (ONMC 2008). The Oman Nursing and Midwifery Council-ONMC (2011) has the same standards as other nursing organisations regarding the main role of healthcare professionals to provide high quality care to meet the patient's needs and satisfaction. To achieve this goal, the care that the patients receive has to be evaluated and investigated. The gap between the evidence and actual practice requires further study. The researcher has identified an area of practice in Oman in which actual care in relation to neonatal pain management does not appear to reflect evidence-based practice. Consequently, this study proposes to explore the experiences and understanding of neonatal pain and its management among NICU nurses caring for babies who have been admitted to the NICU at Hope Hospital, Oman. An ethnographic approach will be used to provide in-depth insights into the everyday world of nurses working in an Omani NICU.

3.10 Conclusion

This chapter has focused on the neonatal services in Oman. The maternal services and the issues related to it were also discussed. The usual neonatal current and the changing practices were explored. Going through the current practice in NICU in Oman reveals that the culture of patient care is traditional, is not evidence-based and it does not focus on patient-centred care. The neonatal practice is inconsistent, as shown in the reflection section, which showed that the management of babies varies between the doctors and that the guidelines are not used. This indicates that there is a great need to implement PCC and make it a priority to achieve high quality patient outcomes.

Chapter 4: Literature review

4.1 Introduction

To position this study, this chapter begins with the historical background of neonatal pain. It then expands to the physiology of neonatal pain and will discuss whether babies can feel pain and why they are more sensitive to pain than adults. The search strategy is described and the narrative review of the literature related to neonatal pain and its management is presented thematically.

Over the last two decades, globally, advancement in neonatal intensive care has contributed to a dramatic increase in the survival rate of high-risk newborns, including preterm infants and particularly in the Western countries (Stoll et al. 2010). During hospitalisation in a Neonatal intensive care unit (NICU), babies are exposed to repeated painful stimuli through various invasive procedures such as venepuncture, lumbar puncture, mechanical ventilation and repeated heel lance for blood draw (Grunau 2013). These painful procedures are unavoidable because they are highly important for the patient's survival (Carter and Simons 2014).

4.2 Importance of nurses' role in minimising the consequences of unrelieved pain on babies

There is growing concern that neonates who are subjected to frequent and prolonged unrelieved pain in the NICU are at greatest risk of prolonged neurodevelopmental impairment, particularly high-risk premature infants (Stevens et al. 2003; Grunau 2013; Johnston, Fernandes and Campbell-Yeo 2011). This may lead to other negative effects such as increased sensitivity to subsequent painful stimuli, which may persist throughout childhood, self-destructive behaviour and learning disabilities (Anand and Scalzo 2000), in addition, to changes in brain structure and function (Anand 2000; Fitzgerald and Walker 2009; Grunau 2013; Johnston et al. 2011).

Anand (2000) in his study has shown that the foetus and newborns can detect, perceive and respond to painful stimuli. Consequently, it is very important to ensure that any pain that the patient may experience is effectively managed as part of the newborn's human rights.

Various studies have demonstrated that neonatal pain is still unrecognised and inadequately managed (American Academy of Pediatrics 2006; Puchalski and Hammel 2002; Anand et al. 1987; Lago et al. 2013). A lack of awareness among healthcare providers has meant that many neonates in NICU are subjected to frequent painful procedures without pain assessment and management (Slater et al. 2008).

Madjar (2004) recognises that pain management is an integral aspect of nursing care. Nurses have an important role in assessing and managing the pain (Wang and Tsai 2010), due to their daily exposure to

observing its effect. They have the potential to promptly initiate the necessary measures to control the pain. They can also evaluate the efficacy of these measures and any adverse effects (Godfrey 2005).

However, a substantial amount of literature from across the world indicates that some nurses have inadequate knowledge about pain management in neonates (Pölkki et al. 2010; Cong et al. 2014; Namnabati et al. 2012; Dodds 2003).

For centuries, a lack of awareness of neonatal pain has created a barrier to understanding babies' experience (Chamberlain 1989). Morris (1991) argues that during the nineteenth century, it was believed that children's pain did not exist, especially in the earliest span of life. There is historical evidence that the pain and discomfort experienced by newborns was not considered to be a priority for HCPs in NICU (Rutter and Doyal 1998). The following section provides an overview of the history of neonatal pain.

4.3 The historical background of neonatal pain

Pain is defined as "unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" (American Academy of Pediatrics 2000, p.1). Throughout the history of neonatal care, pain was undertreated (Puchalski and Hammel 2002; Anand et al.1987) and misconceptions about the infant's ability to feel, remember, and express pain have contributed to this problem (Puchalski and Hummel 2002). Theories about neonatal pain perception were based on four physiologic misunderstandings: first, a belief that neonates have an underdeveloped central nervous system; second, that nerve fibres require myelination to function in pain perception; third, that neonates have lack of pain receptors; and fourth, neonates are unable to remember painful experiences (Franck 1997; Stevens et al. 1994). Moreover, it was argued that the use of analgesia in every procedure may highly increase the likelihood of drug addiction and unwanted side effects (Akuma and Jordan 2011). Consequently, these beliefs created great fear about giving analgesia to these babies because the doctors were afraid of exposing the babies to addictive substances, such as narcotics (e.g. morphine) (de Lima 1996; Johnston 1997). The neonates were also thought to have no memories of painful experiences, they were thought to be incapable of interpreting pain like adults (Marie 2007). However, current studies suggest that although early painful memories are not accessible to conscious recall, they may be programmed in procedural memory and they can lead to abnormal behavioural patterns or altered sensory processing in later life (Anand 1998; Porter et al. 1999).

In the past, newborns were subjected to invasive procedures, including major operations, with little or no anaesthesia and babies who required intensive care were rarely sedated (Anand et al. 1987). However, the significance of neonatal pain came to light in 1987 after the publication of two key randomized control trial studies: Anand et al. (1987), and Anand et al. 1988). The aim of Anand et al.'s

(1987) study was to investigate the hypothesis that surgical stress responses of preterm infants receiving fentanyl anaesthesia with the additional conventional method (nitric oxide and curare)[1] are no different from those of the newborn infants anaesthetized conventionally with nitric oxide and curare.[2] A total of 16 preterm babies had undergone thoracotomy for Patent Ductus Arteriosis. Preterm infants were randomized to two anaesthesia groups, both of which were given nitric oxide 50% and curare 0.5 mg/k (sedation). However, the intervention group were given an extra medication of fentanyl. To examine the hormonal stress, four variables were selected: plasma adrenaline, nor-adrenaline, blood glucose, lactate and pyruvate concentration, and the urinary 3 methylihistidine/creatinine ratio. In the comparison made for both the fentanyl and non-fentanyl group, the results showed that the non-fentanyl group had circulatory and metabolic complications post-operatively. The authors concluded that pain is an important factor in the production of the stress response to surgery. Use of anaesthetic regimen nitric oxide and curare did not completely dampen the pain response that was observed through measuring metabolic and stress hormones.

In the second study, Anand et al. (1988) aimed to compare the efficacy of anaesthesia using curare with anaesthesia using curare plus halothane[3] and to determine whether there was a reduction in the stress response effect following surgery, as found in the previous RCT on the effective use of additional fentanyl with anaesthesia. The control group received anaesthesia with nitric oxide and curare alone but the intervention group received this treatment with the addition of halothane. The study showed that use of nitric oxide with oxygen without halothane is less satisfactory in reducing the metabolic and endocrine stresses of the operation. Their study confirmed the previous observation that neonates had shown tangible metabolic and endocrine responses to surgery, which proves that babies do experience pain. Their RCT proved that halothane does have a role in changing the hormonal and metabolic stresses responses to surgery. This means that analgesia and anaesthesia is required for infants, not only when infant is undergoing surgery but also for infants exposed to invasive procedures in a NICU. These studies led to remarkable changes in professional attitudes and practices in many countries (Rutter and Doyal 1998).

The following section explains in detail how pain is felt and interpreted in the brain. It also explores suggestions that babies and children feel pain more than adults.

[1] Fentanyl is a sedation and analgesia used to reduce the pain and stress.
[2] Nitric oxide is used in neonates as a vasodilator for pulmonary hypertension and severe hypoxic respiratory failure, whereas curare is used as a non-depolarizing muscle relaxant to produce complete paralysis and for respiratory in sufficiency for ventilated babies.
[3] Halothane is a general inhalation anaesthetic used for induction and maintenance of general anaesthesia. It reduces the blood pressure and frequently decreases the pulse rate and depresses respiration.

4.4 Physiology of neonatal pain

Pain is an individual, emotional and subjective experience (Briggs 2010). This means that pain is interpreted differently, including pain level, feelings and perceptions. Consequently, individual differences in pain sensitivity require careful monitoring, particularly in the vulnerable babies in a NICU who cannot express their pain. Understanding premature infants' physiology of pain is fundamental for better pain management. Because the condition of most babies in an NICU is unstable, it is necessary to keep them in stable conditions, which can partly be achieved by managing their pain. Although painful procedures are unavoidable in a NICU, uncomfortable levels of pain can be prevented by using pharmacological and nonpharmacological strategies.

Based on Anand et al. (1987) and supported by Anand et al. (2006), a term baby at birth has developed neural pathways for nociception[4] and for experiencing pain, but the pain responses are not an immature version of those of an adult. There are a number of differences in both nerve structure and in the quality and extent of nerve response that are considered to be pertinent to understanding neonatal pain. For example, the nerves of young babies respond more readily to noxious stimuli, with a lower threshold to stimulation than those of an adult. Given that the neural descending pathways in the brain are not well developed in a newborn, this results in a limited ability of the central nervous system to inhibit nociception than in the adult.

Preterm babies have particular needs because they are born before their anatomy and physiology are prepared to cope with an extrauterine environment, especially a hostile one in a NICU, where babies experience numerous tissue damaging procedures (invasive) as part of their daily clinical care (Johnston et al. 2011). Preterm physiology involves three routes of patho-physiology: peripheral nervous system reactions, ascending and descending pathways, and modulation of the central nervous system, supraspinal modulation and integration of pain.

4.4.1 Peripheral nervous system reactions

At 20 weeks gestation, the number of nociceptors in preterm infants which function as gatekeepers (Evans 2001) and are responsible for processing peripheral information are equal to or greater than the number in adult skin, and they gradually diminish during the first weeks after birth (Anand 2000). Therefore, preterm babies are more likely to feel pain than adults. Several levels of responses are triggered in a local injury, such as skin venepuncture, where incoming stimuli from the local injury are

[4] Nociception is the sensory nervous system's response to certain harmful or potentially harmful stimuli that are located in skin and mucus membrane (Evans 2001).

turned into nerve impulses and then transmitted along nerve fibres to travel up through the spinal cord to the central nervous system (Evans 2001). During the transmission stage, electrical signal information is sent via two types of peripheral nerve fibres the A delta and the C delta. The A delta fibres are myelinated, localising sharp and pricking pain very quickly. Meanwhile, the C fibres are unmyelinated and they have conduct the pain signal more slowly, which creates a dull, throbbing (burning) and poorly localised pain (Briggs 2010). In preterm babies, the A fibre terminals overlap the C fibres. In the younger gestational age, the receptive fields in neonates are wider and, therefore, injuries result in more widespread sensitivity and this leads them to feel more pain (Andrews and Fitzgerald 1994; Fitzgerald and Beggs 2001).

4.4.2 Ascending and descending pathways

Ascending pain pathways are mature by 20 weeks gestation. These pathways are responsible for pain impulse transmission through the medulla, affecting the autonomic system. The stimulation of a pain response results in physiological changes, such as increasing heart and respiratory rate, and increased blood pressure. These physiological changes are associated with behavioural changes (facial expression), such as brow bulge, eye squeeze and nasolabial fold. Although their response is not as strong as it is in older infants of 30 weeks of gestation, the same expression is associated with pain in adults (Evan 2001).

4.4.3 Modulation of the central nervous system

In terms of pain modulation, neurotransmitters are key to mediating levels of pain transmission descending from the spinal cord. However, they are of limited effectiveness in the premature infant because of the absence of dopamine and nore-epinephrine until 36–40 week of gestation. Moreover, the inhibitory fibres and other areas in the brain stem do not release serotonin[5] until 6 to 8 weeks after birth, which may make the preterm infants experience more pain that lasts for a longer period of time.

[5] Serotonin plays a role in pain processing in the peripheral nervous system. Serotonin is present in central and peripheral serotonergic neurons, it is released from platelets and mast cells after tissue injury, and it exerts analgesic effects depending on the site of action and the receptor subtype. After nerve injury, the 5-HT content in the lesioned nerve increases. Receptors of the 5-HT3 and subtype are present on C-fibres acting in combination with other inflammatory mediators, which may ectopically excite and sensitise afferent nerve fibres, thus contributing to peripheral sensitization and hyperalgesia in inflammation and nerve injury (Sommer 2004).

With a frequent injury, such as heel lance, the inflammation and tenderness may extend into the closest un-damaged tissue, causing pain sensation (Allodynia) from stimuli that ordinarily does not cause pain.

4.4.4 The supraspinal integrative processing of pain

This supraspinal pain modulation is mediated by networks that are distributed throughout the limbic system and midbrain, which exert control at the level of the dorsal horn to higher cerebral structures (Millan 1999).

In this process, Evans (2001) and Sredl (2003) showed that the impulses received from the pain site are conducted through and modulated by the thalamus, midbrain area, reticular formation, limbic system, and cortex. However, there is a limited amount of nursing research on the role of reticular formation, limbic system, cortical synthesis, and pain modification in preterm infants (Evans 2001).

4.4.5 Summary

This discussion of neonatal physiology demonstrates that preterm infants have mature pain perception pathways that make them capable of perceiving pain. However, immature descending neural pathways make any pain modulation rather ineffective in the newborn because they are later to develop than ascending mechanisms (Fitzgerald et al. 1988). This results in a greater level of pain that lasts for a longer period of time (Sredl 2003). This shows that neonates are more sensitive to pain than are older children and adults (Anand 2000). In addition, more vulnerable babies have profound long-term complication of pain (Fitzgerald and Walker 1987; Anand 2000).

Having established that neonates experience pain, I will now review the literature relating to neonatal pain and its management, commencing with a description of the search strategy.

4.5 Search strategy

A systematic approach to searching the literature was undertaken using keywords. After the extensive literature search, the information was organised thematically. The search was informed by the study's research questions, as follows:

- How do NICU nurses' approach, handle, and interact with babies while giving care?
- How do NICU nurses assess a baby's pain?

- What strategies and approaches do NICU nurses use to reduce and control baby's pain and what are the influences that affect their use of these strategies? For example, do they use a 'quiet hour', positioning devices, minimise light and noise, swaddling, and communicating with the babies when handling.
- How do nurses perceive babies and their experiences/ability to experience of pain?

4.5.1 Keywords

The following keywords were used: infant, newborn, neonate, pain, assessment, management and nurses' management, nurses' knowledge, perception and attitudes, NICU environment. The search was run in various databases with the support of the subject librarian in Cardiff University through Ebsco (CINAHL, Medline, PubMed and Google Scholar). When I searched PubMed, I found it difficult to get the articles in full text. However, it was of great help to locate important articles and then retrieve them from other databases, such as Science Direct, Research Gate and Google Scholar. The reference lists of key articles were also hand searched to find other relevant articles.

The search resulted in 2,737 hits, out of which 61 were selected and 28 articles met the criteria that are identified below. When search was limited to Oman, 33 articles were found but all were irrelevant to pain. The search then was furthered in Google Scholar, especially when some articles were retrieved not in full text. Every end text reference list for each article was reviewed and the required and important articles for the further search were highlighted. In addition, some books were very helpful and they helped to search more books for more information, they also helped to locate the primary sources of certain references. Using this method, I was also able to find one unpublished Omani study and the findings will be discussed later.

To focus the search, inclusion criteria were employed for the selection process, these included:

- Time limit, from 1980-current.
- English-language articles and translated non-English articles.
- Full text article.
- Dissertation.
- Books.
- End text reference list.
- Abstract and introduction were used as guides. This helps to eliminate the non-relevant work and also some of the lower quality research.

The initial search was undertaken by myself with the guidance of the librarian (please refer to Figure 4.1) to ensure that no research articles concerning pain were omitted. The diagram that follows demonstrates the search strategy. As the study developed, further searches were carried out, particularly about certain areas such as the nurses' knowledge towards neonatal pain, nurses' attitudes to caring for babies in NICU, nurses' knowledge and understanding of children's pain, consequences of pain, and history of pain. When the search was expanded in the themes of nurses' general attitudes to caring for babies in the NICU and their knowledge of NICU, no articles were found related to both themes. Therefore, the search focused on the NICU environment, and its impact on neonatal nurses and patients outcomes.

4.6 Overview of the literature review

The literature review includes papers from a range of high and middle-income countries, such as the United States, United Kingdom, Australia, Finland, Iran, China, Taiwan, Jamaica, Italy and Jordan.

The broad areas that were covered in these articles were the knowledge, experiences, and attitudes of neonatal nurses and the barriers that nurses face in pain and pain management in relation to neonatal nursing. The majority of the studies demonstrated that nurses have a significant knowledge deficit regarding neonatal pain and pain management (Abdel Razeq et al. 2016; Akuma and Jordan 2011; Cong et al. 2014; Dodds 2003; Halimaa et al. 2001; Namnabati et al. 2012; Pölkki et al. 2010; Wang and Tsai 2010; Young et al. 2008).

Several studies suggest that some staff experience difficulties in identifying children's pain (Halimaa et al. 2001; Brown and Timmins 2005). Beliefs and culture were also shown to interfere with best care in some studies (Young et al. 2008; Cong et al. 2014; Pillai and Craig 2007). Consequently, the studies reviewed emphasised that pain was poorly controlled. Some studies have shown significant difference among HCPs (doctors and nurses) in the theoretical concepts of pain. Nurses who are unable to recognise pain will be unable to control the babies' pain (Halimaa et al. 2001; Brown and Timmins 2005). Therefore, use of assessment tools was recommended. Some studies showed that the years of experience, clinical position, clinical setting (Wang and Tsai 2010), culture and belief (Young et al. 2008; Cong et al. 2014) were particularly dominant factors that impacted staff knowledge in NICU.

The literature related to NICU nurses' experiences is limited, so I have looked at the literature related to critical care nurses in general. The literature review will be presented thematically.

4.7 Knowledge and attitudes of nurses towards pain

The importance of HCPs to the healthy development of infants has been emphasised for several years (United Nations General Assembly 1989) and is not only limited to meeting the basic needs of an infant, such as feeding and safety of the child, but also to meet higher order needs, such as reducing pain and its consequences. It is known that quality care among critical care patients is dependent on the knowledge and pain management skills of critical care nurses (Wang and Tsai 2010).

Pain is considered as the fifth vital sign alongside heart rate, respiratory rate, temperature and blood pressure, which indicates its importance (Lynch 2001). Pain assessment is the first step towards effective pain management in infants and children (Lynch 2001). A fundamental part of the care provided by neonatal nurses is, therefore, their ability to identify the pain responses exhibited by infants and to provide effective pain management (Brown and Timmins 2005). Therefore, the improvement of assessment of pain in the clinical areas is viewed as part of the quality of nursing care (Franck et al. 2000).

Pain management is not only reliant on the ability of nurses to interpret neonatal cues but also relies on whether they can act upon these cues (Halimaa et al. 2001). An experimental research study by Pillai and Craig (2007) on the infant's pain assessment stimuli has shown that infant assessment is greatly dependent on the healthcare providers' past experience and personal judgement. This study was conducted to examine whether the caregiver judgements of infant pain would vary systematically with different infant caregiver groups and infant ages. A total of 123 caregivers (41 parents, 41 in patient nurses, 41 paediatricians) viewed videotapes of the vigorous behavioural responses of healthy infants aged 2, 4, 6, 12, and 18 months, to a routine immunisation injection and they provided ratings of both the affective distress and pain intensity observed. Their findings showed that older infants were attributed significantly more pain than younger infants, even though the vigour of the behavioural reactions was experimentally controlled across age groups. A profile analysis contrasting observer groups indicated that paediatricians attributed significantly lower levels of pain than parents, while nurses were intermediate to the other groups and did not significantly differ from either group. These systematic differences in judgements were consistent across infant age groups. The findings also reveal significant variations in observer judgements of infant pain because the staff assessed the pain differently. Despite the absence of differences in the behavioural reactions of the children, both the type of caregiver and their knowledge of the child's age systematically influenced attributions of pain to infants (Pillai and Craig 2007). This work suggests the important role of caregiver role variation and perceived developmental maturity as determinants of infant pain judgements. It also highlights potential areas of difficulty in controlling the unnecessary suffering of infants (Pillai and Craig 2007). It is possible that these differences could be attributed to cultural beliefs, cognitive and personal experiences with pain and these considerations may be of relevance to my study.

Franck (1997) states that nurses have a professional and ethical responsibility to protect patients and a duty that requires them to further their knowledge of current research and practices. However, a review of the literature suggests that some nurses face difficulties in identifying pain cues in neonates due to the inability of babies to express their pain verbally (Evans et al. 1997), but they can express their pain by crying. In addition, the nurses do not always show an awareness of current pain research about neonatal pain (Salantera 1999; Brown and Timmins 2005). This indicates that further research is required to explore how nurses' approach, assess, and manage neonatal pain and to investigate what knowledge neonatal nurses have on pain assessment and its management.

4.7.1 Perception, knowledge and practices of nurses on pain management

Young et al. (2008) conducted a quantitative study in Jamaica using a self-administered questionnaire to determine the knowledge, perception and practices of healthcare professionals (nurses and doctors) regarding neonatal pain management. This study was conducted at three tertiary level hospitals in the anaesthetic department, intensive care unit, neonatal unit and paediatric medical and surgical departments. A total of 147 healthcare workers participated, giving a response rate of 85%. Nurses accounted for 52% of the respondents while 48% were physicians. The researchers indicated that nurses and doctors lacked knowledge on assessing the degree of pain felt by neonates and many of them were unaware whether the premature infants were capable of feeling pain. Most of the respondents were able to discriminate between painful and non-painful procedures. However, the majority rarely prescribed analgesia and did not use analgesia for procedures that were previously rated as painful. Their justification was that the procedure was too short to require analgesic support and medication was not usually prescribed for procedural pain. The physician scores were significantly higher than those attained by nurses for knowledge and for pain perception but no significant differences were noted for practice. This could happen because the majority of the doctors had undertaken postgraduate training but only 33% of nurses had critical care/anaesthetic training. These researchers noted that age, gender, job description, being a parent, having had major surgery or experiencing childbirth did not influence the staff actions for analgesia use to treat procedural pain in neonates.

Young et al. (2008) concluded from their results that neonatal pain was not regarded as a priority by nurses and doctors. They argued that staff practice may be influenced by cultural and social beliefs, where one is expected to feel and tolerate pain as a natural part of life experience. In addition, they expect that a lack of teaching about neonatal pain in nursing and medical curricula in Jamaica contributes to the myth and biases that hinder proper pain assessment and management. They recommended creating guidelines to develop assessment tools for effective pain relief and to incorporate pain management into nursing and medical schools.

In a cross-sectional survey in Finland, Pölkki et al. (2010) described nurses' attitudes towards and perceptions of pain assessment in neonatal intensive care. The demographic factors influencing these attitudes and perceptions of pain included level of education, length of work experience and the working unit. A total of 362 Finnish nurses were recruited, including Registered Nurses and Children's Nurses or Practical Nurses (PN). They were recruited from all of the country's five university hospitals. They found that over half of the nurses claimed to be able to assess the pain score and most of the nurses agreed that premature babies are capable of feeling pain. They considered that the use of assessment tools is crucial and the systematic documentation in pain assessment was a pre-requisite. However, the nurses were unaware that premature babies are more sensitive to pain than full-term babies and only a few of the nurses (3%) agreed that pain is an important topic in premature infants. In conclusion, it is indicated that professional experience was the main factor influencing the nurses' pain assessment in neonates. The researchers found that the less experienced nurses held more misconceptions than the more experienced nurses concerning the preterm infant's ability to experience pain.

A small-scale quantitative survey was conducted in the UK by Dodds (2003) to explore aspects of neonatal procedural pain (pharmacological and nonpharmacological), and its assessment and management by NICU nursing staff. A total of 21 nursing staff with 1–15 years of experience was included from three local units. Although the staff showed variation in their response when rating how painful the procedures were, Most of the staff rated the majority of the procedures as painful. However, several staff demonstrated underuse of analgesia for procedures (Young et al. 2008) and 45% of the staff did not use the assessment tools, although they were provided (Young et al. 2008). This indicates that nursing staff have lack of knowledge about pain and its management. These findings may be attributed to other factors, such as lack of autonomy. Dodds (2003) emphasised the need and importance of education and training.

This study contributes to the knowledge of neonatal pain and its findings support those of other research (Young et al. 2008). However, the generalizability of the findings to larger a population is limited because their sample size was very small for a quantitative study and no details were shown on how the samples were selected and calculated. In addition, the questionnaire response rate was poor out of 80 questionnaires, only 21 were only returned. Therefore, the evidence from this study is weak.

In a cross-sectional descriptive study that was conducted to investigate neonatal nurses' perceptions and knowledge, and the practice of infant pain in the United States and China, Cong et al. (2014) found that nurses have adequate knowledge in general pain concepts but knowledge deficits related to many topics, such as preterm babies being more sensitive to pain and the long-term outcomes of pain. Most nurses reported regular use of pain assessment tools but few of them reported that the tools were appropriate and accurate in use. These researchers added that about 83% of American nurses as compared with 58%

Chinese nurses felt confident in the use of pain medication, whereas more Chinese nurses (78%) than American nurses (61%) acknowledged the effectiveness of the nonpharmacological interventions.

The Chinese nurses disagreed that there are long-term adverse effects of pain. About half reported that pain in their units was well managed and less than half felt that pain guidelines/ protocols were evidence-based. The barriers to effective pain management reported by the staff in China and the United States that were identified in the questionnaire include resistance to change, lack of knowledge, lack of time, fear of side effects of pain medication, and lack of trust in tools. The researchers reflect from their findings some concerns that pain is not well managed in many neonatal units in the United States and China, which indicates further actions to solve the issues of inadequate training as indicated in other studies, lack of feasible tools, and the absence of EB guidelines/ protocols (Cong et al. 2014).

Although Cong et al. (2014) have contributed valuable findings, their study does have some limitations. The sample size was not equal between Chinese and American nurses, and no detail was provided on the sample size calculation. There were also discrepancies in the selection criteria pertaining to the nurse's educational level and qualification. American nurses were highly experienced and had a higher educational background than Chinese nurses (i.e. Diploma level with 5 years of experience), so the comparison is not appropriate. This may influence the study results because the Chinese nurses have less exposure in the speciality and a lower educational level than American nurses. This limits the generalisability of their results to a larger population.

Similar findings were reported in Akuma and Jordan (2011) in their descriptive cross-sectional survey of describing nurses' and doctors' knowledge regarding procedural pain assessment and management in UK NICUs. Their study recruited 494 nurses (355) and doctors (139) from seven NICUs (three units were level 3 intensive care, and four were level 2 high dependency care) in one area of the UK. These researchers found that the doctors and nurses were highly knowledgeable (82%) about pain, and they agreed that neonates do experience pain and acknowledged the need for analgesia. A few of the respondents (3 %) thought that babies of under 28 weeks of gestation do not feel pain. This study demonstrated that nurses believe that babies feel more pain than adults compared to doctors. Moreover, they were able to rank and identify the less and more painful procedures. However, they demonstrated that analgesia and comfort measures were underused for most of procedures in all of the units. The most quoted reason for this was that they were performing procedures in an emergency, followed by fear of drug addiction. Moreover, organisational issues were identified for withholding analgesia, such as absence of unit pain guidelines, shortage of staff, poor communication between staff about timing of procedures. However, this study showed that nurses were more likely to adhere to guidelines on assessing and relieving pain than doctors when administering analgesia and comfort measures.

Halimaa et al. (2001) also identified high levels of knowledge about neonatal pain in a survey study from Finland. They used a semistructured questionnaire to determine the knowledge of 280 practical

children's nurses, registered nurses and laboratory technicians about premature babies' pain and assessment. They also investigated the strategies that are used by caregivers in all of the NICU units in Finnish university hospitals. They found that healthcare givers have extensive knowledge about the pain experienced by babies, assessment, management and the comfort measures used by nurses. However, as Akuma and Jordan (2011) also found, their actions were not consistent with their knowledge. So, gaps between knowledge and practice still exist. In particular, there was a failure to use a pain assessment tool to assess the adequacy of management. This may lead into under treatment of pain and over medication, putting the babies at risk of drug addiction (Akuma and Jordan 2011).

In a study from the Middle East (Kingdom of Jordan), Abdel Razaq et al. (2016) have shown contrasting results in relation to the nurses' knowledge (Akuma and Jordan 2011; Cong et al. 2014; Pölkki et al. 2010). The nurses in Jordan were less knowledgeable about neonatal pain and its management than the nurses in Akuma and Jordan (2011), Cong et al. (2014) and Pölkki et al. (2010). These authors found that only 29 % of neonatal nurses reported that babies can perceive pain by 26 weeks of gestational age. Meanwhile, 55% of nurses did not know that neonates have a fully functional mature nociceptive neurological network. More than half of the nurses believed that neonates experience less pain than adults and around 79% believed that pain diminishes more quickly than pain in adults. In addition, 91% of the nurses believed that neonates require less analgesia than adults, while 59% said that analgesia is too dangerous for use in neonates. This study demonstrates suboptimal of pain assessment. It also showed that these nurses lack knowledge about neonatal pain, which may lead to babies being underappreciated and/or neglected. Akuma and Jordan (2011) recommended the need for observational studies to take place to observe the healthcare givers and explore how they manage premature babies' pain. However, I have found that there have been no such studies to date. In my study, I intend to address this gap in the research and I intend to address these gaps through observation and interviews.

There are, however, a few qualitative studies that have brought new insights. For example, a phenomenological study conducted in Iran has brought new perspective to the previous research, exploring barriers to pain control in children as has been experienced by paediatric nurses (Namnabati et al. 2012). However, this study did not focus on neonates. This study involved in-depth-interviews with 16 nurses who were selected through purposive sampling. The nurses were selected from an educational hospital in Iran and they came from medical, surgical, and infection wards. The nurses who held a Bachelor's degree and they had a background of paediatric experience ranging from 4–10 years. The following three major themes emerged from this study: the organisational barriers, children's characteristics and barriers relating to the nature of the disease. The findings of this study reveal that the nurses encountered some barriers in pain management in children. One of the main barriers was the lack of authority for administering some medical treatment, inadequate equipment and the unavailability of narcotics drugs such as opioids. This study also showed that nurses suffer from staff shortages compared with the number of patients in the ward in each shift. This led nurses to do an irregular

assessment of the patient's pain. The children's characteristics and the nature of the children's disease were also highlighted as barriers. The children's age, mood, behaviours, expression and gender differences were also shown to affect the assessment and management of pain. These nurses have a great difficulty in assessing the children's pain, especially in young children and infants because they cannot express their pain in words. This study found that the absence of institutional protocol and standardised pain management plans were main concerns. The authors recommend that protocols and standardised pain policies would solve the existing problem and would enhance nurses independence in controlling babies' pain (Namnabati et al. 2012). They added that doctors and nurses co-operation concerning the nurse role in pain is crucial.

In conclusion, the majority of these studies have demonstrated that a lack of knowledge among healthcare professionals is a global concern. Most of them have identified variable levels of nursing knowledge, with some studies indicating inadequate knowledge in relation to neonatal pain. They have also pointed to the pivotal role of the nurse in pain assessment and management. They also all stressed the lack of nurses' knowledge of pain, the lack of assessment tools use and the absence of neonatal pain guidelines. These studies indicated that the availability of the hospital protocols is inconsistent. Therefore, gaps between knowledge and practice do exist (Stevens et al. 2003). The staff may also have their own interpretation when using these guidelines.

Many factors have been mentioned that affect pain assessment of neonates, including the caregivers' experience, attitudes, workload and shortage of staff. However, the lack of knowledge or education were the main barriers for nurses when making a pain assessment to effectively manage the pain of neonates. Most of the studies that were reviewed were quantitative. It is also important to note that all of these studies present data that shows what HCPs say they do, and not what they may actually do in practice. None of these studies have undertaken an observation of how the nurses manage small babies' pain in NICUs and what factors might affect this.

This indicates that there is a need for qualitative research to explore in-depth how the nurses assess and manage neonatal pain, which might throw further light on the nurses' knowledge in this area and the factors that can lead to effective neonatal pain management. Therefore, the current study will use an ethnographic approach that will enable the researcher to observe the NICU to explore how the nurses' approach and interact with babies. It will also enable the researcher to look at the way in which the organisational culture informs the management of neonatal pain, for example: how pain is perceived, assessed, and managed by nurses, the barriers or challenges the staff face from implementing appropriate strategies, the impact of NICU environment on nurses in terms of interaction, and communication with babies.

The following section reviews the literature that is particularly relevant to the evidence-based strategies that relieve babies' pain and the common complications that newborn infants may experience. In the

findings chapters, this literature will be compared with the available pharmacological and nonpharmacological strategies in the research site at Hope Hospital (pseudonym).

4.8 Evidence-based strategies for pain

The literature provides evidence of healthcare providers' practice in relation to neonatal pain. Although there are major gaps in the healthcare providers' knowledge regarding the most effective way to prevent and relieve pain in neonates, proven and safe non-pharmacological strategies (e.g. breast feeding, Kangaroo mother care, control of the environmental stressors such as noise, excessive handling, light) and pharmacological (e.g. use of opiates and other medications) are currently practiced in the Western countries for routine minor procedures (The American Academy of Pediatrics 2006).

The prevention of pain in neonates should be the main target of healthcare providers within the NICU not only because it is an ethical expectation but also because frequent painful stimuli have the potential for detrimental consequences in later life (Porter et al. 1997). For example, it can lead to altered pain sensitivity (Ruda et al. 2000; Grunau et al. 2001; Oberlander et al. 2000), which may persist into adolescence (Anand 2001). According to Grunau et al. (2001) and Peters et al. (2003), altered pain sensitivity can be improved if effective pain relief is provided. Moreover, it has been suggested that repeated painful stimuli may cause permanent neuro-anatomic and behavioural abnormalities, although this is inferred from animal studies (Ruda et al. 2000; Anand et al.1999).

The American Academy of Pediatrics (2000) stressed that every neonatal healthcare facility should implement an effective pain-prevention programme, which includes strategies for routinely assessing pain, decreasing the number of painful procedures carried out, effectively using pharmacological and nonpharmacological strategies for the prevention of pain associated with routine minor procedures, and removing pain associated with any operation and other major procedures. However, there are no clear guidelines on how this can be done effectively. Furthermore, Porter et al. (1997) argue that although it may not be feasible to completely stop pain in neonates, a lot can be done to reduce the amount and intensity of pain. This can be achieved through effective use of the pharmacological and non-pharmacological therapies.

Proper training and education is needed to keep the staff up to date and ensure proper pain management.

Given that pain is a very significant issue for neonates in NICU, the quality of baby's care depends on the pain knowledge and management skills of the NICU nurses (Wang and Tsai 2010), particularly in their use of pharmacologic and non- pharmacologic strategies.

Infants treated in a NICU are exposed or subjected to a variety of painful procedures and to environmental stress as part of daily practice to effectively maintain their status. Simons and MacDonald

(2004) described that these infants experience on average 14 painful procedures during the first 2 weeks of life within a period of 24 hours among 151 neonates (Grunau 2002). As a result, HCPs should be cautious of the deleterious effect of the procedural and environmental stress through providing a friendly and healing environment. This will be explored in the next section.

4.9 Neonatal intensive care environment and environmental stressors

Despite the advances that have led to improved survival rates of premature infants, adverse developmental outcomes are a continuing problem (Glass et al. 2015). The NICU environment has been shown to aggravate these problems.

During hospitalisation in a NICU, babies are exposed to various environmental stressors, such as noise, lights, excessive handling. Regular exposure to light and noise may cause physiological stress in infants, which may increase their length of stay in the NICU and ultimately decrease cognitive development. The physiological effects of light, noise and handling on the preterm neonate have been well documented (Aita et al. 2012; Wachman and Lahav 2010; Raman 1997).

The preterm infant's central nervous system is placed under enormous stress by an often abrupt, traumatic transition at birth from the intrauterine to the extrauterine environment. This bombardment of extrauterine stimuli often manifests as physiological responses, such as bradycardia, apnoea and poor respiratory control (Wachman and Lahav 2010), and behavioural disturbances, including sleep disturbance, motor arousals (such as startles, crying, hypoxemia, tachycardia) and increased intracranial pressure (Raman 1997). Frequent disturbance or handling can lead to increased intracranial pressure, which may in turn contribute to intraventricular haemorrhage (Raman 1997) and lead to neurodevelopmental sequalae. High noise levels and excessive handling (e.g. handling babies for daily care, like diaper changing, feeding, and checking vital signs if nurses are not cautious and gentle) directly contribute to this problem.

Aita et al. (2012) state that loud noise is known to contribute to hearing loss. Brown et al. (2010) emphasised that preterm babies exposed to prolonged excessive noise are at a greater risk of hearing loss, abnormal brain and sensory development, and speech and language problems. He added that excessive auditory stimulation produces undesirable physiologic responses, such as fluctuations in heart rate, blood pressure, and oxygen saturation. Consequently, noise levels in the NICU should be controlled to improve the physiologic stability of the critically ill neonates and, therefore, enlarge the potential for infant brain development.

The brightly lit environment in the NICU, accompanied by the nonstop noise produced by alarms, incubator doors, staff noise (laughter, talking) and daily doctor’s rounds, results in an intense level of

sensory stimulation (Ramen 1997). Although little is known about the effects of light exposure on tiny babies, a randomized control trial study by Raman (1997) demonstrated that sick and vulnerable infants that are exposed to normal light levels in the NICU may develop retinopathy of prematurity. Thus, development is not just delayed but it is also altered. In addition, Slevin et al. (2000) showed that significant alteration of the NICU environment for light, noise, infant handling and staff activity for a specific period of time resulted in increased median diastolic blood pressure, mean arterial pressure, neonatal movements and thus increase in neonatal stress. This demonstrates how the NICU environment is crucial for the best neonatal outcome (Nair et al. 2011).

To counteract the negative results of the environmental stressors, certain measures have to be made, such as dimming the lighting by covering the top of incubator when possible to enable these babies to progress more quickly in their sleep wake patterns (Nair et al. 2003). Covering the incubators, reducing noise and minimising handling are some of the measures which are recommended when implementing the 'quiet hour', while the baby remains attached to cardiac and respiratory monitors to be able to detect any abnormal changes (Nair et al. 2003). Therefore, HCPS should maintain careful control of the NICU environment stressors (i.e. sound, light, position, and touch), to minimise the deleterious effect on the preterm infants. The NICU environment has also been shown to negatively affect the nurses' work, as will be shown in the following section.

4.9.1 Impact of the NICU work environment on the nurses

Neonatal nursing is a type of critical care nursing. The intensive care environment that is stressful for patients is also known to be stressful for nursing staff, although the stressors may differ.

Critical care nurses are responsible for making immediate decisions, stabilizing critically ill patients, meeting the needs of patients and their families, and liaising with doctors and other multidisciplinary personnel. Critical care nurses are specifically educated to make necessary judgements to provide the best possible care to patients and their families (France et al. 2011). Nightingale (1969) believed that the nurse is the centre of the hospital environment. Research has shown, however, that if the nurses do not work in a trusting environment with autonomy, and feel empowered, then their stress levels increase and burnout will occur, which results in high staff turnover (Binnie and Titchen 1999; Boyle 2004; Kluska et al. 2004; Mrayyan 2004). Moreover, the critical care environment can have a serious effect on the nurses' job satisfaction and retention, as well as on patient care outcome (Ulrich and Kear 2014).

The negative effect of the work environment was supported by Aiken et al.'s (2011) large study of work environments in nine countries and incorporating 655 hospitals and more than 39,000 nurses. They found that hospitals with unsupportive work environments were associated with negative outcomes for nurses, such as burnout and job dissatisfaction, and this decreases the patients' quality of care. This

study concluded that the impact of better staffing was greater in hospitals with the most supportive work environments. For example, the researchers reported that decreasing the nurse workload by one patient per nurse lowered the mortality of the patients by 9% in hospitals with the best work environments and by 4% in hospitals with average work environments but had virtually no effect in hospitals with unsupportive work environments (as demonstrated by poor staffing levels). Valizadeh et al. (2012) reported that the NICU environment is one of the main stressors that affect the work efficiency of the nursing staff, as well as the well-being and quality of nursing care, and high workload was a key factor. Further studies are needed to identify and better understand the situational factors impacting on the well-being of critical care nurses.

France et al. (2011) identified that creating positive healing environments is one of the main needs for staff to provide quality patient care and to achieve positive institutional outcomes. In a related mixed methods study Franck et al. (2011), explored the perceptions of critical care nurses of their current environment and asked what they believed was needed to create a healing environment. They found that trust, respect and empowerment emerged as the essential structures to create a healing environment for nurses, patients, families, and healthcare providers. They maintained that to create positive healing environments, the nurses must feel empowered and have the accountability and responsibility to provide quality nursing care. It was also noted that administrators must be open to empowering the nurses to recognise and use their power. In addition, a unit philosophy and standards of practice were recommended. However, the same study needs to be replicated in other settings to explore the influence of a healing environment on nurses because the findings may differ in other organisational cultures.

The following section will discuss critical care nurses' perceptions of stress and stress-related situations in the workplace.

4.10 Critical care nurses' perceptions of stress and stress-related situations in the workplace.

Critical care nurses may experience stressful situations in their daily working environments, as has been found in a qualitative research study of critical care nurses in South Africa (Moola et al. 2008). The major stress-related factors in the ICUs were found to be shortages of knowledgeable nurses, absenteeism, doctors' demands, and a lack of support from management and from colleagues. As a result, the authors recommended the implementation of stress management programmes incorporating debriefing services for critical care nurses and in-service education programmes to improve the critical care nurses' consciousness and awareness to increase their resilience. They added that effective communication systems should be established between managers and critical care nurses to address any inconsistencies as they arise, including critical shortages of staff and equipment. Consequently, in the present study, it will be interesting to explore communication systems when conducting the fieldwork

and to examine how organisational culture has a great role in affecting the work place environment, which in turn impacts the staff's work.

4.11 Conclusion

This chapter has covered many areas related to neonatal pain and its management, including an historical background of pain and an explanation of the physiology of neonatal pain, which emphasised that infants are more sensitive pain than adults. It was noted that there was also lack of literature on this topic and, therefore, the literature on adults and children was used. The literature came from a range of high- and middle-income countries (i.e. Middle Eastern and Western). The key finding of the review focused on the nurses' knowledge and attitudes towards pain, and their perception and knowledge of pain management. The EBP strategies that are needed to reduce the complication of pain were also discussed to justify this study. The role of a healthy critical care environment and its impact on the nurse's work and the patient's outcomes was also explored.

Chapter 5: Methodology

5.1 Introduction

This chapter discusses the methodology and methods that have been used in this study. The justification for the choice of an ethnographic approach is provided, along with how this applies to the research objectives. Then, the history, advantages and disadvantages of ethnography are explored.

All of the achievements and barriers faced during data collection are discussed. Reflective accounts have been included for more clarification by sharing my thinking. To maintain the anonymity of the hospital, a pseudonym for the research site, 'Hope Hospital', is used throughout. However, complete anonymity of location is not possible because it is the only unit of its kind in Oman. The details related to research site have been altered and not referenced to maintain anonymity. The participants' anonymity was also protected by giving numbers throughout the thesis. Moreover, to protect the anonymity of head nurse, she was identified by a key informant throughout the thesis.

5.2 Aim

The aim of the study is to explore the experiences and understanding of neonatal pain and its management by nurses in a NICU in Oman.

5.2.1 The research objectives

- To explore the knowledge of NICU nurses about the concept of neonatal pain using semistructured interviews.
- To investigate the knowledge and skills of NICU nurses on pain assessment using semistructured interviews.
- To identify the pain management strategies used by NICU nurses using observational fieldwork and semistructured interviews.

5.2.2 Research questions

This study will specifically seek to answer the following questions:

- How do NICU nurses' approach, handle, and interact with babies while providing care?
- How do NICU nurses assess a baby's pain?

- What strategies and approaches do NICU nurses use to reduce and control the baby's pain and what are the influences that affect the use of these strategies? For example, do they use 'quiet hour', positioning devices, minimise light and noise, swaddle, or communicate with the babies when handling them?
- How do nurses perceive babies and their experiences/ability to experience pain?

The relationship between the research questions and the data collection methods is shown in **Appendix B: Data collection methods**.

5.2.3 Long-term outcomes

•To contribute towards creating a caring culture for neonatal pain and its management in Oman.

•To help improve pain management modalities.

5.3 Research approach

5.3.1 Choice of methodology

In recent years, there have been extensive debates within the social sciences about the relative merits of quantitative and qualitative approaches for research. These approaches represent entirely different world views (Hughes 2015). However, both are valuable, depending on the type of research questions that are asked by researchers.

Qualitative research provides written descriptions of how people experience certain phenomena and how they experience the issue and try to make sense of these phenomena. The key purpose of qualitative research is to learn about a problem from the participants and to engage them in the data collection process to obtain that information. The research provides information about phenomenon, which describes events, experiences, behaviours, beliefs, opinions and emotions (Creswell 2013; Silverman 2013). However, this depends on the research questions. Researchers collect the research data through variety of methods with participants; for example, with observation to observe how they behave and act within their social context. According to Blaxter et al. (2006), an interview is a valuable data collection method that offers researchers the opportunity to uncover information that is not accessible using other methods, such as questionnaires and observations. They added that interviewing is not just a data collection tool but is also a natural way of interaction between researcher and participants that can take place in various situations. An interview is considered as a worthwhile method of getting insights into

participant's perceptions. It can fit well with other methods, such as observation, by "providing in-depth information about participants' inner values and beliefs" (Ho 2006, p. 11). In the use of the interview, the researcher has control over the interview and can keep the participants focused on track to completion. An interview can also capture and investigate the participant's feelings and behaviours, such as verbal and nonverbal cues, obtaining richer data, as the questions can be rephrased and simplified by the researcher (Alshenqeeti 2014).

Qualitative approaches seek to explore phenomena using flexible approaches that allow for evolution and change (Creswell 2013). For example, during the observation, the researcher has little control over the activities of the observed and is expected to be as non-judgemental and flexible as possible in order to see the reality of the situation (Green et al. 2015). For example, in this study, I have not interfered by any means in the baby's care in the NICU.

Qualitative research commonly uses various methods rather than relying on a single data source to get a better understanding of the issue they are studying (Silverman 2013). Therefore, semistructured or unstructured methods such as in-depth interviews with participant observation are used (Creswell 2013). For the current study, I collected data through observational fieldwork and semistructured interviews because this allowed me to see the everyday life of the unit. However, qualitative research has some disadvantages. This type of study is limited to a number of individuals and, therefore, data can have a limited generalisability to the whole population (Mason 2002). A cross-case comparison will also be more limited. In the data analysis stage, qualitative researchers need to engage in a complex, challenging and time-consuming process because the database they build contains long passages that include the responses and various perspectives of participants (Creswell 2013). In addition, with qualitative methods, the relationship between the researcher and the participant is often less formal in terms of the power distance between the researcher and the participant than in quantitative research. However, being less formal with the participants could be counted as an advantage because it reduces the researcher's bias.

Qualitative research has two main advantages: it is open and responsive to its participants. For example, qualitative interviews mostly ask open-ended questions that are not necessarily worded in the same way. With open-ended questions, participants are free to respond in their own words that allow them to elaborate in more detail. These responses tend to be more complex than a simple 'yes' or 'no', which is typical in quantitative research (Mason 2002). This leads to meaningful responses that generate rich data. Another advantage of using open-ended questions is that one can get information that is not anticipated by the researcher. However, in the use of quantitative research, particularly in the use of structured survey, respondents may encounter problems where the questions do not list the favourable answer that the respondents make.

Flexibility of the data collection process is a significant advantage. For example, use of open-ended questions is mostly common in qualitative research and they are not worded in the same order when questioning the participants. Therefore, the participants are free to respond in their own words. Further exploration through follow-up questions can be made using the probing technique. The research process for qualitative research is emergent. This means that the research questions may alter slightly as the study evolves (Green et al. 2015; Alshenqeeti 2014).

In contrast, quantitative research expresses the world through measurement, more specific y through numbers, percentages, probability values and variance ratios (King and Horrocks 2010). Quantitative research seeks to confirm hypotheses about phenomena that analyse cause and effect relationships. This would be the case, for example, in a study of causal relationships among factors used to test effectiveness of medication on a large number of neonatal patients. In quantitative research, highly structured methods, such as questionnaires, surveys and structured observations, are used to clarify the prediction of cause and effect for generalisability (Cassell and Symon 1994). Quantitative researchers can only provide fixed responses in their questionnaire for their participants based on their own perspective and experience with a particular topic of interest. Moreover, any response that falls outside their list is either not considered or falls into the other category (Green et al. 2015)

One of the key differences between quantitative and qualitative methods is flexibility. Generally, quantitative methods are rigid and attempt to control all of the variables that might influence the findings; therefore, minimising the subjectivity of the researchers. For example, researchers ask identical questions to participants in the same order when using surveys and questionnaires. The most commonly used questions are ‘close-ended’ or fixed questions. Inflexibility has the advantage of allowing for meaningful comparison of responses across participants and study sites. However, quantitative research is an inappropriate approach for investigating people’s experiences and emotions. Regarding the exploration of meaning in nursing, quantitative research findings have little to bring because nursing is humanistic and individualised (Bassett and Bassett 2003).

In quantitative research, observation is not considered to be a very important method of data collection because it makes it difficult to conduct observation on a large sample. It is also argued that observation is not a reliable data collection method because different observers may record different observations (Silverman 2013). However, if it is used at all, observation is more appropriate at the earliest stage of a quantitative study, such as prior to framing a questionnaire (Silverman 2013). Conversely, observational studies have been essential to qualitative research because observation is the chosen method to understand a culture as in my research or a subculture Silverman 2013).

For my research, I have chosen to undertake qualitative research because it fits better with my research aim and will provide me with the answer to my questions through observing and interviewing. In other words, it would enable me to explore and understand the NICU culture in terms of how neonatal pain

is assessed and managed by nurses in NICU. It will also enable me to observe how the nurses' approach and interact with babies, and to explore how the culture of NICU nursing care is influenced by organisational culture. In addition, a qualitative approach will help me to explore the nurses' understandings of the baby's pain and management. It will also provide in-depth insights into the everyday world of nurses working in an Omani NICU.

Second, qualitative research fits with my worldview about the importance of understanding meaning, more specifically, understanding the organisational culture and environment. Moreover, it is the best choice to be able to probe into responses or observations as needed, and to obtain more detailed descriptions and explanations of experiences and behaviours (Alshenqeeti 2014); for example, exploring the barriers that hinder NICU nurses from focusing on patient-centred care, such as the impact of NICU environment on the nursing staff's daily practice and interaction with babies. Qualitative research is the most appropriate approach to gain in-depth meaning and understanding of the social world from the NICU nurses' perspective on neonatal pain.

5.4 Qualitative methodologies

Consequently, I have chosen to use an ethnographic approach to explore how neonatal pain is experienced and managed by nurses in a NICU in Oman.

5.4.1 Historical overview of ethnography

Ethnography is one of the social research methodologies (Hammersley and Atkinson 2007). It originated in the early-twentieth century with Western anthropologists such as Boas, Malinoski, Radcliffe-Bron and Mead (Atkinson and Hammersley 1994), whose studies were carried out in non Western cultures (Hammersley and Atkinson 2007).

Over time, ethnography gained recognition in other disciplines, including sociology, education and nursing. The use of ethnography in nursing has enabled nurse researchers to understand health and illness phenomena as studied in cultural contexts (Wolf 2007). As ethnography gained a wider acceptance among nurse researchers, its use has gone beyond questions surrounding health and illness towards gaining a better understanding of the societal issues that affect nursing practice.

5.4.2. What is ethnography?

Ethnography is defined as an in-depth study of a small group of people actions and accounts within their natural everyday settings, and collecting relatively 'unstructured' data from a range of sources, including observation, informal interviews and documentary evidence (Hammersley and Atkinson 2007)

In ethnography, researchers seek to understand and interpret the meaning of patterns, behaviours, beliefs and language, as well as experiences of a defined shared cultural group (Creswell 2013). This provides a better understanding of behavioural differences and inter-group conflicts (Atkinson and Hammersley 1994). Ethnography involves extensive observation of a particular group, mainly through participant observation, in which researchers are engaged in daily lives of people using observation and interview (Creswell 2013). The central focus of ethnography is culture. It enables researchers to understand the cultural rules, norms and values and how they inform and impact behaviours (Boyle 1994). For example, in my study, ethnography is used to explore the culture of a NICU in terms of neonatal pain, assessment and its management in Oman, and to understand how the culture influences the neonatal pain practice. It also focuses on the culture of neonatal nurses in terms of behaviours and how they approach, handle and interact with babies in pain.

Ethnography is characterised by long-term participatory fieldwork on a small scale followed by an intensive period of writing. Typically, ethnographic research gathers data from a range of resources, such as interviews, observation and documents (Genzuk 2003). In particular, observation provides an opportunity for researchers to immerse themselves in the culture being studied.

Formal and informal interviews are regarded as the ethnographer's most essential data gathering technique because it enables them to record the participants' responses, which are essential for coding and analysis at a later stage (Fetterman 2010). The analysis of documents such as patient's records, policies, procedures, results of tests and census figures can help researchers to understand the community and to triangulate the participant observations and interview findings (Roper and Shapira 2000). These strategies are essential in helping researchers to better understand the culture being studied and to help in the achievement of the methodological rigour of the study (Holloway and Wheeler 2010).

Based on Hammersley and Atkinson (2007), the process of analysis in ethnography is not just a matter of managing and manipulating data but it is also about grounded theorizing, where there should be a continuous iterative process in which ideas are used to make sense of data and data is used to change ideas. Therefore, in this study I had to go back and forth between ideas and data. In ethnography, the researchers do not let their personal biases affect the study findings of the cultural system. It is a participant-driven rather than a researcher-driven process because ethnographers believe that if they entirely use their personal thoughts or only depend on their personal thoughts, then they will end up

only seeing things through that specific focus. They believe that learning about the group or phenomenon does not take place unless ethnographers begin with a more open mind (O'Reilly 2012). Ethnographers take past knowledge and practical limitation as an advantage, while trying to keep as open a mind as possible, to see the complex nature of the world around us and allow theories to emerge from the data. This involves constantly participating in a circular rather than linear way: observing, writing, reflecting, reading various resources, and thinking, talking and listening to people. Ethnography is, therefore, both iterative and inductive (O'Reilly 2012).

Reflexivity and understanding the researcher's position are essential parts in the research process for ethnographers: "The positionality that researchers bring to their work and the personal experiences through which positionality is shaped, may influence what researchers may bring to research encounters their choice of processes and their interpretation of outcomes" (Foote and Bartell 2011, p. 46). This means that ethnography looks at all aspects related to the study. For example, my study focusses on NICU culture of neonatal pain and its management. Thus, to get the whole picture, not only the interaction and approaches of nurses when providing care were observed but so was their interaction with other nurses and doctors. However, the nurses' interaction with parents or with managers was not included because I only focused on the nurses. The unit routine was observed for 6 weeks in various shifts to better understand the real life of the NICU. Consequently, using ethnography will allow me to seek and understand the meaning of what was observed in a larger context, including the unit, nursing and medical culture and the Omani culture.

5.4.3 Why choose ethnography?

Ethnography was chosen as an approach to study a culture to understand the culture at NICU, how neonatal pain is perceived and interpreted by NICU nurses and the culture of NICU nurses, and to explore how this may influence the assessment and management of neonatal pain. In other words, situations and events are interpreted from the perspective of the participants (i.e. NICU nurses), as supported by Nurani (2008). My research focuses on exploring how neonatal pain is perceived and managed by nurses in a NICU in Oman. An ethnographic approach is suitable for an in-depth investigation of neonatal pain and its management, as proposed in this study. It enables me to explore how organisational culture influences the management of neonatal pain, for example: how pain is perceived, assessed and managed by nurses, the barriers or challenges the staff face in implementing appropriate strategies and the impact of NICU environment on the nurses' interaction with babies. Using ethnography through observation adds breadth and provides answers to contextual questions that cannot be answered by interviews alone (Morse and Field 1996). Therefore, in this study it is the best approach because my research questions focus on a natural setting and observe things as they naturally occur, particularly how nurses' approach, behave and interact with neonates in the NICU. To achieve this goal,

observation was used to better understand a particular group, such as NICU nurses, to know what is going on and how things are dealt with (i.e. neonatal pain and how it is managed). In comparison with using quantitative research, for example via use of questionnaires, I would only be able to test the knowledge of the nurses about pain and management but what I will not be able to explore are the other factors that affect the nurses' knowledge. Participants can offer socially desirable responses using the questionnaire but if ethnography is used with various methods, then it will allow me to compare what the participants say and what was seen in the observation.

Although various hospital ethnographic studies have been conducted in the Middle East (Inhorn 2012; Inhorn 2003), it is important to note that less attention has been given to ethnographic studies in regards to neonatal pain. Geest and Finkler (2004, p. 1996) state that the "lack of hospital ethnographies may be associated with the defensiveness of hospital authorities and their hesitation in allowing observers to enter their workplace". Although this article is old, I share the same view, particularly in our hospitals in Oman. In my professional experience, the senior managers and stakeholders act as if hospital rules and regulations should be applied to all health users and the community as a whole. Therefore, the patients must adhere to these rules and regulations. However, several hospital ethnographies are now available (El-Nemera et al. 2006; Mattingly 2010). In particular, Geest and Finkler (2004) argue that hospital culture is far from the real world, and hospitals are not identical. Hospitals take on different forms in different cultures and societies. In addition, medical views and technical facilities may vary considerably leading to different diagnostic and therapeutic traditions. Therefore, studying hospital culture is essential because it will open a door for sharing our experiences with a hospital's culture with other countries for learning purposes. This can be an eye-opener for the healthcare providers and it can help them to reflect upon and review their practice.

From a nursing perspective, ethnography enables researchers to understand the inter-relationship between people and their environments in the society in which they live. It provides the participants with an opportunity to share their perspectives of societal events and issues, which can then serve as basis for researchers' understanding of the meanings attributed to them. Moreover, ethnography offers nursing with an opportunity to better understand and appreciate nursing as a profession and the role that it plays in society (Cruz and Higginbottom 2013). For example, it could help nurse researchers to understand the parents' view of the delivery of nursing care or health services as a whole. Other methodologies were considered but rejected; for example, phenomenology was not selected because it focuses on individual experience rather than understanding culture.

5.4.4 Limitations of ethnography

Ethnography is time consuming because of the need to spend adequate time in the field and because of the in-depth nature of the data collection. In addition, ethnography does not aim for generalisability of the study findings (Savage 2000) because the outcome of the study cannot be applied to another culture in a different setting. As a result, funders may be reluctant to fund this form of research (Savage 2000). Funders may be interested to conduct much less expensive research with a survey than to engage a researcher in a culture for a given period of time to extract extensive information (Goodson and Vassar 2011). Ethnographic data collection methods also have limitations. I acknowledge that observation may impact practice. A fundamental potential effect of observation is that it is likely to alter people's behaviour, especially if the focus is on their professional behaviour (Silverman 2014). This is a limitation of this study and is known as the Hawthorne effect, which refers to the way in which the presence of an observer in some way influences the behaviour of those being observed (Paradis and Sutkin 2017; Parahoo 1997). In terms of use of the interviews, it was argued that interviews have poor reliability due to their openness to so many different types of bias, particularly if the researcher seeks to draw comparisons between datasets (Creswell 2013; Alshenqeeti1 2014). To avoid this problem, certain measures were taken. For example, taking notes does not just depend on tape recorders. Therefore, to facilitate later discussion with the participants at the end of the entire interview process, I conducted a pilot interview and provided enough space for the participants to chance to clarify themselves without any interruption and gave them a chance to sum up (Alshenqeeti 2014). Ethnographers may also encounter a great challenge where they may not be accepted in a culture to gather accurate information for a long period of time because their presence may be disturbing and threatening to the participants and may prevent them from revealing the reality of the daily practices in the NICU. Observing participants for a long time can also be intimidating, which can lead to a change in their usual behaviour (as explained later in the data collection section). Finally, ethnographic research relies on observing a few people and it often takes a longer time to produce. Also, the observers' cultural bias or ignorance may influence the credibility of the data.

5.5 Research design

Parahoo (1997, p.142) describes a research design as "a plan that describes how, when and where data are to be collected and analysed". My research design was an ethnographic study based in a NICU in Hope Hospital, one of the government hospitals in Oman. This study was conducted for 6 months and it involved two phases of data collection. In phase 1, I used observations to observe the nurses' behaviours when approaching, handling, interacting and managing the babies with neonatal pain, interviews and use of hospital documents related to policies and guidelines. In phase 2, I had to return to the scene after analysing the data to get a broader picture about the organisational culture of Hope

Hospital. In this phase, I met with key informants in the managerial role for three continuous days in December 2015 to get a better picture about the organisational culture, in particular to the hospital leadership and to check some hospital documents for further details. For analysis, thematic analysis was undertaken using Braun and Clarke's (1998) approach, which has six stages: familiarising with data, generating initial code, searching for themes, reviewing themes, defining and naming themes and producing the report (which will be explained later in the analysis section).

5.5.1 Research setting

The research setting is Hope Hospital NICU in Oman.

5.6 Sample

5.6.1 Inclusion criteria

- A total of 16 NICU nurses with general nursing training any of the following qualifications:
  - A post-basic diploma,
  - A specialist NICU course,
  - In-house training.
- A range of (5–20) years of experience of NICU nursing to explore whether, how and why nurses differ in their behaviours, approaches and beliefs regarding pain and pain management.

The year of experience for the study participants is of importance for the study because these participants would have reasonable experience in NICU practice and I presumed that they know better about the unit culture and would be able to explore what is going on as they will already be rotated in all the dependencies in the unit. Based on the research hospital protocols, the NICU nurses get full exposure of the unit in all of the dependencies (i.e. high, inter and low dependencies) after they complete only 2 years of experience in low dependency and intermediate dependency. No NICU nurse will be allowed to enter the high dependency room to look after critically ill neonates. They will only be allowed to enter after she or he gets full orientation and master the care in both intermediate and low dependencies of the unit. Consequently, 5 years of NICU exposure as a minimum criterion of the study may give enough time for the nurses to understand the routine of the unit. However, before conducting the study, I encountered some problems in the study criteria because the unit had less than 25 nursing staff who met the study criteria. Most of the unit nurses were juniors with an experience of less than 5 years or above 15 years of experience. The minimum criterion of my study was 10 years of experience and the

maximum15 years. As a result, I had to get an approval to extend my study criteria from 5 to 20 years of experience from both the ethical committee in Oman and that in Cardiff University. Once the approval had been received, recruitment started.

5.6.2 Exclusion criteria

The staff who were on leave during the data collection phase or those who were on attachment (i.e. on residential course coming from other hospitals) were excluded from the study sample.

5.6.3 Sampling

Purposive sampling was conducted for the nurses working in the NICU in one of the government hospitals. Polit et al. (2001) defined purposive sample as a type of non-probability sample that is selected based on characteristics of a population and the objectives of the study. Purposive samples are often used when the researcher wants a sample of individuals with expertise in particular knowledge of a certain topic. Therefore, a purposive sample was planned for approximately 20 neonatal nurses to be recruited until data saturation was achieved to effectively explore the study topic. Polit and Beck (2007) recommend that in ethnography, sampling may begin with 'big net' approach. This refers to mingling with and having conversation with as many participants of that particular culture under study. The purposive sample included staff from various roles (e.g. post-basic Graduate nurses, nurses who had in-house NICU training and staff with general nursing training) to better understand the possible differences on how they perceive, assess and manage pain.

Polit and Beck (2007) suggest that an investigator should not sample people known to them because that relationship can interfere with their questioning and observation. If the investigator has a relationship with the staff, then this could influence on the study data. In my study none of the participants were known to me.

According to Polit et al. (2001), in qualitative research, the sample size should be determined based on the information needs. The investigator analyses the data that is taken from the respondents and repeatedly asks questions until no new information is provided and there is no need for further data collection. This is known as data saturation. If the analysis of study shows that there is still a gap in the study in the theoretical formulation that needs closing, then further data collection is made until no new information is provided. Data saturation in this study was achieved when 16 interviews were conducted and when staff responses were similar and no new information was provided.

5.6.4 Access and recruitment

The role of the gatekeeper is critical for accessing the research site and recruiting participants. The gatekeeper within healthcare research has some power, control and responsibility to protect potentially vulnerable people (Holloway and Wheeler 2002). Their responsibilities may include protecting and safeguarding children and others such as patients or their families and professionals themselves (McFadyen and Rankin 2016). They must be protected from some researchers who may not be scrupulous in adhering to ethical principles (i.e. free from coercion). To gain the trust of the gatekeepers, they need to be kept well informed with clear understanding of what is required of them and their important contribution to the study. This involvement should also convince them of the integrity of the study and the competence of the researchers (McFadyen and Rankin 2016).

All researchers need to pay careful attention to accessing the research site to develop rapport and facilitate the research process. When I made up my mind about doing my research in neonatal pain, I also made up my mind in which research site I would conduct my study. As an educationist, I have lots of contacts in the many hospitals in Oman because we accompany our students for the clinical placement in various hospitals. Before I started my PhD, I discussed the research with two key informants (managerial role) in the research site and shared my interest with them. Luckily, both of them welcomed the idea and thought it was a good opportunity to improve practice in their unit because there was a great need to pay attention to neonatal pain. When I started my PhD, I kept in contact with them to remind them about my research and informed them about my return to Oman. Through them, my research was discussed with the head of the unit (the senior consultant) and I then got the news that they will all support my work. As a result, my study was welcomed and facilitated.

For the protection of participants' and patients' rights, this study was granted ethical approval. This will be discussed in the ethical consideration of this study later in the chapter.

To avoid the challenges from the gatekeepers. Polit et al. (2001) suggest that advanced planning is essential to gain access. For example, ineffective interaction with gatekeepers can cause difficulties. This requires the researchers to have strong interpersonal skills, a sound understanding of ethical principles, and knowledge of who can be approached for advice and when to do so. However, many strategies can be employed to avoid or at least minimise these potential difficulties.

To access the research site, certain steps were followed. First, an informal discussion about the research study was undertaken ahead of time with the NICU key informant through the NICU clinical instructor, before applying and submitting my research proposal to the Cardiff University Research Ethics Committee (REC) and the Research and Ethical Review & Approve Committee (RERAC) in Oman for their review and approval. The key informant of the NICU in Hope Hospital showed her willingness

and assured me of her support of my study. The participant's right was protected through the gatekeeper checking the process of gaining access to their access site before commencing the study. The ward sister and the head of the unit sat with me to clarify how I will conduct the data, such as checking the week of the observation and checking whether I adhered with my research plan throughout the data collection period.

Second, when the RERAC was obtained from Omani MOH, an official approval letter for the research site was issued **(see Appendix C)**. This made it possible to access the research hospital in Oman (i.e. Hope Hospital). To seek the approval of the gatekeepers, other formalities were followed.
A formal letter to the director of the hospital and the nursing principal along with the Ministry of Health Research and ethics committee was submitted to gain their permission to conduct the study (**see Appendix D: permission letter)**. I was then directed to the hospital's local research and ethics committee to revise and re-submit my study research proposal for their review and approval. The process took a month until their approval was achieved. Then, I was given a formal letter to enter the NICU to get a written agreement of both the unit head and the ward sister. When I entered the unit, I was welcomed because the ward sister's verbal agreement was achieved previously.

To recruit nursing staff, important matters regarding the flow of the study especially during the data gathering was discussed in-depth with these senior gatekeepers (i.e. the head of the unit and ward sister). Following these meetings, a formal letter of their agreement was issued and submitted to the hospital local research and ethics committee to start conducting my study. The whole process lasted over 7 months before I was finally able to start my research.

Because the nursing staff number in the unit was large (above 127), efforts were made to find the nurses who met the study criteria before recruiting from the nursing staff. Therefore, the names of the nurses who met the study criteria in the duty roster were identified with the help of the unit clinical instructor, comparing their years of experience and qualification to save time in publicising the study. To facilitate recruitment for the study, the members of the nursing staff who met the study criteria were gathered in various meetings and in different shifts to ensure that the entire nursing staff were made aware of the study. None of the nurses who were requested to attend the meeting during work time showed an unwillingness to attend. They came based on their wish and they were free to attend without coercion.

To recruit nurses for the study, several strategies were adopted. Many visits to the NICU were arranged to publicise the study via a meeting with all of the gatekeepers (i.e. ward nurse and acting ward nurses, the head of the unit and the clinical instructor of the unit) and nursing staff. Meetings were held on different days for the nursing team. Because most of the staff had problem with their transport, all of the meetings were held during their duty in various shifts.

In these meetings, the staff were provided with a full explanation about the aim of the study. Information sheets (nurses) about the study were also provided **(see Appendix E).** I met the nursing staff on various days and shifts to cover most of the staff in the unit. The nursing staff were given at least 2 weeks to familiarise themselves with the study, read the information sheet, discuss the study and ask questions. Before the commencement of the fieldwork, a written informed consent was obtained from the nurses whom I interviewed and observed. After each meeting, the nursing staff were asked to submit the consent form to the assigned senior nurse office chosen by them in their unit. Because the senior nurse is not based in the unit, a sealed box was made and placed in the clinical instructor office for the nurses to put their consent form. The clinical instructor did not know the identity of the participants because all the nurses were requested to put their consent form in an envelope. However, it was clear for anyone to know who was participating and who was not during observation.

To increase awareness of the ongoing research, posters were put up on the unit's bulletin boards for the doctors and parents, and hand-out information sheets were provided to all the staff and parents **(see Staff and Parents' Information Sheet, Appendices F and G, and the poster for all staff in Appendix H)**. I advised them that a study was being conducted, clarified its aims and informed them that ethics approval had been given. Regular meetings were held for the parents to attend, to allow them to ask questions and clarify everything about the study. Due to lack of parents' presence on the unit, some parents whose babies had recently been admitted to the unit were seen individually to explain the study and gain their permission. All of the parents that I approached showed a positive attitude and a willingness to participate in the study. Different days were chosen to meet the parents in the unit in the mothers' residence to ensure that they were willing to enrol their babies in the study and making sure that they were fully informed about the study. One of the basic objectives of this study was to observe the nurses on how they approached, handled and interacted with babies in NICU; therefore, the parents' permission was necessary, although there would be no alteration in the care that the babies received as a result of the study. The parents were reassured that their baby's care would not be affected in any way

Because some parents were in the catchment area, informal one-to-one meetings were also held with them during their visiting time to inform them about the study and request their permission. I negotiated with the unit ward nurses to make Arabic (see Appendix I) and English copies of the parents' information sheets available, which were distributed through the shift in charges to the parents who did not get in the unit in my absence. This process was carried out throughout the study to avoid missing out any of the parents. All of the parents were very co-operative and all of them showed a willingness to include their babies in the study. Most of them asked me, 'to treat their babies as mine', which shows the parents' willingness to have their babies in the observation.

After several meetings with the nurses, it was noticed that some of them were concerned about participating in the study because they came up with many questions on whether they will be protected or if their identity will be disclosed. Some of them said that they may lose their job if they express their views about what is going on and they were worried about whether their anonymity would be maintained. Therefore, I placed more stress on the confidentiality and anonymity of the data that would be collected in the interviews with them (which will be explained later Section 5.8). Two weeks later, when the participants' consent forms were followed up with the clinical instructor in the presence of the ward sister, it appeared that only five nurses had returned the consent forms. The consent forms were sealed in an envelope by the nursing staff. As the number did not meet required target of the study, the ward sister shared her concerns and said that

> *The nursing staff may be afraid to participate in the study because it is their first experience to get exposed to a real research. I may face some resistance from the nurses particularly the expatriate nurses, as that they do not like to get involved in activities which hold responsibility.* (Observational field notes 2015)

The participants may be afraid of the unknown as they are unsure what to expect from the research or maybe they are afraid to be involved as may be threatened to lose their job if they revealed sensitive issues related to the unit. As a result, I may have missed the opportunity to explore important information which could affect the findings.

Then, the ward nurse offered her support by conducting an informal meeting with the entire nursing staff to understand their concerns and to stress the need for the research and how it will positively impact the babies' care. As she was eager, I requested her not to sound coercive in the meeting because the nurses should have the free will to participate or reject the idea of participation in the study. After the meeting, more nurses volunteered to participate in the study. During a meeting with the nurses, I asked them if they were forced to enter the study. The nurses said no and said that the ward sister had explained them how much their involvement would be useful and important for improving the care of patients. From this discussion, I could see that the nurses were convinced.

When the first meeting to publicise the study was planned and the seminar room was booked after negotiating with the medical team, I found that the doctors were using the seminar room that day, even though the room was booked and the doctors' permission was taken to use it. Therefore, I had to change the location of the seminar and had to squeeze many staff nurses into a small break room which was not supplied with presentation equipment. I had to apologise to the staff and explain what happened. Luckily, the staff understood the situation and managed to get more chairs from the unit. For the presentation, I had to leave my computer screen on for the staff and had to change the approach from a formal to informal discussion to ensure that the nursing staff could follow me.

Conducting hospital-based research is very challenging and it requires the researchers to be ready for plan 'B'. Facing this kind of challenge always made me cautious and ready for such a situation. Mentioning the challenges of the study is very important because it will allow other researchers to learn from my pitfalls.

5.7 Data collection methods

Data collection took place in Hope Hospital, Oman, for 6 months for both phases, and a range of qualitative data collection methods were used to seek answers to the research questions. The field work included observation and interviews. Observation was undertaken for a total of 60 hours over a period of 6 weeks. The daily neonatal unit culture and the routines in terms of pain and its management were observed, as was the actual practice of staff. This allowed me to observe the nurses as they provided care to the babies and interacted with them. The nurses were interviewed to explore their experiences and the way that they explain their practices. Interviews were continued until data saturation had been achieved and no more new information was added by the participants. It was expected that a sample size of 20 NICU nurses would be sufficient for this study. However, only 16 interviews were completed because data saturation was fulfilled. Focus was placed on the care provided by nurses to the babies (terms and pre-terms) admitted in NICU during the period of data gathering (February 2015 to August 2015).

5.7.1 Observation

Silverman (2013) states that to understand a group of people, in particular their culture, over a period of time, ethnographies should be based on observational work particular to an organisational setting. Observation is defined as the act of noting phenomena in the field by using the five senses of the observer (Angrosino 2007). Observation is used to observe the clinical setting, participants, activities, interaction and conversations (Creswell 2013), including smell and sound**.** This approach is appropriate for studying the nurses' behaviour, including what they do, their actions and interactions with babies, and it allowed me to explore the hidden nature of the clinical setting of the unit before interviewing the participants.

The use of observation enabled me to better understand what is going on and explore the everyday routine of the unit and get insights into the organisational culture, particularly in relation to pain. According to Creswell (2013), observation is divided into four types: complete participant, participant as observer, non-participant/observer and complete observer. Each type has its advantages and

disadvantages. For this study, the non-participant observer was the most appropriate type, adopting a more distant and separate role. When the role of observer was undertaken, there was less contact with the people being researched contact was only made to ask for necessary clarification. This approach enabled me to observe what the nursing staff did without interfering in their activity, and then continued with an in-depth exploration of the reasons why they were acting in this way through interviews.

Moreover, the layout of NICU was suitable for sitting in the background and conducting the observation.

Taking the role of a non-participant observer enabled me to take immediate notes about the activities to avoid missing some events. Whenever possible, notes were written away from staff in a quiet place to avoid my presence from intimidating the staff. Adopting the approach of a complete participant may be better for establishing a better rapport with the participants and to gain their co-operation, but this needs a skilled person because the investigator has to depend on his/her memory to write notes later (Hammersley and Atkinson 2007). Therefore, as I was a beginner, this would not have been possible. Taking the role of a non-participant observer helped me avoid close contact with the nursing staff being researched. This prevented the staff from getting irritated or scared that would end up in a lack of co-operation.

Moreover, the observation method contributes greatly to qualitative research. There are several different types of observations, such as structured and unstructured observation. Structured observation works according to a plan and is decided in advance; such observations involve the use of especial instruments, such as a checklist or schedule, specifying what is to be observed for data collection, which is also structured in nature. This is appropriate when the problem has been clearly defined and the information needed has been specified (Parahoo 1997). In my research, that was not the case. However, a flexible semistructured observation checklist **(see Appendix J**) was developed to keep the observation focused on the nurses and neonatal pain rather than the general ethnography of life in NICU when the fieldwork started (which will be discussed in more detail later on).

The use of observational fieldwork enabled me to observe the nurses' practice in relation to neonatal pain and its management, including their approach and interactions with babies. In particular, it helped me to observe nurses' behaviours with regard to how they handle the babies, whether they were mechanistic (task oriented) or holistic (gentle/ soft) in their approaches when providing care to the babies.

In addition, it was possible to observe what particular nursing staff did in particular situations in terms of pain management. This includes, for example, the strategies used by nurses, whether they used one strategy at a time, and when and in what procedure these strategies were used to ensure whether pain was effectively controlled. Observational fieldwork also enabled me to observe how the nurses had a

shared or different understanding in terms of pain, beliefs and approaches to pain management; this was explored further in the interviews.

In addition, the daily activities and routines of the unit were observed, such as the daily procedures, heel lance, intravenous cannulation, and arterial line as well as strategies used to control pain.

5.7.2 Observational Fieldwork Process (Please refer to Appendix- K)

Mason (2002) stresses that during observational fieldwork the researcher should be well prepared for various activities, such as observing, participating, interrogating, communicating and listening.

I used a notebook throughout the process to record all the observations and specified the date as well as the type of shift. For each day of observation, objectives were formulated for focused and detailed observation. The fieldnote information was later typed and entered into a computer with more elaboration within 24–48 hours after each observation day, to avoid forgetting the events and to reflect upon them.

The first step in undertaking fieldwork, following negotiation of access with a senior gatekeeper (Mason 2002), was to negotiate with the main gatekeeper at ward level, such as the nurse in charge, to gain the support of the staff in the unit and relieve their fears. It was important to familiarise myself with the physical layout and the full routine of the unit with the help of the staff. For this purpose, I spent the first few days observing the general NICU layout and routines, and I got to know all of the medical and nursing team.

Establishing relationships of trust with participants is one of the main concerns of qualitative researchers (Mason 2002). Therefore, I attended the daily handover and unit activities to let staff get used to my presence among them. I cannot deny my role as a nurse in some occasions where I had to help when the nursing and medical team to maintain rapport when they asked for my help, for example in translation when necessary, particularly when no Omani staff were there. I also tried to become involved in any special activities, such as parties.

Observation was undertaken for a total of 60 hours over a period of 6 weeks (10 hours a week as planned). The first 30 hours were used for general observation to have a deeper understanding of the organisational culture in terms of pain and pain management in relation to daily routine, interaction among staff (nurses to nurses, nurse to doctors, nurses and doctors to parents) and the entire unit's environment.

I attended various shifts, from the time nurses' handover starts until the end of their shift, particularly in the first week, to avoid missing anything important, such as the routine of the unit. The choice of activities attended was based on what was needed to focus on, such as medical and surgical doctors'

rounds that were attended with various doctors, and invasive procedures (that were likely to be painful) conducted by senior and junior doctors. To understand certain routines and due to the absence of a clear policy and procedure, I had to meet with some consultants and had to arrange time with ward sisters to ask for explanations about what was unclear to me. During the first period of fieldwork, I also accessed documents as a primary data source because they enabled me to check whether there were guidelines and policies relating to neonatal pain, how these documents were made available to nurses and whether these policies were followed, updated or neglected.

The next 30 hours focused on staff practice in various shifts (morning 15 hours, afternoon 8 hours, and night duty 7 hours), to observe their approach and interactions with babies and the positive and negative effects of the environment on staff practice. Their interaction with babies and parents was also observed. I attended certain activities, such as the nurses' and doctors' rounds, to focus on how nurses interact with and advocate for patients, and to find how they were undertaking daily routines, such as nursing procedures, and babies' care. Observation was mainly undertaken while the nurses were giving holistic care (e.g. providing nappy care, feeding, assisting the doctors in any procedures and administering the medication) for each individual baby throughout the day.

Through applying this approach, an organised plan was initially prepared; for example, to cover several observation hours (15 hours per week for 3 days a week). This was applied in the first week. However, it was changed because I could not cope with the amount of information that I had received from each observation. Also, one of the plans was that I would do one day of observation and take one day off, to allow me type the information gathered from each observation and to avoid stressing the staff out. As a result, the hours of the observation were changed from 3 days a week to 2 days a week to be able to record and type all the observational data. Parahoo (1997) pointed out that prolonged observation of staff may cause unnecessary stress to them. To avoid this, the 5 hours were flexibly used and applied depending on various situations. For example, when nursing staff were observed while doing holistic care for their patients, an hour of observation was undertaken from 11:30 to 12:30, depending on the baby's nursing care plan, to focus on the holistic care, to give them space and return to their usual behaviour. However, in most of the situations, 5 hours of observation were conducted continuously.

To add further depth and clarification to the recorded field notes, semistructured interviews were used. The same nurses who were observed were also interviewed. The use of semistructured interviews, comparing them with unstructured interviews and the actual process of gathering the data, will be discussed in the next section.

5.7.3 Observational checklist- Appendix J

A semistructured observation was undertaken using a checklist. The observation checklist was developed and used as a reminder and guide during the fieldwork. The checklist was adapted from a list designed by Lecompte and Pressissle (1993), which was modified based on the needs of the study. The actual list was based on main headings (e.g. space (physical setting), environment, objects, who, interaction). Accordingly, I put what fits under a specific heading, based on what was required in the study. To avoid being pre-judgemental and avoid putting my interpretation into the data while conducting the observation, I separated what to observe from what I expected to see. Before conducting each observation, to be more focused, I had a careful plan and a thorough understanding about what was to be observed. A flexible approach was used throughout, where the content of the observational checklist was shuffled around based on the need of the events and the situations exposed to. Although I was guided by what I saw, in the case of the unstructured observation, I noted everything relevant to the phenomenon of interest. To reduce the bias of using the checklist, broad headings without breaking down each heading were formulated, which allowed me to avoid restraining myself from conducting an in-depth observation and to facilitate recording and analysing the events in detail.

5.7.4 Reflection on my role as a non-participant observer

Reflective Account: Role of a Non-Participant Observer

Despite the positive benefits, performing the role of a non-participant was a difficult experience, particularly when (to my clinical knowledge) the nursing staff mismanaged and mishandled the babies. I felt that I was restrained because I was unable to correct the nurses or even guide them. Sometimes, I found myself going home upset, in frustration. However, the vulnerability of the babies gave me the courage to continue reflecting on where to focus next in the observation with high motivation.

On some occasions, the nursing staff also unconsciously asked me to participate in parents' translation, especially when the Omani nurses were absent. Overall, this was something that was expected and could not be prevented. In fact, the natural contact assisted in building the relationship with the staff in the unit. Thereby, my daily appearance was more easily accepted, which led to a smooth data collection process.

5.7.5 Consent for observation

It is acknowledged that obtaining individual consent for observational research is problematic (Silverman 2013) because it involves human subjects. The rights, safety and well-being of research subjects should always be prioritised over the researcher's interest (Nijhawan et al. 2013). However, it is a usual practice in ethnography that an individual's written consent is not normally sought because it can disrupt the naturally occurring situations that the researcher aims to observe. Hammersley and Atkinson (2007) stated that in a large organisation that is engaged in constant interaction with many clients, it is physically impossible to obtain consent from everyone. Because ethnographers conduct research in a natural setting, their control over the research is limited. They simply do not have the power to ensure that all of the participants are fully informed or that they freely consent to be involved. For example, in this study, written consent was only sought from the nurses but was not sought from the doctors and other healthcare providers or students who were present on the NICU because they were not part of this study.

When the feedback from Ministry of Health RERAC was received, it appeared that the reviewers lacked the understanding on why in ethnography consent is not taken, particularly in observation. Consequently, I re-thought the observation consent and altered the proposal accordingly. Therefore, rather than observing all the nurses, I decided to obtain written consent from a few of the nurses to shadow them. However, individual nurses were given the choice whether they wanted to be observed or not. Consent for interviews and observations was obtained from all the participant (**Please refer to Appendix L)**, and fieldnotes were not recorded for those nurses who declined. General observation of daily NICU activities, particularly on pain management, was carried out, when there were some nurses on duty who had given consent. Individual written consent from the doctors and parents was not obtained because they were not the focus of this study. Posters about the study were displayed to inform staff who were only present on the unit temporarily or who were not the focus of this study and to inform the parents about this study.

My contact details were made available for any further clarification concerning the study. To differentiate myself as the researcher from the unit staff, I wore a badge with my name on it identifying my role as student researcher. Informed consent proposes that each researcher should be open with the participants about the purposes of the research. The researchers must make their research goals clear to the research participants to willingly gain their consent (Polit et al. 2001). However, in this principle, ethnographers rarely tell the participants everything about the research (Hammersley and Atkinson 2007), because such openness can give rise to two problems: first, revealing the true interest of researcher may influence what people say or do; and second, the participants may be unable to make sense of the scientific terms, which the researcher uses to define the research problem (Silverman 2013).

In my study, I did not anticipate that this would not be an issue for the participants because all of them were trained professionally.

In this study, there was a potential that if the complete focus of fieldwork observation was known to the participants, then they might change their actions from what they normally do and this may affect this study's results. Therefore, although the participants were fully informed about this study's aim and the tools that were used for data collection, the specific points that were being focused on the observation were not disclosed. For example, I observed how nurses' approached and interacted while providing the babies' care, more specifically, on whether they were mechanistic. However, I did not tell the nurses what I was specifically looking for; that is whether they are mechanistic (i.e. task oriented just to finish the job without any interaction with the babies) or soft oriented (i.e. gentle providing holistic approach with good contact with babies).

Reflexive account: identity as a neonatal nurse

It was important to acknowledge that I was known to the NICU senior managers(ward nurses) because I used to follow-up some of the Diploma Speciality students in the unit during practicum; however, I was not known by most of the participants but only two. This offered both positive and negative influences.

One of the positive influences was access to the research site, the process of recruitment and data collection was facilitated by my existing trust between the unit managers and myself.

Also, my professional and educational background has accelerated my understanding of all of the aspects related to the neonatal care, enabling rapport with staff.

Being known to some of the nursing staff may have had a negative influence on the participants' natural interaction during the interviews and observation, which may lead to bias in the study's finding. This was observed for some of the nursing staff while exploring some of the events. On some occasions, I felt

concerned that some of the nursing staff might be exaggerating and, therefore, giving a distorted picture about the unit's practice and themselves. Consequently, before each interview, I reminded the participants about my role as a researcher and not as a neonatal teacher. However, it was observed that these inhibitions of the nursing staff seemed to disappear through my daily interact ion in the unit.

5.7.6 Interviews

Qualitative interviews may be either semistructured, where some key areas have been identified by investigator that have to be explored, or they may be unstructured, where a general question is given and a discussion or a dialogue follows with the aim of obtaining the views, attitudes and feelings about that topic from participants (Farrelly 2013). Semistructured interviews were used in this study.

For this study, a semistructured method of interviewing is an appropriate approach because it allows me, as the researcher, to guide to some extent the content of the interview (Roberts and Priest 2010). Moreover, it is flexible in its approach and allows the participants more opportunity for expansion of replies and it uses open-ended questions to elicit extensive responses (Polit et al. 2001; Farrelly 2013). Therefore, questions may change or develop according to the respondents' answers to questions. One of its advantages is that the questions are not standardised, which means that no interview is the same as the last one (Farrelly 2013). Flexibility and the participants' responsiveness was highly required in my study because they would allow me to grasp every important aspect pertaining to the topic of interest and would make my interaction with the participants easier.

The semistructured interview allows areas of uncertainty or ambiguity to be clarified, avoiding misunderstanding because of the presence of the interviewer and possible anticipation of conclusions, which might arise from the use of a self-report questionnaire. Additional data on the attitude and degree of understanding of the participants can be collected by the interviewer through observation, which can be useful in interpreting responses (Polit et al. 2001). Therefore, for this study, it was the most appropriate approach to use.

Using this interview method enabled me to gain a better understanding of what was observed and what was said by the participants. Meanwhile, the interviews with the nursing staff allowed exploration of what the staff did, to get a meaningful explanation of why things were done the way they were. As Hammersley and Atkinson (2007) recommended, the interview questions should be asked in a semistructured way because the participants may come prepared with a list of answers, which may lead to biased results. Therefore, I acted as an active listener to avoid any influence on the participants' response. It was a time-consuming process, both in terms of preparing for and conducting the interview, and also in transcribing and analysing the interviewed data. This can be costly in terms of consuming the time of researcher and resources (Roberts and Priest 2010).

In-depth, face to face semistructured interviews were conducted with NICU nurses. Each interview lasted approximately 30–60 minutes. Each participant was interviewed once. The interviews focused on how the nurses assess a baby's pain, and they explored the strategies used to reduce pain and the influences that prevent nurses from implementing them **(for further detail, see the interview questions**

in Appendix M). The interviews took place in English, although that was not the first language for the researcher nor for the participants. In Omani hospitals, English is the only language used for spoken and written communication among the healthcare providers. Moreover, all of the nursing and medical training is in English and it is always practiced during discussing the patients' conditions, such as during the medical round or in the nursing and medical hand over. The Arabic language is only used with Omani or Arabic patients. However, it is not expected that all of the participants will be fluent in English. This may have an implication in my study because the participants may not be able to effectively express their views. In my study, this was not observed during data collection time because the participants were confident, fluent and fast when they were expressing their views. Arabic translation was only needed for the parents' information sheets because not all the parents can speak English. However, the parents' information sheet was made available for non-Arabic speakers**.**

Additionally, during the coding stage for the observational field notes, it was noticed that some of the nursing staff used a few Arabic words, such as "habeebi" (my love), "Joaan" (hungry), when interacting with the babies while providing care. Thereby, I had to translate those words from Arabic to English to ensure that the data could be understood by English-speaking readers. Arabic is only used for communication with Omani parents.

Although there was a plan to conduct the interviews outside the hospital and on the nurses' days off, this plan was changed based on the nurses' wishes and what was convenient for most of them. There are advantages and disadvantages in relation to the location where the interviews were conducted. Conducting the interview with NICU nurses on their days off and away from their hospital was expected to maintain privacy and allow them to freely express their feelings. I had tried my best to build a good rapport with the participants through many ways to gain their trust and co-operation. For example, when the nurses did not like to attend the interview on their days off because of transport problems, it was considered that this may prevent them from enjoying their days off with their families. Consequently, the time, shift and location of the interviews were negotiated with them and were decided based on their wishes. To maintain confidentiality and to ensure the participants' privacy, the best time for the interviews with the staff was negotiated with the head nurse and the participants of the unit. A room was booked in a quiet place to undertake the interviews in the research site, which was away from the main unit.

The interviews were conducted in the hospital but away from the unit to maintain confidentiality and privacy. Most of the participants chose the afternoon shift because they felt that it was the quieter shift. In some of the situations, the time of the interview in the shift had to change because of unexpected events; therefore, I had to change the plan to avoid affecting the unit's routine and I conducted the interviews based on the participants' convenience. On some occasions, when some staff were sick, the schedule for the interview was changed according to the nurses' willingness and availability.

To gain the support of the gatekeepers, it is important for any researcher to be flexible in his/her research process and to make sure that anyone's daily routine is unaffected. Having said that, by being flexible throughout, the gatekeepers' support was gained, and the research process was facilitated and carried out smoothly throughout the study because the ward sisters and clinical instructor were very co-operative. For example, they arranged for the participants to be released from work for the scheduled interviews on time, and on some occasions, some nurses were assigned a stable baby to avoid disturbing the shift routine.

5.7.7 Preparation for the interviews

Before starting to interview the participants, a pilot interview was undertaken to assess the participants' understanding of the interview questions. According to Mason (2002), qualitative interviewing is difficult, active and exhausting work and, therefore, interviews require proper planning, and the researcher must think carefully about the interview's structure and flow. Consequently, I created interview schedules using my clinical knowledge and reviewed the literature to develop my questions to formulate them properly (as described previously). I then set a plan before undertaking the interview.

In terms of audio recording, I had learned to operate the digital audio recorder before starting the interview; that is, the equipment was tested hours before each interview, to avoid any unforeseen circumstances. When starting the recording, the temptation to constantly check that machine to find whether it was functioning correctly was avoided so as not to distract the interviewee. Also, note-taking was only undertaken to provide brief written reminders for following-up as issues that could be raised by the participants later and to avoid interrupting them. This enabled me to keep a record of the nonverbal behaviours, where it appeared to have a powerful meaning (King and Horrocks 2010).

Prior to the interview, rapport was established with the participants to ease the situation, for example, I offered the participants tea, coffee and some snacks to welcome them and made them comfortable. I also had informal chat not related to my study talking about our family.

While conducting the interview I encountered some challenges because I noticed that a few nurses appeared to be reticent in their response, which could have been because they were having fears about losing their job, as some of them had verbalised that before data collection during publicising the study. Staff reticence meant that the data was sometimes not as rich as I might have hoped for.

When some nurses acted this way, I stopped the interviews and reminded them about their rights to anonymity and confidentiality to reduce their fear. This calmed down the staff and addressed their concerns. Fortunately, on many occasions the nurses relaxed and responded openly.

5.7.8 Transcription stage

Translation was not needed because the research interviews were conducted in English. Half of the interviews were transcribed by professionals, and the rest of the interviews and observation fieldnotes were transcribed by myself. I had chosen to do full verbatim transcriptions for all the tape-recorded interviews with notation used to indicate length of pauses, overlapping speakers, voice intonation and so on, to convey meaning of the spoken words and to understand the features of speech that the notations indicate. Because some of the interviews were given for transcription to a professional, all of the transcribed interviews were reviewed, to ensure that transcription process was carried out in a detailed manner and none of the data was missed (Kings and Horrocks 2010). Unfortunately, whenthe interview transcripts were reviewed, I found that lots of important research data was not included, such as the experiences of nurses on the impact of NICU physical environment on their care and on the babies. Therefore, I had to go through the recordings to verify accuracy, correct errors or inaccuracies, and provide clarifications (Hagens et al. 2009). I then included all of the missing data. This was a bad experience because it was time consuming and tiring process. I spent several days doing it but if I had not carried that, it would have an impact on the study's rigour and would lead to biased results. Moreover, going through the tape recordings of the interviews (transcription process) again added lots of work and made me fall behind my research schedule's submission date.

5.7.9 Data analysis

Data analysis is a challenging process that needs mastering to do it appropriately, it is also one of the essential aspects of qualitative research. To become proficient at qualitative research analysis, coding must be learned well if the researcher has to use this method because coding is one of the significant steps during analysis, to organise and make sense of textual data (Boyatzis 1998). According to Strauss (1987, p.27) "research excellence depends on the excellence of the coding".

For data analysis, I chose to use thematic analysis because it helps me to organise my research data systematically, move from a broad reading of the data towards discovering patterns and frame a specific research question. I also gained insights and knowledge from data gathered on pain and its management (Boyatzis 1988). Moreover, it is an accessible and flexible approach, to analyse qualitative data that can potentially provide a rich, detailed, and yet complex account of data (Braun and Clarke 2006).

I analysed all of the research data, the interview transcripts and field notes in the same way to match the themes that I found from the interviews and from the field notes, and to draw the new themes and add them. I put any new themes under the miscellaneous category, reading through the lines in detail and combined the quotes from the both interviews and the field notes categorised under the most suitable themes.

The six stages of thematic analysis described by Braun and Clarke (2006) were followed. In stage one (familiarising myself with data), I read through the transcript several times before coding, to familiarise myself, searching for meanings and patterns. In addition, I re-listened to the recordings to ensure no important data was missed.

In stage two (generating initial codes), after familiarising myself with the data, I organised them by highlighting relevant material that helped to understand the participants' views and experiences, as they related to the topic under investigation. I also attached brief comments indicating what is of interest in the highlighted text.

In stage three (searching for themes), all of the data had been coded and clustered together, all in different codes in a list. At this stage, I focused the analysis on broader level themes, where the different codes were sorted into potential themes. I then collected all of the relevant coded data extracts within the identified themes to combine the codes (sorted different codes into themes and sub-themes) using a thematic map (see the thematic maps given in **Appendix N**). At this stage, it is recommended that no theoretical concepts in coding should be applied because this can lead that analysis to become rather blinkered (Braun and Clarke 2006).

In stage four (reviewing themes), a set of themes was identified that involved refinement of themes. During this phase, some themes were identified as not really being themes because not enough data supported them. Some of these themes were merged into each other as one theme or some themes may not fit. Therefore, some themes were put in a new theme or filed under miscellaneous. At this stage, the final themes are identified (Braun and Clarke 2006).

In stage five (refining and naming themes), theoretical ideas or applied concerns that might underlie my study can be drawn directly. The number of overarching themes must be restricted as far as the data has allowed. A diagram to represent the relationship between levels of coding in the analysis had been drawn in Appendix N (Kings and Horrocks 2010). During this stage, the essence of each theme is identified and the data aspect in each theme captures is determined (Braun and Clarke 2006).

In stage six, the research begins with a set of fully worked themes, which involves the final analysis and write up of the report. The task of writing up thematic analysis, whether it is for publication or for thesis, is to tell a concise, coherent, logical, and interesting as well as a non-repetitive story of the research data, which tells the readers of the quality and validity of the research data. To do this, it is imperative to embed enough data extracts to show the frequency of the themes.

After the first draft of transcripts coding was done, I sent it to my supervisors for their feedback to ensure the rigour of coding process and to make sure that I was on the right track. Later, I submitted a second draft to ensure of the rigour of my analysis. After making sure of the process, I conducted analysis of all the interviews and considered linking the similarity and regularity of themes found in

each interview with the others. The coded data was grouped similarly into categories and the emerging analytic themes were discussed with my supervisors to ensure of the rigour of my analysis. I also kept an analytical diary to reflect on the fieldwork, I also noted ideas for further exploration to support my analysis. I grouped the deviant cases separately and used their statements when comparison was needed. The themes that emerged from the research data which were not relevant to the study aim were excluded for future use, such as parental involvement.

5.8 Ethical issues relating to the study

Every researcher must adhere to ethical research procedures since the research takes place among human beings. This section considers the key ethical issues: the benefits and harm, informed consent, confidentiality and privacy, autonomy, and anonymity.

5.8.1 Benefits and harm

According to Hammersley and Atkinson (2007, p. 214), "harm may arise within the ethnographic research from the nature of the field relations that are established", particularly when the researcher evaluates the participants' work. This may create stress and provoke anxiety in the participants. In my study, this kind of effect was lessened by building rapport and trust with the participants. There were times when the nursing staff needed my help, such as translating a baby's condition to the parents when no Omani staff were present on the shift, helping young mothers in breastfeeding when the nursing staff were extremely busy, making my research schedule flexible, and according to the situation in the unit especially for the interview schedule by changing the time and date when necessary for the participants. Consequently, I had the ward sisters' co-operation in facilitating the research process, which made the process easy without requiring any influence from me. Throughout the data collection, I did not interfere while nurses provided care. When I had free time during the break, I sometimes spent it chatting with them about external matters, such as family matters that were unrelated to my research.

Hammersely and Atkinson (2007) also argued that dangers may arise from successfully establishing close relations with the staff in the field, for both the staff and researcher. Therefore, close relationships with the staff in the unit were avoided and handled carefully, especially with those who were known to me, to avoid discussing any matters related to the study and also maintain privacy and confidentiality. For example, I tried to avoid any discussion related to the study to maintain the confidentiality and privacy of the patients and staff.

When I publicised the study, the participants were informed that there was no financial reward offered as an incentive to take part in the study and there was no offer of any direct benefit to the participants. A study on determining whether incentives are unethical considers them as a form of undue influence or coercive offer (Grant and Sugarman 2004). Nevertheless, I informed the participants that conducting this study might help to enhance the quality of neonatal care.

The benefits and risk ratio had been well considered and the possibility of risk for all the participants was thought to be minimal. It was fully appreciated that the participants were in a real danger, that they might lose their job if they are caught engaging in a practice that falls below required standards, when involved in the study. This information could put them in awkward situations with their senior managers. Consequently, these concerns could negatively influence the recruitment and the quality of the data collected. This was evidenced in the staff's response because some of them were hesitant to speak openly as they were afraid of losing their jobs. This situation was handled by reassuring them that none of the information that they disclosed would be shared with anyone except myself and the main sponsor of this study. They were assured that confidentiality and anonymity were well maintained. This will be discussed in more detail in the confidentiality and anonymity section.

There was no anticipated risk harm caused to babies by any means because this study does not include any treatment, which may threaten the babies' life and babies were receiving their usual care.

5.8.2 Gaining ethical approval

This study was granted ethical approval from both the School of Healthcare Sciences Research Ethics Committee in Cardiff University **(Appendix- O)** and the Research Ethics Committee of the Ministry of Health in Oman. Approval from Hope Hospital was also obtained. To recruit nursing staff, important matters regarding the flow of the study, especially during the data gathering, were discussed in-depth with these senior gatekeepers.

There were severe delays in gaining ethical approval from the Research Ethics Committee of the Ministry of Health in Oman, which led to an overall delay of about 7 months in my PhD. It appeared that there was a misunderstanding about ethnography because most of the external reviewers are doctors and mainly experts in the quantitative method. To the best of my knowledge, no ethnographic research has been conducted in a NICU in an Arab country, particularly for neonatal pain.

5.8.3 Informed consent

Every code of ethics designed to guide research involving human subjects gives primacy to the requirement of fully informed voluntary consent on the part of the individual concerned (Polit et al. 2001). It is also considered that consent is not simply resolved through formal signing of consent documents at the beginning of a research. It is a process that is continually open for revision (Silverman 2013). Thus, caution should be taken. Any research involving humans that is undertaken without the obvious consent on the researched material lacks an adequate moral basis. Therefore, the nurses who met the inclusion criteria were asked to take part in the research and they were given an information sheet and consent form prior to seeking their consent. They were given one week to decide whether they wanted to take part in the study and were able to contact me to answer any questions. The participants could withdraw from the study at any given point of time. Two of the participants were excluded from the study as they went on leave while the data collection was underway.

The information letter included:

- An explanation of the aim and objectives of this study, and a description of what the research involved.
- A description of what is expected of the participants in the study (whose consent was being sought).
- The expected duration of the study.
- A description of how the data is collected. For example, whether the interviewees are allowed to comment on the data that was collected and on the interpretations that are placed upon the data.
- A description of the expected research outputs. For example, whether they will be published.
- A description of the expected risks, discomforts, and benefits to the participants (Polit et al. 2001)?

5.8.4 Participants' withdrawal

Providing information in coercive language was avoided (Silverman 2013) to avoid influencing the decision to participate in the research (Polit et al. 2001). The participants were assured that they could withdraw from the research at any time without experiencing negative effects. They were also assured that the confidentiality and anonymity of the personal information will be strictly maintained and will not be breached by accident or careless handling, which will be explained in more detail in the following

section. I am fully aware and sensitive to the stressors and negative factors that might result from the breach of confidentiality and, therefore, all precautions were taken into consideration.

5.8.5 Confidentiality and privacy

Hammersley and Atkinson (2007) suggested that all social research entails the possibility of compromising the privacy and autonomy of an individual, particularly when handling the participants' information or data. Each researcher must be cautious while handling research data to protect the participants' privacy and confidentiality, especially if information that the participants regard as confidential or damaging could be disclosed publicly. To avoid this, the nurses were assured about confidentiality and anonymity, and they were informed that their identities and that of the research site would be anonymised in the thesis, and in any presentation and publication.

Before their consent was sought, the participants were well informed about how their anonymised data would be used and what will be done with the audio recordings. They were assured that their identity is unknown to everyone other than myself. In addition, practical security measures were taken. For example, confidential records were stored in a secured area (please see Section 5.8.6). The participants were informed that when their data is discussed with the research supervisors in the university, the data will be anonymous.

The only time that their identity could be disclosed was if I observed or was informed about dangerous nursing practice because registered nurses are legally required to report such instances. This requirement is a condition of my ethical approval. In particular, when unethical practice was observed, then, as nurse in the same field, I abided by the rules and regulations of the Omani nurses' code of conduct and the unit's policies on different types of unsafe practice. As a nurse, I am completely responsible and accountable about my actions, and I expected to act in any practice threatening a patient's life or in any action violating the parents' and patients' rights. Therefore, the Omani nurses' code of conduct was followed.

Although unsafe practice was not experienced or observed during the data collection process, unprofessional practice was observed while conducting the research. Professional conduct refers "to the manner in which a person behaves while acting in a professional capacity" (Nursing and Midwifery Board in Australia 2016, p. 1). Some nurses were noticed to be misusing their power and acting rudely with the mothers, such as shouting at them, especially if the mother tried to defend or argue with them. The nurses were also observed to change and ignore the plan that was initially agreed with the mothers on the babies' care. For example, some mothers were asked to care for their babies. In these cases, the baby was given to the mother to cuddle (kangaroo mother care) and breastfeed. Consequently, the mothers came from home to care for their child and to breastfeed on time. This required the mothers to

travel often large distances and took a large amount of time and organisation on their behalf. However, in one case, when the mother arrived, she found that everything had already been done by the nurses without informing her. Consequently, the mother showed signs of frustration and asked the nurses why they had treated her baby without informing her to avoid a long journey. When the mother left the unit, I followed her and asked her to inform the ward sister about what had happened. The mother showed an attitude of hesitance and, when I asked her why, she said that the nurse may hurt her baby.

5.8.6 Data storage and security

Cardiff University's data storage and security policies were followed (Research Governance Framework for Cardiff University 2011). Audiotapes were transcribed within 2 months of the interviews after validation of the transcribed data.

All of the interviews were digitally recorded and then transcribed. All of the personal data were held securely to prevent unauthorised access or accidental loss, particularly when using a laptop and removable flash disc or CD. Therefore, to maintain confidentiality, a password was used to protect all of the information and the paper records were stored in locked cupboards in my house when not in use. Moreover, all of the data collected is saved securely on Cardiff University's website and I have used a university computer for this work.

5.9 Quality and rigour of the research

To maintain the quality of their research, quantitative and qualitative researchers must follow certain strategies to ensure the robustness of the research findings. However, each approach checks the rigour in different ways and using different terminology. Quantitative research gathers numerical data, whose validity is measured by statistics, such as confidence intervals and confounding variables, while qualitative research is concerned with analysing the textual data and demonstrating its trustworthiness (Rolfe 2006). Trustworthiness refers to how qualitative researchers establish that their research study's findings are credible, transferable, confirmable, and dependable (Houghton et al. 2013), which are described in more detail in the following subsections.

5.9.1 Credibility

Credibility addresses the question of how congruently the research findings match the reality within the context of the study (Merriam 1998). Possible subjectivity of data interpretation is one of the most common concerns of qualitative researchers (Nakkeeran and Zodpey 2012). Qualitative researchers use

various methods to manage this problem and check the accuracy of the data. For example, where the participants are involved during or after data collection, then participant validation can be used to either confirm or reject the researcher's summaries of their views and experiences (Sandelowski 1993; Mays and Pope 1995). In addition, external validation uses an external qualitative researcher (experts) to independently analyse the data and check for consistency between the various findings (Lyons et al. 2008). External validation can also use peer checking by a panel of experts, such as supervisors, to reanalyse some of the data. In my study, the participants were given a verbal summary of what was discussed during and at the end of the interviews to check for accuracy, and they were asked to confirm their responses. Barriball and While (1993) considered probing to be an invaluable tool for ensuing the credibility and confirmability of their data. Consequently, in this study, probing was also used during the interviews to clarify any unexpected and ambiguous details, and to confirm that the data gave the same meaning as that understood by the researcher.

Several transcript were also given to both of my academic supervisors to read and code. Several supervision meetings were held to discuss the identified themes. A reflexive diary was also maintained throughout data collection and analysis process to describe and interpret my daily experiences, reactions, and emerging awareness of any assumptions or biases that came to light. These emerging self-understandings were examined and set aside, they were also sometimes incorporated into the analysis. Many reflexive accounts are included in this thesis to provide the reader with a better understanding of my actions and decisions. Another reflexive strategy is to consult with research experts. In this thesis, my supervisors and an external expert (Hill et al. 2005) reflected on my responses to the research process and alerted me to any biases. These strategies can assist in managing the subjectivity and in achieving the goal of fairness.

5.9.2 Transferability

Transferability determines whether the research findings could be transferred to other contexts (Lincoln and Guba 1985). Given that transferability is dependent upon the degree of similarity between two contexts (Guba and Lincoln 1989), qualitative researchers have proposed that the original context of the study must be described adequately so that a judgement of transferability can be made by the readers (Guba and Lincoln 1989). In my study, I hope that I have described the context of the study in enough detail for the reader to be able to assess whether my findings are transferable to other settings. Consequently, I have aimed for transferability. Moreover, I should be able to gain some insights into the study's transferability during the dissemination phase (i.e. paper writing and presentations after completion of my studies).

5.9.3 Dependability and confirmability

Dependability is important to trustworthiness in qualitative research because it ensures that the research study's findings are consistent. Qualitative researchers aim to verify that their findings are consistent with the raw data collected (Lincoln and Guba 1985). This can be maintained through other researchers who examine the data to see if they would reach similar findings and interpretations about the data. This is undertaken to ensure that nothing has been missed in the research or that the researcher was not misguided in his/her final report. Dependability refers to the extent to which a study's conduct has been carried out according to the accepted procedures (Lincoln and Guba 1985).

Confirmability in qualitative research refers to the degree to which the outcomes of a study can be confirmed or verified by other people. Various methods can be used to improve confirmability and dependability. For example, the researcher can document the procedures for checking and rechecking the data during the entire research (Lincoln and Guba 1985). Miles and Huberman (1994) considered that a key criterion for confirmability is the extent to which the researcher admits to his or her own predispositions. They also mentioned that underpinning decisions made, and the methods adopted should be acknowledged within the research report, such as mention the weakness of the research.

In my study, both confirmability, dependability and credibility were checked when both of my supervisors asked me to choose some of the interview transcripts for coding and then send them to them to double check. These were then discussed in a supervision meeting to compare their interpretation with mine to maintain rigour. Coding for the fieldnotes was also carried and comparison of the themes was done from the interviews and was sent to my supervisors to compare my interpretation with theirs. My supervisors were of great help, even though I often challenged by them to be aware of the possibility of personal biases and the danger of seeing the fieldwork through a nurse's eyes. These challenges have helped me make the analysis more trustworthy. Following these processes, the study demonstrated adequate quality and rigour, minimising my personal bias. A diary was maintained to record the strength and weakness of the research process throughout the data collection process and analysis stage, and to reflect to take the right decision.

5.9.4 Reflexivity

Reflexivity is an important aspect of qualitative research, in general, and ethnography, in particular (Hammersley and Atkinson 2007). It is defined as a process in which researchers place themselves and their practice under scrutiny, acknowledging any ethical dilemmas that permeate the research process and their impact on the creation of knowledge (McGraw et al. 2000). Reflexivity enables a critical stance

to be taken towards the impact on the analysis of both the researcher and the context in which the research takes place. This can include a wider political context and a more subjective and personal perspective (King and Horrocks 2010). Reflexivity can help the researcher to think about how and who we are, and how we see the world, which might affect all stages of the study.

Assuming the role of an insider and an outsider in this research was challenging because I sometimes felt that I had to switch from one role to another. Being an insider helped me a lot to interpret the nurses' action because I could differentiate between evidence-based and non-evidence-based practices based on the updated studies. An insider role was an eye-opener to me because it helped me to understand what was going on in the unit during the observation. However, it was very frustrating to be unable to intervene in the nurses' actions, particularly when they did not follow the protocols and when the nurses could not maintain their interaction with the babies. I cannot deny that this might have influenced my judgement, in which I assumed knowledge and judged the behaviour and action of the nursing staff based on my clinical experience rather than research criteria. I found it difficult to be a reflexive researcher because I could not make out where and when I had to act as an insider or an outsider. To solve this problem, I gave myself space and read the field notes again thoroughly. This allowed me to separate my thoughts from the observational field notes. My supervisors also help a lot to reshape and see the biases from a researcher's perspective, as mentioned previously.

Another challenge was that some nurses kept interrupting me while I was conducting the observation to ask me about my personal life. On some occasions, I had to change the subject and leave the room politely to control the situation and continue my observation from a distance.

5.10 Conclusion

This chapter has covered the methodology and methods related to the study approach (ethnography). It included a discussion of ethnography, including its history, advantages and disadvantages, including the limitations of its use. I also gave the rationale behind using it over other approaches. Moreover, the achievement and the barriers that were confronted during the data collection were clearly explained to support and justify my actions. The use of observational fieldnotes, interviews, and use of research site documents was explained (to get a better picture about NICU culture and be able to triangulate these data methods). The advantages and the methodological limitations were also discussed.

Chapter 6: Overview of the findings and Theme 1—Inconsistency of pain management in the NICU

6.1 Introduction

This study aimed to explore the experiences and understanding of neonatal pain and its management by nurses in a NICU in Oman. Four key themes emerged from the data analysis. These themes come under one overarching theme, which is:

1) Challenges that influence how nurses manage pain and the quality of care.

The four key themes are as follows:

- The inconsistency of pain management practice.
- The NICU environment of Hope Hospital.
- Nursing culture.
- Complexity of the organisational culture.

After giving a brief overview of the research findings, highlighting the main themes, and setting the study scene, this chapter will present the first key theme. In terms of the inconsistency of pain practice in NICU, the nurses described neonatal pain management in the unit as varied and inconsistent because each doctor followed different approaches to treat the baby's pain. A hierarchical culture was evidenced and it was one of the main challenges because the unit routine was dominated by the medical team. The nurses experienced a lack of professional autonomy in their patient care. In addition, pain did not appear to be a priority in the unit's routine because the analgesia was underused and limited to certain cases, such as ventilated and post-operative babies. Often, the needs of the babies were not taken into account, which compromised the patient-centredness. As a result, patient-centredness was not evidenced.

Theme two, 'the nursing culture', discusses the factors that have negatively influenced the nurses' professional autonomy in terms of decision making. The ultimate aim here is to provide proper pain management care in the NICU. However, the nurses' contribution to patient care and decision making did not appear to be valued by the doctors. The nursing culture was described as autocratic, unsupportive and suppressing.

In the third key theme, ‘the NICU environment of Hope Hospital’, the participants described the NICU environment as very challenging and stressful, which had an impact on their daily care and on their interaction with the babies in the unit. The nature of care in the unit was observed to be task oriented and not evidence-based. Although the nurses were shown to be aware of the negative impacts of the unit’s routine, they did not demonstrate in their actions the ability to advocate for the babies to reduce their suffering. Throughout the study, the babies were observed to be affected by excessive and unnecessary routine.

In the fourth theme, ‘complexity of the organisational culture’, the organisational culture was described by the nurses to be autocratic, unfriendly, unhealthy, blaming, and unsupportive. The nurses experienced hierarchical issues with many lines of authority and power between nurses and doctors, and also between nurses. Most of the nurses described themselves as overwhelmed, depressed, insecure, and unsatisfied with the work environment culture. There was also a lack of recognition of training by gate keepers, even though most of the nurses had acknowledged its importance to improve the quality of patient care.

To discuss these themes, the research findings will be divided into three chapters based on the themes and the focus of the study. This chapter focuses on how the nurses perceived the pain practice routine in the unit. The second findings chapter (i.e. Chapter 7) describes the NICU work environment, and how it negatively influenced the nurses’ care and their interaction with the babies. The third findings chapter (i.e. Chapter 8) will combine both the nursing culture and organisational culture themes to explain why the nurses are currently facing these barriers. Extracts from the interviews and observational field notes will be used throughout these chapters. The participants will be identified by number to protect their anonymity. In addition, I will refer to the non-participants who shared their knowledge as key informants during the fieldwork observation. In of the findings chapters, the research data only will be discussed with no inclusion of literature. Therefore, the links between the literature and the findings will be explored in the discussion chapter.

The themes that will be explored in the key findings are illustrated in Figure 6.1.

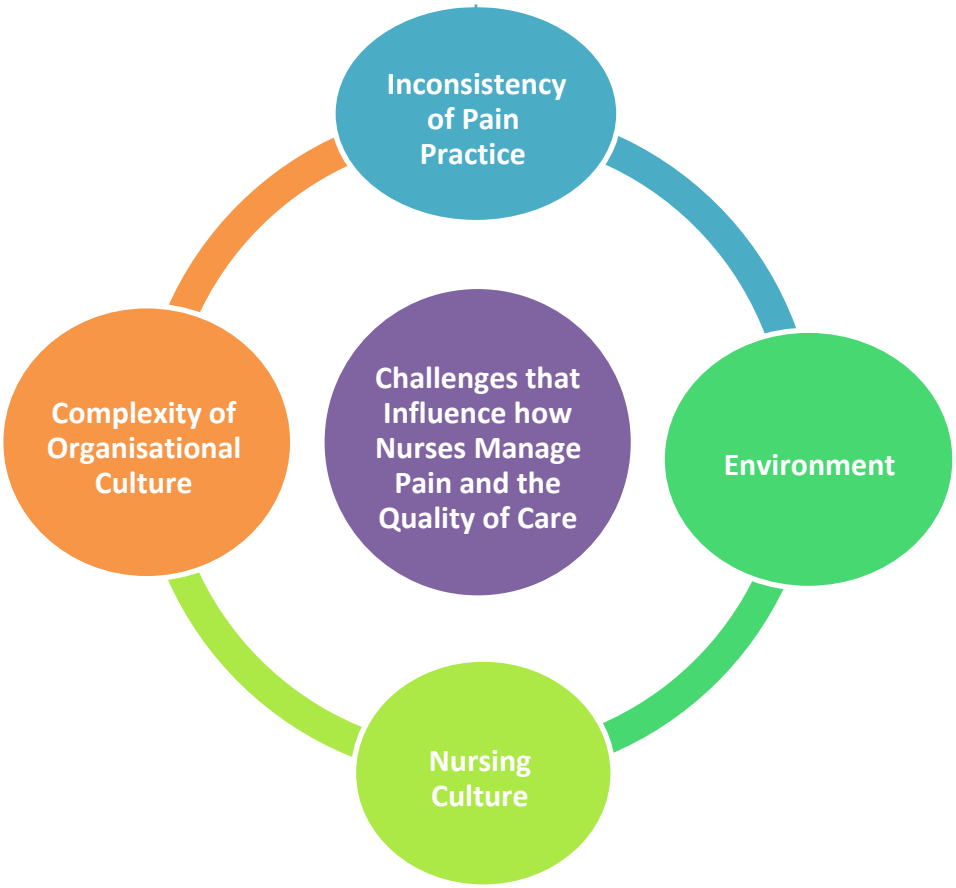


Figure 6.1 The key findings

6.2 Setting the scene

Based on the observational field notes, in terms of pain and its management, I observed that there was no consistency of pain practice. In addition, a hierarchical culture between doctors, and between doctors and nurses was evidenced. For example, the unit had a system where all of the doctors were rotated in each high, intermediate and low dependency area for a week. If the round was undertaken by a junior doctor, then the orders were not changed because they lacked the authority to make a decision about the baby's management, particularly if the round of the previous week was carried out by a consultant. The management of the babies had to be decided by a senior doctor, especially for critical babies. In addition, the patient's care was based on personal preferences and was not evidence-based. This will be discussed later on in the 'Limited neonatal pain guidelines' subtheme. During the fieldwork, I observed that the unit's routine was controlled by the doctors, and the nurses were seen only to carry out the doctors' orders. As per the field notes observation, on Day One:

> *At 9:00 am around six doctors came to do the round: Consultant (1), Resident Medical Officer RMO (1), (2) junior doctors, (2) Medical Students, the Ward Nurse (1) and the nurse who was assigned for the baby. The round started with the RMO handover, which discussed the history of admission, the baby's condition and finally the current management. The ward nurse was seen to carry a note book to write the orders. The round took for about 20 minutes for that baby because the consultant tried to involve the Medical Students to share their experiences. Throughout the round, it was noted that the doctors did not even involve the assigned nurse in the round to ask her about the care or whether she had any concerns about the baby. Pain was not mentioned, although the baby was on the Neonatal Pain Assessment tool because he was ventilated.*

During my observations, I noted that pain was not discussed or even mentioned in the doctors' rounds, as if it was not a priority in the care and also as if the needs of the individual babies were not central to the care planning. Moreover, I observed that there was a lack of parental involvement, particularly when discussing the babies' management during the round and when a painful procedure was carried out. For example, before the round it was observed that all of the parents were asked to leave the rooms for the doctors to start the rounds. For example, on one occasion while conducting the observation, on Day Three:

> *One of the parents did not leave the room and was waiting for the consultant to ask him about his baby's condition. When the father approached the consultant to ask, he seemed to be angry and did not give the chance for the father to ask. The consultant then asked the father to leave the room immediately. He blamed the*

> *nurses for that as they allowed the father to hear their discussion, this shows that family centred care was not a priority.*

However, when I attended the nurses' round, the baby's pain was discussed because it was one of the elements in their handover. This was particularly the case when the baby was on an assessment tool, such as post-operative babies, as stated in the following:

> *While handing over, I have noticed that some staff concentrated on the Neonatal Pain/Agitation & Sedation Scale (NPASS), to discuss whether the baby has gone through pain or if any analgesia was given. Moreover, they also discussed if the baby has any pain at all, particularly for painful pre-operative conditions (e.g. Necrotising Enterocholitis and peritonitis, post-operative conditions, those receiving analgesia and sedation-ventilated babies).*

During the observation, I also observed that the nurses followed one-to-one handover in their nursing round, where the assigned nurse went straight to the nurse who had looked after the baby in the previous shift. When I asked one of the informants 'Why?', she replied that it was to avoid disturbing the baby and to control the noise, individualising baby's needs. On Day Two of the observation,

> *Each nurse in the unit has to first see their allocation and receive one-to-one handover next to the baby's bed side. According to the key informant, nursing staff use that approach (one-to-one) "to avoid disturbing the baby, save time and control the noise.* (Day Two)

This showed that the nurses were very caring about individualising the baby's care and they tried to reduce environmental stress on the babies, such as impact of noise. Moreover, it facilitated their work because the nurses did not need to go around all of the babies. This enabled the nurses to start the shift immediately, without delay.

As I observed during the fieldwork, the nurses experienced difficulties to get the doctors to prescribe analgesia for babies in pain. Paracetamol was the drug of choice for certain babies, such as 48-hour post-operative babies. Other than that, no analgesia was given for any other painful procedure. It was noted that most of the babies were continually exposed to painful procedures without providing enough analgesia. Injection of morphine analgesia was limited to ventilated and post-operative babies (first two days only). The fieldwork suggests that the needs of the individual babies were not addressed and, therefore, the centrality of the patient's care was not evidenced. Opioids (injection morphine) were limited to those babies undergoing ventilation only. Injection dormicum (sedation) was given to baby's under-ventilation. For some babies, both drugs were combined.

The nurses appeared to have inconsistent knowledge of the use of analgesia and sedation. For example, when I asked the nurses about the reason why some babies were given injection morphine or injection dormicum while others were on both drugs, the nurses gave different answers:

> *The informant said that we give injection morphine for all the babies undergoing ventilation for pain. But, injection dormicum is only given for those with neonatal seizure to sedate the baby. Another nurse said that injection dormicum is given to reduce pain and has the same action as injection morphine. The third nurse, was silent at first and then replied that she does not know why we combine them, the doctor is the one who makes the decision, it may be for extra pain relief.* (Day Eight)

In addition, there was no clear system and limited neonatal pain guidelines in the unit to justify what medication is given and for what degree of pain it is to be used. It was also noted that sedation and analgesia terminology were used interchangeably by the nurses, although their actions were entirely different.

6.3 Theme 1: Inconsistency of pain management practices

The nurses described the neonatal pain management in the unit as inconsistent because each doctor followed a variety of approaches to treat the baby's pain. This caused great confusion for the nurses because they did not know which approach to follow to reduce and control the babies' pain. The nurses faced difficulties to get the doctors to write analgesia prescriptions for the babies in pain. The nurse's opinions seemed to be un-respected by the doctors and were not valued when it comes to patient care, particularly when the nurses asked the doctors to give enough analgesia to ease the babies' suffering of pain. Sedation and paracetamol syrup (analgesia for mild pain) were found to be the drugs of choice to reduce the baby's pain due to fear of opiate addiction. There appeared to be confusion and inconsistency in the nurses' knowledge of the use and action of analgesia and sedation. The contributing factors to lack of pain management were also identified and described as an obstacle to delivering adequate pain care, such as: the limited neonatal pain guidelines, the lack of a job description, the lack of pain resources (i.e. EMLA[6] cream), and the lack of cannulation training. Consequently, some babies were undertreated and there was a lack of pain management.

Under this theme, the following three sub-themes emerged during my data analysis: the nurses were concerned about the doctors' lack of pain management, how the nurses perceived the doctors' approach in managing pain on infants, and the nurses' views on the use of the NPASS.

[6] EMLA cream is a eutectic mixture of local anaesthetic that is used to treat procedural pain. Although previous studies have shown that it is effective, it is now contra-indicated because it causes methe-moglobinaemia (MetHb) and has prolonged time for onset of action (Krishnan 2013).

6.3.1 Nurses concerns about the lack of pain management

When I observed the unit orientation, I asked one of the key informants about the most common analgesia and sedation medications used in the unit. She said that the unit commonly used an intravenous infusion of morphine (opioids) for ventilated babies, for pain and sedation. However, while the nurses were handing over and checking the medications in the Dangerous Drug Act (DDA) cupboard, I saw some vials of injection dormicum. This enhanced my curiosity about when and why injection dormicum was used, particularly because I observed some of the babies were put on both infusions (morphine and dormicum). As recorded in my field notes, on Day Five:

> *When the nurses were asked about the use and action of both injection morphine and injection dormicum, the key informant replied, that it is rarely used, to control seizures. However, when I asked the nurses, I observed the different nurses had different ideas of why injection dormicum was used and combined for some of the babies with morphine infusion. Some nurses replied that they used it for pain control. In addition, one of the nurses said, that it was used as nasal drops for painful procedures. When I asked another nurse to see the nasal drops which were described by the previous nurse, she strangely looked at me as if I said something wrong, then she replied that there was no such thing. Others seemed to be unsure when and why to use dormicum infusion.*

It can be seen from these field notes that there was inconsistency of knowledge among the nurses about neonatal pain management because they gave different explanations. According to the observational field notes,

> *Paracetamol was the drug of choice in the unit, being widely used in neonates to reduce mild pain as per the feedback from the nurses. It was available in oral suspension and suppository format. However, the unit does not have any neonatal policies as to the degree or level of pain that indicate when to administer paracetamol. Due to the unavailability of many options of analgesia medication in the unit, paracetamol was observed to be used very frequently, especially for post-operative surgical cases (two days after surgery), after stopping morphine infusion and weaning the babies from the ventilator. When I attended the surgeons' round, I observed that the surgeons refused to continue morphine to control the baby's severe pain after weaning from the ventilator. When I asked them why, they replied that the baby did not need it because the pain should reduce after 48 hours post-surgery. They depend on Syrup Paracetamol to reduce the baby's pain.*

On Day Two, I observed that chloral hydrate syrup (sedation) was the doctors' first drug of choice, as the nurses described it, which was used to calm the baby for non-painful procedures such as X-ray (CT Scan) or echocardiogram. The nurses said that the doctors takes a long time to do the procedure and they did not want the baby to move because that would delay their work. For example, while I was conducting the observation in intermediate dependency:

> *I observed one of the nurses was preparing a baby (cardiac case) for an echocardiogram procedure. She then left the room and came back with medication in a syringe and administered it orally. When I asked her what medication she gave, she replied chloral hydrate. When I asked her "Why?", she said that it was to calm the baby, settle him down and minimise his movement during the procedure, which would allow the doctor to be able to do the procedure easily. I asked for permission to attend the procedure. As soon as the procedure was started, I noticed that the baby was calm at the beginning but over the course of the procedure the baby was noticed to continually cry and appeared to be uncomfortable because his chest was exposed and covered with the jell used during the procedure. The room was cold. When the baby's colour had changed, the nurse asked the doctor to stop. From the baby's facial expression squeezing eyes, moving the head left and right, crying with mouth widely open, the baby seemed to be in pain.* (Day Two)

The baby appeared to be uncomfortable and in pain from his behaviour, suggesting that chloral hydrate was not the right choice for this baby as a cardiac case. This showed that this baby's management should have been based on his individual needs.

Moreover, during the observation I observed that no extra pain management was given for many of the procedures, such as intravenous cannulation, heel lance or insertion of long line, Cryopethcy (eye laser) (for further details, please see Appendix P: Unit Procedures Timetable). Even when the baby was considered for weaning from the ventilator, no pain management was considered.

During a conversation with some of the doctors about the available procedures that they practiced in the unit and the type of medication that they used to control the pain, I noticed from the discussion that each doctor had his own opinion on what was enough pain. Their opinions seemed to be based on personal preferences and were not formed on evidence-based practice because each of them gave a different opinion and disagreed with one another. For example, I gave them an example of a ventilated baby on morphine infusion who needed long line, they replied as follows:

> *One of the consultants believes that local anaesthesia is to be given a long with morphine infusion for the painful procedures. The other consultant said that injection morphine is enough to reduce the baby's pain. He added that when the baby is ventilated, they do not add more analgesia because the baby will be on morphine regardless of the procedure.* (Day Six)

The nurses emphasised that they faced problems of being unable to relieve the babies' pain. Although they said that some of the doctors did listen to them, and gave extra analgesia when required to reduce the babies' pain. However, other doctors did not follow their suggestion and they continue the same management without considering the babies' pain. As Participant 6 remarked:

> *Not at all, even sometimes when intubating the baby endotracheally, they will not give morphine. Some of the doctors do give morphine. Some of them they will advise "give morphine bolus", then babies will be relaxed then they will intubate. However, some of them did not give. They will intubate without morphine, later on they will start after intubation.*

This statement shows that nurses' decision in the care of the babies was not respected and was not appreciated. The doctors were the only ones who had control over the baby's management. It also showed how the doctors did not follow the same management. Inconsistency of pain practice was evidenced.

Some nurses with many years of experience described how they had to be assertive when asking the doctors to give analgesia. Although their assertiveness seemed to be effective at times, at other times it was ineffective and the doctors did what they want. As Participant 6 added:

> *Sometimes when we see that the baby is struggling, we'll tell them, "Doctor, this baby needs morphine." Some doctors will follow and will co-operate with us, while some say that there is no need for morphine, or later on.*

In terms of pain management, some of the senior nursing staff reported that the doctors do not give extra pain killer (morphine) when needed. Morphine was the only analgesia that was available for use in the unit for painful procedures. However, the nurses reported that most of the doctors were hesitant to administer injection morphine and they tried to avoid it, particularly for a baby on a high dose and for prolonged use of morphine, due to common misconceptions such as fear of addiction and delay of endotracheal extubation, as supported by the statements of some of the participants. For example, Participant 4 cited that:

> *No! They wouldn't give more morphine. They give sedation to keep the baby calm and because some babies are on high dose 20 mcg of morphine, the doctors do not want to give it because they are afraid of the long-term dependency of morphine.*

It appeared that the management of the babies was based on the doctors' personal judgement and on their accustomed practice, and was not based on what was required to meet the baby's individual needs. The babies seemed not to be visible in the care.

Another participant indicated that the use of analgesia was only limited to certain babies, such as ventilated baby and post-operative babies, as if the other babies in the unit did not experience pain. Moreover, because of the fear of drug addiction, the participant confirmed that the less effective medication was used for analgesia, such as use of paracetamol for post-operative babies, as illustrated by Participant 12:

> *Morphine and paracetamol, we give for ventilated and post-operative babies. When there is fear of morphine addiction, paracetamol is given 6 hourly. For the first 48 hours, post-operative babies will be on morphine. So, when the baby is off ventilation, morphine is discontinued and the paracetamol suppositories will be given, although the baby will be in so much pain, irritable with chronic pain. Sometimes they are suffering.*

In the nurse's view, the babies were undertreated putting them in greater risk of pain complication due to the doctors' over protection against drug addiction. However, based on the observation, it could be argued that the doctors' belief that they are protecting babies against future addiction and protecting the baby from any harm explained why the doctors did not want to give more analgesia.

6.3.2 Limited Neonatal pain guidelines

The limited neonatal pain guidelines were another of the major problems that the nurses' faced. In particular, there were no clear protocols to guide the nurses to control the pain. As one participant reported:

> *Regarding pain, we have no policies, just the NPASS. Otherwise there is no exact policy that shows the procedures and the right medication for each.* (Participant 5)

Likewise, Participant 10 agreed:

> *No, No, No updated neonatal policy and procedures. Yeah! It is not for the pain.*

The nurses reported that the absence NICU standards were one of the major reasons for the doctors' inconsistent practice.

> *Yeah, because of* the absence of neonatal standards*, each doctor has different ideas than the others and some of the doctors feel that morphine will delay extubation (weaning from ventilator) and all so we'll not give more morphine.* (Participant 4)

From the participant's point of view, the absence of policy allowed each doctor to have different approaches, feel free and un- restricted to control the babies' management without consultation with the nurses. The unit had general policy and procedures that were irrelevant to NICU practices. As Participant 6 emphasised:

> *Yeah, because of the lack of standards, each doctor has different ideas in their practice, this is a problem for us.*

In the lack of neonatal policies, most of the nurses described that this caused them problem for care because they were unable to deliver the right care for the babies to meet their needs. They saw themselves as only following the doctors' orders and meeting the doctors' needs rather than the babies' needs. This shows that the decisions taken for the babies' management was out of the nurses' control.

In terms of unit policies, the fieldnote observations confirm that there were policies but that they were out of date and irrelevant to neonates, as observed in the following:

> *Polices did exist. I found some of the policies were compiled in folders and when I went through them, they were all general, and were basically developed for adults. Other folders were focusing on infection control and for fire and safety. However, most of policies were significantly out of date and not relevant to neonates.* (Day Two)

However, in terms of neonatal pain policies, when I conducted the field notes observation, I found that there were some neonatal policies on certain neonatal procedures saved in the unit's computers; however, pain management was only mentioned in one procedure:

> *While going through the unit's policy, it was found that the policy and procedures were out of date (1999 and others in 2000). Three of the updated policies were entered into the unit's computers for staff to access. Those procedures were heel lance, umbilical arterial catheterisation, and retinopathy of prematurity (ROP). The only procedure, which has mentioned the use of analgesia before it is carried out, is for the ROP procedure (the use of Benoxinate 0.4% (Novesin). However, nothing is mentioned about the parents' participation, or how the baby's care is handled and how pain is managed.* (Day Two)

To have an idea about the doctors' views on the pain-management routine, I sat with the doctors to discuss all kinds of invasive and non-invasive procedures that were undertaken in the unit because there was no policy and procedures protocols in the unit.

According to the observational field notes,

> *When I approached the doctors to look at their policy and procedures, the doctors replied that there were "no written and updated policy and procedures guidelines in the unit". When I asked how they know whether everybody adheres to the same process while doing the procedures, they replied, "They follow a book." From their responses, it seemed that they were convinced that this book was the only source of information and guide for them to deliver the best care for the babies. When I asked to see it, they directed me to ask the key informants in the unit. After clarification from the key informants about the book mentioned by the doctors, I discovered that no book existed. What I found was an outdated document that was developed and compiled in a folder by one of the consultants, who had left the unit years ago. The folder contains of photocopied papers from various old books. Moreover, when I asked them to give me details about the kind of procedures that are undertaken in the unit, they replied that all of the procedures are the same worldwide.* (Day Six)

This confirmed that the doctors' management was based on their personal judgement preferences and was not evidence-based. If no standardised guidelines exist, then this may cause confusion on what is best for the babies, causing inconsistency of pain management as in Hope Hospital NICU.

The Ministry of Health has recently proceeded with accreditation[7] for all hospitals in Oman to be recognised internationally and to ensure that the staff are delivering best care for the patients. Therefore, Hope Hospital had to develop new policies and guidelines. The hospital was given a period of three years to develop these guidelines and the review was done on November 2016. One of the steps that NICU made towards accreditation was developing the NPASS.

As mentioned by Participant 5, the unit had launched the NPASS just two months before I conducted the interviews (at the end of observation period) but not all of the nursing staff were trained to use it. According to the nurses, the tool helps them to assess pain and it allows them to alert the doctors to manage it.

[7] The new accreditation system requires all the organisations to meet certain standards to be accredited internationally. Oman uses International Accreditation from Accreditation Canada, an organisation that approves standards of excellence in quality care and services of Canadian health institutions and hospitals.

It seemed that some of the nurses had some concerns about the pain assessment tool, although some acknowledged its use. Some of them reported that it was time consuming because the NPASS document was too long, as stated by Participant 5:

> *The use of the tool is important, particularly for the new nurses who have joined the unit. However, it is very long and time consuming. Imagine it has more than 15 pages. Who can fill it with the kind of routine we have in the unit?*

The length of the assessment document was a discouraging factor. Several nurses said that it was around 15 pages long and the time constraint was a barrier due to the busy unit routine. Consequently, the nurses did not get time to fill it. Participant 4 illustrated another issue of why some nurses were reluctant to use the NPASS:

> *We are all experienced, we know all the symptoms, why do we have to use the tool? Honestly speaking, I am filling it only at the end of the shift, because we have no time to do all paper work.*

This participant reported that they filled the tool at the end of the shift due to time constraints as they always very busy. She also showed resistance to use the tool as she feels offended by using it because of her clinical experience. The nurses' discouragement in filling the tool may cause some babies' pain to be missed and their pain may be undertreated.

Participant 15 stated that the culture in the unit does not consider the baby's pain as a priority. This perspective seems to underpin the current pain-management practices:

> *We do not give importance for pain because we expose the babies to frequent pain in various procedures.*

The barriers to effective pain management emerged from the above sub-themes as: lack of pain management, the babies' management was based on the doctors' personal preferences, limited neonatal policies, failing to apply evidence-based practice in neonatal assessment and management due to lack of time, resistance to use the assessment tool, fear of appearing incompetent, and lack of power in the use of pain assessment tool.

6.3.3 Lack of pain management resources to reduce neonatal pain

Considering that caregivers such as nurses and doctors have a moral and ethical responsibility to relieve pain and suffering, an effective resource in pain management is vital and part of a patient-centred approach to care. During the interviews, many nursing staff raised serious concerns about the need to have certain important resources available. Based on the nursing staff's views, the availability of

resources such as EMLA cream, sucrose use, cannulation course in the unit would make a difference, reduce the baby's pain and providing comforting care. As Participant 11 remarked:

> *Sucrose*[8] *use, we want to use sucrose but we do not have here. Glucose is usually used in many hospitals. Actually, Dr M was planning to implement that, for simple procedures to reduce babies' pain. It would save the baby from unnecessary pain.*

Participant 14 added that:

> *Here because for capsule phototherapy normally, we do heel lance every 4–6 hours. It is very difficult to do frequent heel prick as it is painful and the babies keep crying excessively. If EMLA cream is available here, it is very good for the babies. It is kind of reward for them. Why let the baby cry?*

As recorded in the observation, in terms of cannulation course, in the past the nurses were permitted to do cannulation and were allowed to attend the cannulation course to be certified. Years after, a circular came from the MOH that stopped the nurses doing the cannulation and prevented their attendance on the cannulation course. The policy states that only the doctors can do the cannulation because it is part of their responsibilities. The participants reported their dissatisfaction with that circular, they stressed that nurses should be trained because they were unhappy seeing the babies repeatedly pricked by the doctors unnecessarily. They added that they are more skilled in cannulation than the doctors due to their prolonged experience in cannulation in NICU. Based on this, allowing the nurses to conduct the cannulation would avoid subjecting the babies to pain.

The participants reported that they felt powerless when these resources (i.e. sucrose, EMLA and cannulation certificate) were not available and this caused them considerable discomfort because they are unable to relieve babies' pain. However, based on the observational field notes, the informants had different views about why the nurses were no longer allowed to attend the cannulation course:

> *The informant replied to reduce the workload on the nursing staff. Based on her report, the nurses had enough and heavy responsibility in NICU. Based on her experience of those nurses who got certified, the doctors left the responsibility for cannulation on the nurse shoulders and this made their duty even worse.* (Day six)

The absence of a clear job description is another barrier for the nursing staff that can be identified in the field notes. Only one job description was found, and that did not clarify the junior and senior nurses' role in the NICU. For example, on Day one observation;

[8] Sucrose is a mild analgesia that is used for minor procedural pain, such as heel lance and venepuncture procedures, to reduce pain and distress of infants (Stevens et al. 2016).

> *While searching for the job description of the junior and senior staff nurses, only one job description was found that explains the responsibilities of special care baby unit nurses. Their main responsibilities are to provide continuity of nursing care for critically ill preterm neonates, admitted to Special Care Baby Unit (SCBU), promote growth and development of sick neonates through the continuation of patient care and maintain family cantered care environment. It does not describe or differentiate the role of juniors, seniors and specialised diploma nurses.*

From the field notes, it seems that the job description did not provide any details about the nurses' different roles and responsibilities. A lack of role clarity may cause confusion because the nurses do not know what is expected of them. The baby's care was compromised because the nurses are not be aware of what to do or how to do things.

6.3.4 The nurses' perception of the doctors' impact on nursing care

Inconsistent pain practices were associated with variation in the management preferences of individual neonatologists. The nurses also reported that instead of concentrating on the baby's care, to do things right, they have to follow the preferences of the doctors on duty, to please them and to avoid any conflict with them. The nursing staff described feeling as if they do not know whom to follow and do not know who is right. Consequently, most of the nursing staff described pain management practices in the NICU as inconsistent. For example, Participant 5 cited that:

> *Aaaah really of course (laugh). How many consultants we have, they all have a different approach. One doctor does something another doctor does another approach. In high dependency, one consultant, and in intermediate another consultant. So, this week two consultants will do the round, the following week another doctor will come (LAUGH), so whatever planned last week will change. There is no standing order.*

However, one of the nurses said if the baby is critical, the doctors will have an evidence-based team discussion:

> *No, most of the time for sick conditions and for management, there would be a team discussion for babies and from that discussion only they will take a final decision. At least two or three doctors may sit together over there; I mean there would be detailed discussion to take a decision, proper decision.* (Participant 9)

It appeared that the doctors were managing the babies differently, as if they care more about the critical babies than the other babies, where they gave more attention to some babies.

6.3.5 The nurses' views on the use of the Neonatal Pain Assessment Score and its impact in pain management

Because infants cannot speak and advocate for themselves when they experience pain, the nurses face enormous challenges. It is, therefore, critical that the nurses are able to recognise a neonate's pain using appropriate pain tools, which is the first step towards effective pain relief.

During the observational fieldwork, I observed that although the unit had recently implemented the Neonatal Pain Assessment Score, the nursing staff claimed that there is no change in the pain management of doctors in NICU. They felt as if the assessment tool was only developed for the nursing staff to assess the pain and that the doctors do not 'bother' to ask about the babies' score unless the nurses discuss it with them. This data has been supported with the participants. For example, Participant 10 said that:

> *No, actually nothing changed. Doctors are not even asking about the score. They did not change any of their management actually, same like before, nothing changed. They started it, but there was no benefit.*

It appeared that the doctors may think that the pain assessment was the nurses' responsibility. This was identified while conducting the observation, when I asked for clarification from one of the key informants:

> *When I asked one of the key informants why the doctors do not 'bother' to check the level of baby's pain in the assessment tool or even asked the nurses about it, she replied that: "This assessment tool was developed to make sure that the nurses are capable of assessing the pain". Then she added that the nurses had to alert the doctors about the babies' pain. She said that she agreed that some doctors do follow the nurses request while others do not. "That was the difficulty."* (Day Eight)

Another participant stressed that the doctors did not 'bother' to check the pain score and did not use the tool effectively. Although the nurses keep alerting the doctors, it seemed that the doctors did not consider the pain as an important element in their rounds because they did not show any attention to it, despite the several reminders were given by the nurses. Participant 5 also commented that:

> *Uhm… after this one, no not all the consultants are following the NPASS. This means that they will see the baby's condition, they examine the baby and they will classify how the baby is: if the baby is active. Then, we say: "Doctor, the baby is in too much pain. Can we increase the morphine or sedate them more?"*

Based on the observational field notes, I observed that the doctors do not ask the nurses about the babies score, as if the tool was made for nurses' use only. According to the observational field notes, the idea behind not checking the assessment tool was understood when I attended the discussion between one of the doctors and the key informant of the unit. The doctors see the tool as a nursing tool, and as such it is not within the sphere of their practice. They see themselves at the top of the hierarchy, and they underestimate the nurses' role:

> *The doctor was emphasising the importance of all the nurses to be trained to know how to use the tool because the tool is the responsibility of the nurses.* (Day Three)

6.4 Conclusion

This chapter began by discussing the first key themes and it set the scene for the inconsistency of pain practice in NICU theme. Within these key themes, the doctors' pain management was described as inconsistent, it varied among the doctors, and it was based on doctors' personal preferences and not based on evidence-based practice. Moreover, the nurses' views and decision making were not well respected in the care of the babies' management because the doctors dominated the care. The lack of standardised guidelines and the neonatal resources were found to be very challenging for the nurses because it prevented them from delivering high quality care. Overall, the key barriers were the hierarchical culture, lack of professional autonomy for nurses, a dominant focus on medical treatments as opposed to nursing care, and failing to apply evidence -based practice in neonatal assessment and management. The nurses showed resisted the use of the assessment tool because they felt less empowered and felt that it underestimated their expertise. Consequently, the patient-centred approach was not always evidenced because their pain was not effectively controlled, leading the babies to suffer. In the next chapter, I will develop this analysis further by discussing the impact of NICU on the nurses' practice and their interaction with the babies, and the nurse's emotions.

Chapter 7: The impact of the NICU environment on the NICU nurses—the experiences of neonatal intensive care nurses

7.1 Introduction

At the beginning of this chapter, the NICU will be introduced (although it should be noted that the details have been anonymised). To protect the unit ward in charge, a key informant is used. This means that the designation has changed. Two terminologies will be used to describe the nurses' approach while caring for the babies: the first is mechanistic, by which is meant task oriented; and the second is soft oriented, which means that the nurses take a holistic approach when providing care to these infants.

7.2 Hope Hospital NICU

The research site NICU admits babies with complex gastrointestinal, cardiac, and neurological problems, which require further surgical intervention. The unit has a capacity of over 50 beds. The unit has various rooms, which are classified into various levels, such as: 111B Neonatal Intensive Care Unit, which is a high dependency unit with over 10 beds; the level 11B and 11A Special Care Baby Unit provide intermediate dependency care with over 20 beds; and level 11A Special Care Baby Unit is a low dependency care unit with over 10 bed capacity. Technically, all of the rooms in the unit are well equipped with cardiorespiratory monitors, suction apparatus with suction tubing, ventilators, and intravenous stands and syringe pumps. This allows them to provide ventilation for highly critical babies and avoids the need to move the babies from one room to another (for further details, see Appendix: Q Hospital Map).

For continuity of care, the nurses are assigned to the same babies to reassure the parents. Based on the ward nurses, the parents are allowed to request for a change in the nursing staff that look after their children.

The unit is very busy with various critically ill babies who need close monitoring. This may compromise the care on those babies when the unit has an inadequate number of staff. Consequently, the staff ratio to patient ratio has to be fairly distributed to avoid affecting the quality of patient care. Therefore, the hospital has a ratio of 1:2 in high dependency but if the baby is very sick then a ratio of 1:1 is applied. The distribution in intermediate care is 1:3 to avoid affecting the quality of patient care. However, this practice of distributing the staff ratio to patient ratio differs from one hospital to another due to the difference in bed capacity. The total number of staff in Hope Hospital's NICU is 90. There is one ward nurse, two acting senior ward nurses, one co-ordinator and 91 staff nurses and senior nurses with four medical orderlies.

The ward nurse is responsible for the managerial work in the unit, such as: staff allocation; duty roster; developing the orientation programme for newly appointed staff, counselling; encouraging and guiding staff; and, determining the future learning needs to improve the ability of the nursing staff. The medical orderly is one of the team members who are certified as standard 12 (post-secondary school). The medical orderly has various roles, such as assisting in basic patient's care under direct supervision, assisting in health education to patient and promoting the baby friendly hospital initiative, attending regular training days to update on their roles and responsibilities, and responsibility for the cleanliness of the unit's equipment. In addition, the medical orderly undertakes other work such as washing the patients' beds, even though they are not hospital cleaners. When a new member of staff joins the NICU, they have to be trained and additionally certified to do additional tasks and procedures, such as administration of intravenous medication and immunisation.

In the research site, certification from other hospitals is not accepted. Therefore, when a new member of staff joins the unit, before any training or orientation, they are not allowed to practice these procedures in their unit, despite their certification.

Maternity health is one of the aspects that MOH focuses on for better neonatal care. Therefore, the following section will elaborate on maternity services, consanguinity and maternal nutrition.

7.3 Changing practice of care

Neonatal nursing in Oman is in its primary stage and it is currently building a system with identified standards. Currently, the Hope Hospital is on its way to achieve and make the required changes, to pass the assessment and be accredited. Hope Hospital was given three years to meet the accreditation standards.

The major pharmacological and nonpharmacological strategies practiced in NICUs across the country are as follows: kangaroo mother care, use of quiet hour, minimising noise and lights, clustering the care (i.e. all vital signs such as blood pressures, temperatures, and nappy care are done at once to provide longer periods of sleep), use of breast feeding to maintain lactation, and parental involvement in the care (Legendre et al. 2011). In addition, opioids such as morphine and fentanyl are used post-surgery and prior to ventilation until the babies recover. However, although these pharmacological and nonpharmacological strategies are evidence-based, their implementation varies from hospital to hospital in Oman (Linhares and Gaspardo 2017; Legendre et al. 2011). For example, some neonatal units are still cautious in practicing kangaroo mother care and it is mainly followed when the babies are in low dependency.

In another example, ventilated babies are rarely put for skin to skin contact because of the fear of accidental weaning from the ventilator. There is, however, a move in Oman to ensure that all care is evidence-based wherever possible. EBP is integrated in all the curricula for post-basic diploma specialities and EBP is introduced to students to introduce change in the clinical practice. However, the idea of EBP is not widely accepted in MOH hospitals.

7.4 The unit's philosophy

The philosophy in the NICU at Hope Hospital focuses on the change leaders (although who they were is not defined), which is addressed in the unit. This philosophy sees the neonatal nurse's role as promoting health education and providing care with comfort. The staff work also mentioned working as a team to improve the patients' care. The philosophy also states that the staff deserve an opportunity for continued professional development (see Appendix R). It is very important for any NICU to have a philosophy that introduces staff and the newly joined staff to the unit's approach and give them idea of how the unit is run, which will enhance teamwork (Early Childhood and Education 2010). This will also enable staff to be aware of what is expected of them and direct them to achieve the same goal. Given that neonates are vulnerable babies and dependent on staff and their parents, the philosophy should focus on the infant's needs, the parent's roles and the kind of support that the unit can offer to progress towards parental independence.

Although the NICU at Hope Hospital has a philosophy of care, no model of care exists (see Appendix A). Their philosophy only specifies the collaboration between doctors and nurses, and their commitment towards developing patients' care. It does not include the involvement of the parents in the care of their babies. In NICUs, research suggests that the parents' involvement is very important for the psychological well-being of the parents and family (Kenny and Donaldson 1991). The parents have a great role in their baby's care, particularly in relation to pain management. Involving the parents in their baby's care enhances the baby's health and progress. This has been supported by studies which show how parental involvement in their child's care helps in calming, comforting, weight gain and then finally to early discharge from the unit (Franck et al. 2012; Gooding et al. 2011). In their empirical study, Franck et al. (2012) found that the parents strongly wanted to be involved whenever the babies were put through painful procedures to provide comfort for their babies. However, it is acknowledged that involvement may be distressing for parents, particularly their involvement while undertaking painful procedures for their babies.

The following section elaborates the NICU environment of Hope Hospital theme and it explores the impacts of the NICU environment on the nurses' routine activities towards pain management practices in the NICU. The participants found that the NICU environment was very challenging and stressful, and

it has a negative influence on them when they try to deliver a proper quality of care. The unit was described as crowded, busy and noisy, and the babies were bombarded throughout the day with frequent painful procedures particularly in the morning shift. The afternoon shift was described and observed as the quietest while the morning shift was the noisiest and busiest. The nurses in the afternoon were calm and practiced the developmental care (nonpharmacological strategies for pain management), such as the use of quiet hour, covering the top of the incubators with sheets, dimming the lights, use of clustering care[9] and minimal handling, to reduce stress.

The night shift was found to be one of the worst for environmental stressors (e.g. noise, handling and business). Many the babies were kept awake throughout the shift and the nurses practiced a traditional and non-evidence-based routine throughout, such as top to tail procedure. The nurses' approached the babies differently when delivering care on the night shift. The environment was described by the participants as negatively influence their daily practice because routine was taking priority over interacting with babies and supporting the parents. In addition, the participants discussed the harmful impact of the stressful night-time environment on the babies' development, such as brain function.
Although the nurses showed themselves to be aware of the negative impacts of the unit's routine, during the observation the nurses did not demonstrate in their actions an intention to change the practice or advocate for the babies. Overall, the nurse were found to have no control in the babies care because of hierarchical issues, and also because the care is dependent on task orientation.

7.5 Sub-theme 1: NICU physical environment

This theme discusses the impact of the NICU environmental stressors (i.e. busy, noise, and handling) on the nurses' care of the baby, their interaction with the babies, and how these stressors varied among all of the shifts (i.e. morning, afternoon and night duties).

7.5.1 Busy, crowded area

NICU environment was found by NICU nurses to be one of the most challenging stressors in performing their nursing care. Most of the participants described how NICU environment has a negative impact on their practice and interaction with babies because the environment was busy, crowded, noisy and the babies were frequently babies handled, especially during the morning duty. The morning shift was

[9] Clustering nursing care does blood pressures, temperatures, blood investigation and unnecessary handling all at once to provide longer periods of sleep (Peters 1999).

described by the participants as one of the main challenges that hinders them from providing proper care. The participants revealed that morning was' the worst shift, for example:

> *As all the doctors including neonatologist, surgeons, and cardiologist gather to see their own patients for follow-up.* (Participant 3)

As a result, all of the medical and surgical procedures are carried out. The situation in the morning shift also hinders the NICU nurses in fulfilling their responsibilities. For example, Participant 1 described how the morning shift was the worst,

> *Morning is always considered the worst shift because all the doctors are doing their rounds and performing special procedures. Moreover, all the surgical, medical and cardiology interventions for the babies must be carried out.*

The routine in the morning shift was task oriented and the babies were not visible because the individual needs of the babies were not considered.

My field notes observations confirmed that the NICU was a busy, noisy and crowded unit that was full of infants and healthcare providers, nurses, doctors, radiographers and parents. During their rounds, the paediatric doctors and surgeons spoke in loud voices, the nurses were busy carrying the doctor's orders and other routine care interventions, the radiologic technician was doing X-ray procedures, and some parents were waiting for the paediatricians and surgeons to get updates regarding the condition of their babies. As shown in Day One:

> *All the nursing staff in the room was busy with their assignments, fulfilling doctors' order, changing Intravenous fluid, administering drugs and doing holistic care (the top and tail).* (Day One)

These activities could contribute to a stressful environment, which could affect the quality of healthcare and, therefore, compromise the babies' well-being.

Consequently, the babies' well-being may be compromised when the environment is very busy and hectic. The participants also described the potential impact on safe nursing practice,

> *Yes, when the environment is hectic we sometimes forget to do things right. For example, when doctors order new medication, then we have to check the seven rights [right medication, right client, right dose, right time, right route, right reason and right documentation]. We might perform the six rights; however, we forgot to sign. So, after a tiring day, you will receive a call from the unit to ensure whether you administer the medicine and just forgot to sign. They will ask you "hey you didn't sign?" Sometimes we document that in the nursing Kardex, so other nursing staff*

> *would know whether we administer the drug or not. Thus, morning duty is overwhelming and hectic for me.* (Participant 14)

It appeared that the NICU's heavy routine caused the nurses to make mistakes and dangerous errors, and also provide incomplete care that led to negligence.

Participant 5 added that, due to their busy activities, the environment might restrict nurses' adherence to the policy and guidelines to deliver the optimum quality nursing care (best practice), as revealed below:

> *Sometimes yes, there are too much busy times; we can't follow the policy and procedures guidelines.*

This causes the participants to experience high levels of stress and made them unable to provide adequate care because they delivered it hurriedly. The work load was described as difficult, for example:

> *There are difficulties, like sometimes you have to manage lots of loads to do. If a critical baby comes all of a sudden for me when I already have another one, ooh, so, it will be difficult to cope with them both. Imagine how we have to manage our overwhelming load.* (Participant 9).

The nurses seemed to be juggling tasks and did not see the babies as people with individual needs. It appeared that the babies care was not a priority. The whole care in the unit focused on fulfilling tasks.

7.5.2 Noise

Based on the observational field notes, the loud noise (voice) that was created by the healthcare providers during discussing the babies' conditions in the round and the device alarms (e.g. monitors, incubators, and ventilators) were found to be major contributors to noise throughout conducting the data collection. The high noise created by doctors during rounds was very disturbing (very loud), where Many of the doctors talking loudly over each other for a long time. The discussion seemed like a lecturer sitting in a class room teaching the students, taking a long time to discuss each case close to the baby's incubator. The devices were alarming continuously and the nurses did not pay attention to suspend these alarms. It felt like I was not able to concentrate on what was going on and the noise was unbearable and hurt my ears. This seemed to compromise the baby's condition as a vulnerable premature baby, and it was not the ideal and required environment that enable the babies to grow normally with the least complication because the babies that I observed did not get enough rest and sleep.

The usual morning rounds lasted for 2 hours because the doctors took a long time to discuss the babies' conditions for teaching purposes for the medical students and new doctors constantly joined the unit. On Day One of the field notes, I observed that:

> *The unit was very noisy as all the monitors were alarming and nurses were poorly responding to them. At 9:00 O'clock, the doctors' round started. Nine doctors (unit head, specialist, consultant, RMO, Registrar, doctors), attended the round including the ward nurse assigned to the baby. The discussion during the round was loud and directly next to the baby's incubator.* (Day One)

In Day Two's observation, the nursing staff appeared to be oblivious to the noise. It seemed as if most of the staff had become used to the noise and did not feel like they were bothered or disturbed by it because they were seen not to act to control the sound produced by the monitors. For example, they did not suspend the cardio and respiratory monitors and they did not adjust the monitors' alarm based on the baby's condition:

> *When I tried to enquire from the nursing staff about why the monitors were left alarming all day without turning them off, they claimed that turning off the monitor's alarms may result of missing unexpected bradycardia and desaturation episodes.* (Day Two)

The participants were seen not to adjust the monitor's alarm based on the baby's needs. The monitor alarms usually have to be adjusted every shift based on the condition and the babies' management. Moreover, the biomedical experts in the hospital gave instruction to always keep the peeping volume to the lowest to stop the noise. For example, based on evidence, if the baby is on oxygen, then oxygen saturations should be targeted within the range of 91–95% in both preterm and term neonates to avoid eye and lung damage because oxygen is toxic,[10] particularly for premature babies. Therefore, the monitor alarms should be set in that range. In the unit it was observed that all of the monitors' alarms in particular to the Saturation of Peripheral Oxygen (SPO2) percentage of haemoglobin that is saturated with oxygen was set on 91–100%, regardless of whether the babies were on oxygen or not. This puts the premature babies at risk of eye and lung damage, for example:

> *In Day Seven, I have noticed the same observation. It was evident that the cardiorespiratory monitors were the noisiest machine in the unit wherein most of the staff seems to be oblivious to the noise produced by the healthcare workers, machines and parents. I also noticed that the nurses do not set the monitors' alarm based on the baby's needs. When I asked the nurses the reason behind this, they replied that another shift had done it. The situation raised a question*

[10] Oxygen is toxic through free radical damage and it is a key factor to retinopathy of prematurity (ROP) and lung injury. Excessive oxygen is associated with higher rates of (ROP) whilst inadequate oxygenation is associated with an increase in mortality in preterm infants (Beharrya et al. 2016).

> *in my mind "how the nurses then will differentiate the usual alarms from the bradycardia and desaturation alarms?*

From the observational field notes, it appeared that the nurses have a lack of awareness on the importance to set the monitor's alarm based on the baby's needs, in particular the apnoea and heart rate alarms, because failing to do so may cause patient safety issues where bradycardia and apnoea could be missed. Technically, the nurses did not know that turning on the peeping sound of the monitor's volume will not help in detecting bradycardia and apnoea, but what would help is to set the monitor's alarm and monitor as was explained by the biomedical staff.

7.5.3 Handling

Frequent handling of the babies was one of the major concerns that was discussed by the participants and they described how the unit's routine made them frequently and unnecessarily handle the babies. Most of the admitted babies suffer from an ongoing routine that lacks flexibility and individualised care, as can be seen in the following example:

> *The babies need time to rest, because morning shift has so many procedures, most of the time they are handled by doctors and other consultants, our nurses will come to do care, so most of the times, you see the babies manipulated; handling... handling... handling, because all will be around there, our doctors, in-charges, and all procedures will be mostly done in the morning time, they are not coming to do anything in the afternoon or night.* (Participant 3)

It appeared that the nurses felt that they lacked autonomy to challenge the unit's routine because they seemed very unhappy when they talked about it during the interviews. However, it was not just during the busy morning shift that the babies were handled frequently. The unnecessary and frequent handling of the babies was also observed during the night shift. For example, the nurses exposed all the babies for top to tail care (procedure) daily. From my professional clinical experience, top to tail nursing procedure is a routine that is done for bedridden adult patients, where a bed bath is given in the bed from head to toe. It is undesirable and unsupported practice by updated practice for small babies, especially for preterm and critically sick babies because it is considered to be stressful and disturbing.

As recorded in the field notes, the nursing staff were observed to practice the top to tail care daily to the most of the babies after midnight as part of the usual care, except the critically ill, without considering the babies' rest and sleeping period. The top to tail care was daily administered using wet gauze, baby shampoo, and soap, the nurses then took the babies' weight. This was elaborated in the Day One observations,

> *From 2 am, the unit environment changes from quiet and peaceful to a busy as the nursing staff started to perform the top to tail care. Babies were cleaned using wet gauze cleaning them from head to toe. During that time, most of the babies have to be awakened from their sleep to administer the routine daily care including daily weighing and drug administration. Once the routine care started to administer, babies started crying because of discomfort. Then, by 6 am the doctor's routine, and the other necessary blood investigations were performed to adjust the ventilation settings before morning shift comes.* (Day One)

Participant 1 showed that the NICU nurses were confused between what top and tail is and how it was different from the top to tail procedure, and what was best practice and required for the small babies. From her following description, she seemed to describe unwanted traditional routine top to tail, where she mentioned in her previous quote that during top and tail that they should give a sponge bath top to bottom. In top and tail procedure, a sponge bath is not used. The focus will be mainly on two parts of the body: the face and the bottom, while cleaning the other parts of the body.

When Participant 1 described the night shift routine, she seemed to be confident that their routine was not at all disturbing the babies. From her statement, she believed that the routine was done based on the baby's needs:

> *Usually from 2–6 am, we should give the top and tail care, and according to the baby's condition we will start, if my baby is in need of more care, we should start earlier than that. We should go thoroughly, like top to bottom care, we should give sponge bath then we do endotracheal tube suction if needed and then change the position. After finishing all baby's work, we proceed to the medication area to prepare the drug according to the interval starting OD to TID drugs.* (Participant 1)

It appeared that the babies were handled all night for unnecessary and traditional routine, and the babies were not given enough sleep and rest (as in morning shift). This showed that individual care of patient was not evidenced throughout both the night and morning shifts.

From the observational field notes, as to handling, it was also observed during a venepuncture procedure that the baby who was handled all night did not have any analgesia for these invasive procedures. The baby was observed to experience pain throughout the procedure for a long time, as follows,

> *A junior doctor had to do blood extraction for clinical investigation. However, the doctor did the procedure many times at the same site without giving analgesia, pushing and pulling the needle and trying to collect blood samples. That time, the*

> *baby was extremely crying. Unfortunately, his many attempts have failed and decided to stop. In less than 2 minutes the same doctor returned with a senior doctor for another try. As soon as the doctor touched the baby before doing any procedure, the baby started to cry. Luckily, from the first attempt, the senior doctor collected blood and forwarded to the laboratory for investigation. However, the blood sample was not correct, so the baby had to go again for another blood collection.* (Day Two)

From this quote, the doctor carried on the procedure for a long time and were observed to not respond to the baby's crying. Individualised and gentle care for the babies was not observed. This could add more problems to the baby's prematurity. However, the participants believed that they offered individualised care to the baby.

Conversely, the unit routine in the afternoon duty was entirely different and it was considered to be the quietest among all shifts. It is also considered the best time for the babies to rest from a tiring daily routine. There was a notable difference and I could see how the unit changes from busy and noisy to a quiet environment. The babies were left peacefully, away from the environmental stressors such as noise, lighting, and frequent handling because there were less activities, such as doctors rounds and special procedures. During the shift, the nurses were observed to implement the developmental care,[11] such as practicing a quiet hour[11] (which is evidence-based care). The babies were allowed to relax during the afternoon. The nurses gave gentle care and they used various nonpharmacological strategies, such as covering the head of the incubators, dimming the lights in some areas, and 'nesting[12]' the babies using positioning devices (sheets), to support and properly positioned the babies. Then, from 4 to 6 pm, the parents were allowed to visit their babies.

Participant 1 pointed out that:

> *The afternoon shift is better. We can do the interaction peacefully because there is no much interruption from the doctors for procedures like CT and Echo as they are done in the morning. In emergency, only we will be doing them and emergency surgery will be shifted in the afternoon and night shift.*

[11] Quiet hour is a daily practice in NICU where nurses provide an hour for the babies to have enough sleep to allow them rest and reduce the stress of the environment (Petterson 2000).

[12] Nesting is essential therapeutic positioning and is used in a NICU as part of developmental care. It is used to provide comfort, support the babies' posture and encourage movement patterns that are vital for the premature babies to develop their neuromotor and neuro-sensory development (Blackburn 1998).

My observation also confirmed this statement. I have observed that babies in the afternoon, such as the post-surgery patients, were given enough time to rest. The majority of the babies received their holistic care by 5:30 pm to 6 pm (3 hourly care but for sick babies 6 hourly) as observed during Day One. By that time, from 6 to 7pm, the consultant round started to follow-up mainly critically ill babies. After the doctor round, the babies were left alone and no more handling was done.

It appears from the observational field notes and the participants' interviews that the nurses were aware of the impact of developmental care[13] and they practiced it whenever they got the chance, particularly in the afternoon shift because it was quieter than the other shifts. When I asked the nursing staff why? They replied that it was done to reduce the stressful morning routine:

> *It was noticed that, afternoon shift is the quietest among all the shifts. Doctors' round is rarely done and very less routine carried out. Based on my observation, some staff were noticed to dim lights and cover up the top of the incubators to darken the environment of incubators, for the baby to sleep.* (Day One)

However, due to the frequent routine and doctors' presence to meet the doctors' orders, the nurses cannot practice developmental care. This again shows that the nurses have a lack of professional autonomy in relation to the baby's care and the doctors are solely responsible for the clinical decisions.

In addition, according to my field notes data, on Day Four the nurses' behaviours towards the babies during the afternoon shift was noticed to be different than in the other shifts. Some nurses were seen to be softly (gently with extra care) approaching the babies and the parents, as described below:

> *In Day Four, the nurse showed to be softly (gentle and careful) approaching the baby and used various nonpharmacological strategies like putting the baby in comfortable position using sheets, covered the top of the incubator with sheet, and planned for 8 hourly holistic care, to minimally handle the baby. She also showed to be supportive to the mother of the baby and reassuring her whenever she attended to visit her baby.*

It appeared that when the unit's routine was less demanding and the shift was quiet, the nurses could perform better care and behaved in a caring manner. They were seen to communicate effectively and they gave individualised care both to the baby and the mother. It could be argued that the workplace environment could have a positive and negative effect on the nurse daily practice and interaction with the babies in the NICU. This will be discussed further in the next section.

[13] Symington and Pinelli (2006) defined developmental care as a range of strategies designed to reduce the stresses in the NICU. These include reducing noise, lightings, and minimal handling with the provision of giving longer rest periods. The review of trials suggests that these interventions may have some benefit on the outcomes of preterm infants.

7.6 Environment and interaction between the nurses and babies

Many participants claimed that the unit's environment had a negative impact on their interaction with the babies. According to the participants, the environment affects the quality of care rendered to the patient due to busy routine care. The situation that I observed suggests that routine work is seen by the organisation as taking priority over interacting with babies and supporting the parents, as reflected below:

> *When we are busy we can't interact with babies. Sometimes we don't have the time to provide enough care for the patients, because most of the time we are busy, we have to finish our only routine work. Also, we don't have even time for parents, sometimes they need somebody to talk to them, especially if baby is critical, so we have to support them but we don't have time to talk to them.* (Participant 10)

It seemed that the unit's routine was task oriented, which compromised the care of the babies and caused the nurses to prioritise the unit's routine over the babies individual needs. This was also evidenced from other participants, who discussed the nature of work in NICU, as stated by Participant 12:

> *When the environment is stressful, we also feel over stressed. Even when it is not stressful, we end up with stress end of the shift, especially if unexpected procedures and admission come, so we go home late because we cannot finish the tasks before end of the shift. With the kind of environment, I feel sometimes I could not give full care and interaction and attention to the baby.*

It appeared that Participant 12's care was more focused on task completion because she specified that she cannot finish the tasks. She considered the baby's care as tasks. Moreover, in terms of 'going home late', it was observed that the unit had a routine that when any work occurred during any shift, the nurses of that shift were expected to complete everything, particularly documentation. Moreover, the documentation was done in the unit through the hospital's computers. As observed, the unit had one computer in each dependency. Therefore, the nursing staff had to wait before they could finish their documentation and they often go home late. It also seemed that the nature of the work in NICU was unpredictable because the unit often unexpectedly becomes busy.

However, Participant 16 disagreed with most of the nursing staff and reported that the unit had plenty of nursing staff, which allowed them to interact with babies:

> *Nowadays we're getting enough time because we have no shortage. So, most of the time two babies or one babies only we use to get. So, that then it is enough time to take care of two babies or one baby. If babies are quiet, means okay. If the baby is*

> *not quiet also, it is time to make them quiet or talk and interact with them. Nowadays we are getting enough time.* (Participant 16)

In respect to Participant 16, in particular to the unit routine, her statement suggests that the care in the unit was a more patient-centred than task-oriented approach. However, this was not observed when I conducted the fieldnote observation. The unit still experienced staff shortage, although the number of nurses appeared to be large in the duty rota. Based on the key informant, 20 nurses were taken to the new cardiac centre but their names were still included in the duty rota (Day Five) and they did not get any replacements to cover the shortage. Also, during my field observation, I noticed that Participant 12 was always assigned to low dependency and seldom worked in the intermediate and high dependency units, which suggests that this was the reason why she thought that they could manage the unit routine the workload is less in the low than the intermediate and the high dependency.

7.7 The environment and the babies' physical development

This theme discusses the nurses' views on the negative impact of the NICU environment on the babies' growth and development. The participants gave various views, some support that the environment negatively affected the babies, both physically and mentally, while others did not show the same awareness. However, most of the nurses were highly aware and mentioned how this stressful environment could harm NICU babies, physically and mentally. Nurses raised different views about the negative influence of the environment on the babies and physical and mental status of the babies.

From what was expressed by the nurses, it appeared that the various procedures bombarded the NICU babies without giving them room to rest. They mentioned that the unit atmosphere was busy and crowded because of the healthcare providers, particularly during the doctors' rounds and the routine care. They reported that the babies were frequently disturbed during the morning shift.

However, many nurses were acutely aware of the negative impact of the environment and they shared their concerns with me, particularly on the effects of the stressful unit on the babies' growth and development. They mentioned that the babies were affected physically and mentally. Nevertheless, they reported that they have no power to stop the baby's suffering because some doctors do not appreciate their opinion when they ask them not to handle babies and ignore them. As described by Participant 10:

> *Yeah (emphasis), it will affect the baby's physical development, mostly the environment during daytime, is always noisy, and moving and transferring baby from place to another. So many procedures are going on, I feel this is affecting babies because we are handling them so much especially during morning duty because so many procedures are going on, so I feel this must be affecting babies,*

> *all lights are bright and so much crowded with doctors from different specialties are coming (Neonatologist, surgeons and cardiologist, nurses etc). I think this will still affect. This may cause infection due to so much handling.*

Participant 9 was highly aware of the importance of EBP, in particular to the effect of the NICU environment, and was able to cite it:

> *Yes, it is. There is like noise, light. That all directly, indirectly affecting the growth of the child in the long run. Unfortunately, although we don't follow these babies after discharge the literature have documented those complications on the neurodevelopmental disorders like learning abilities and memory.*

Many nurses described the detrimental effect of excessive handling, as well as the continuous and traditional routine that they had observed on the babies during their stay in the NICU. The physiological and behavioural changes on the babies when handling showed the importance of adherence to pain-management measures to reduce the effect of pain on the babies, as stated below:

> *Yeah. Some babies get IVH*[14]*. Maybe, with various degree and some babies have sleep disturbances, it's happening. Also, the babies' parameter readings are also changing, the baby will be tachycardic, with maximal touching the baby may be desaturating, especially if we are handling small extreme preterm and this needs gentle stimulation, gentle handling and minimal handling, because they are easily becoming ill.* (Participant 10)

Another nurse with more than 15 years of experience, who had her NICU training, described the traditional NICU routine (top to tail) during the night shift. She reported that the night routine was carried out after midnight and continues until early morning just before the morning shift and she explained how this practice could affect the babies sleeping behaviour:

> *Yeah of course. Because as baby keeps growing and they get used to this kind of routine, then it will work on his psychology, that in that particular time he was kept awake for cleaning and it will be there for a very long year. I think this has to be minimised, not to do it as routine whenever necessary*. (Participant 4)

[14] Intraventricular haemorrhage (IVH) is a bleeding that occurs inside the brain which could be fatal and is a significant cause of morbidity and mortality in premature infants. It occurs in stages, the more severe the case, the worse outcomes of neurodevelopmental impairment (Dani et al. 2010).

Although the nurses were aware of the negative impacts of the unit routine, during the observation the nurses did not demonstrate themselves in their actions to be advocators for the babies to change the practice. Their knowledge is not congruent with their actions in the baby's care. This may demonstrate that there is gap between knowledge and practice.

However, a few nurses had different perspectives on the importance of the frequent procedures. Some of the participants mentioned that subjecting the babies to frequent procedures in the NICU is beneficial. For example, Participant 14 mentioned that:

> *You know when it is actually so much busy, the baby has to go for the majority of the time from one procedure to another procedure continuously. We're doing that actually. And we all know that for the benefit of the baby, we're not actually trying to do something against their right, I mean we don't mean to harm them.*

However, one participant gave a different view because she did not think that the environment impacts negatively on the baby's growth:

> *I don't think so that it affects babies' physical development. Whatever we do is for their own good. Because if we are not doing anything also, it may become a problem for the babies, that's why we are handling frequently.* (Participant 13)

It appeared that from the nurses' perspectives that there was confusion about the necessity of giving clinical care and technical care. Some nurses saw the frequent and painful routine as part of the daily care for the babies and it did not matter how the care was delivered as long as the babies were getting it.

7.8 The impact of the NICU's environment on the nursing staff

This section will describe how the environment negatively put the nurses in stress and impacted their emotions.

7.8.1 Environment and the nursing staff's stress

The key themes described by the nurses in this section focus on the challenges that they face when caring for the infants, such as the nurses' concerns to neonatal pain interpretation, feelings of helplessness to control the babies' pain and discomfort, feeling of dissatisfaction about the delivery of care and the nurses' approaches towards the babies' care.

Some participants commented that dealing with babies was considered as a challenge and stressful task, especially regarding pain interpretation, because the nursing staff were struggling to understand the baby's needs:

> *There is stress because first of all, we don't know how much those babies expect from us, dealing with the adult patient is easy, they can tell what they want. The problem we may misinterpret what babies need, as they can't verbalise. We need to know the condition of the baby very well to be able to assess their pain and meet their needs. There is always stress, and actually, we are not hundred percent satisfied when caring for small babies.* (Participant 7)

It appeared that the nurses' dissatisfaction in terms of inability to meet the babies' needs was anxiety provoking and it created a feeling of helplessness within them and hurting the nurses' emotions.

Other participants reported that they get stressed and feel helpless when babies are scheduled to stressful and frequent stimuli, which may lead to a particular unwanted complication, as in the following example:

> *Yes, particularly after stressful or painful procedures, babies are crying, and we feel helpless and uncomfortable with what they go through because they are suffering due to repeated painful procedures like venepuncture if they do not have a central line. Nowadays the practice has changed because doctors are anticipating that those babies may need to stay for a long time in NICU. Therefore, central line or long line is inserted to avoid bothering the babies on/off cannulation.* (Participant 12)

It seemed that the heavy work in NICU and the repeated painful experiences had a negative effect on the NICU nurses' emotions, subjecting them to emotional labour which could negatively impact their daily life and health. However, another participant had a different view and felt that after fulfilling her work in a stressful day, she felt quite relieved with the care and help that she had provided to the infants:

> *Actually, when we are overloaded, I feel happy after finishing the duty because we provided help and something for the baby. But regarding stress, we feel like we are under stress all day. After going home, the pressure is released.* (Participant 10)

From what the nurses described, it was evidenced that the nurses were experiencing emotional labour and it impacted their emotions and their daily life.

As a result of the stressful environment that the nursing staff went through, and the nature of the heavy routine of the unit, the nursing staff in the busy environment were observed to have different approaches in babies' care. Although some were observed to be soft oriented with the babies, others

were rough (that is, they did not handle the babies gently) and mechanistic (they delivered the care as they would deal with a manikin and rushed to finish it) to finish their routine on time. Many nurses were seen to handle the babies in a rough and mechanistic way, as shown in the following example:

> *All the nursing staff in the room was busy with their assignments, fulfilling doctors' order, changing Intravenous fluid, administering drugs and doing holistic care (the top and tail).*(Day Five)

Meanwhile, some nurses showed to be soft oriented and gentle, as in this description:

> *Staff (F) seemed to be very well organised, preparing and assembling all the equipment needed. She started the care with checking the vital signs, counting the respiratory rate before touching the baby. Then she proceeded with nappy change. Her approach with the baby was obviously gentle throughout the care, she was smiling, talking to the baby using nice words such as my love and sweetie. When she finished the care, she cuddled the baby very gently, kept him closed to her and continued communicating while giving cup feeding as if she was asking the baby to give his opinion on whether he is comfortable or whether he wants more milk to drink. The baby was calm, listening keeping eye contact to the nurse and seemed to be comfortable. After that, she put the baby back inside the incubator and positioned and nested him nicely with bed sheet putting the baby in the centre and surrounded by sheet to make him comfortable. While doing the care she was attentive to the cardiorespiratory alarms and suspends them when necessary, as if she is trying to control the noise.* (Day Five)

Most of the nurses were seen to be task-oriented when approaching and caring of the infants. However, some even showed no signs of care while interacting with the babies, as shown in this example:

> *Another participant on the opposite side was also doing holistic care (top and tail) for a baby with phototherapy. Before starting the holistic care, the nurse put on a gown and gloves to protect herself as the baby is a suspected case of MRSA (Methicillin-resistant Staphylococcus aureus). To start the care, she puts off the phototherapy light and immediately proceeded to change the diaper. Throughout the care, the baby was crying uncomfortably and showed a startling behaviour as his eyes were left covered with phototherapy pad. The nurse did not even try to release the pressure on the pad to comfort the baby's eyes. Throughout the procedure, the nurse showed to be mechanistically handling the baby without positive interaction such as the use of soothing voice from her side to calm the baby even when the baby was crying excessively. She remained silent throughout the care.*

> *Also, oral feeding was given to the baby while he was in the crib in sitting position using a syringe. The nurse observed not to involve the mother in the care and did not ask her to cuddle the baby or ask the mother to feed. It was so sad to see the mother sitting and just watching the nurse giving the feeding to the baby in the crib that left naked covered only with nappy and eye pad. After finishing the feeding, the nurse changed the eye pad and put back in the incubator and went to wash her hands to go to another baby. It was so disturbing to see that horrible situation.* (Day Four)

7.9 Conclusion

This chapter discussed the impact of the NICU on the nurses and babies in NICU. It has shown that the NICU environment was busy, noisy and there was use of excessive handling. The nurses were found to have different views in terms of the how the routine and the environment affect the babies. Some nurses had negative while others had positive views of the excessive and invasive routine in the NICU. Moreover, the environmental stress on the staff's emotions was explored. From the discussion, it was evidenced that the NICU environment had an impact on both the nurses' daily practice and in their emotions, and it had negatively impacted their interaction with the baby. Overall, the patient's centrality was absent and was not a priority, the routine focus was on tasks and ritual practice.

Chapter 8: The influence of the nursing and organisational culture on neonatal pain practices in NI CU—the experiences of neonatal intensive care nurses

8.1 Introduction

In the data analysis, two themes emerged that were related to culture: nursing culture and organisational culture. These themes are both discussed within this chapter because of their common areas. However, each theme will be discussed separately for clarity.

This chapter begins with 'the nursing culture' theme, and presents the findings related to the factors that negatively influenced the nurses' professional autonomy in terms of decision making and affected their pain-management care in the NICU. These factors were the nurses challenging the unit's policy, nurse–doctor relationship, and nursing confidence and autonomy.

The nurses showed their reaction towards the irrational policies and challenged them because they were rigid and not suitable for the baby's conditions in NICU. Moreover, the nurses felt that their contribution to patient care and decision making was disregarded by the doctors' dominance because the doctors kept interfering in the nursing care and on many occasions they had to request the doctors to write and prescribe simple interventions like pacifier. As a result, the nurses felt ambivalent towards advocating for pain care and unable to taking part in pain care discussions. Some of the nurses described overriding these policies to improve patient care and they used their clinical judgement to diminish the baby's suffering. It appeared that healthcare professional's care was based on clinical judgement rather than following EBP, and this may have been partly explained by the limited neonatal nursing and medical guidelines, lack of resources, and non-acceptance of EBP.

In the second part of the chapter, I present the findings related to Theme 4: 'complexity of the organisational culture', where the participants described the barriers and issues related to the organisational culture that affected them and their practice. The nurses described the organisation culture as top-down, unhealthy, repressive and unsupportive. The nurses experienced hierarchical issues with their authority (managers) and doctors. The nurses described that they have no clinical autonomy affecting their professional identity. The participants described their feelings as being overwhelmed, depressed, insecure, and unsatisfied towards the work environment culture as they experienced of a lack of recognition due to lack of training.

8.2 Theme 3: Nursing culture

The participants described some of the barriers that they faced within the nursing culture in NICU, such as challenging the irrational and irrelevant policies to neonates, including the use of pacifiers and Kangaroo Mother pain-management care in NICU. Moreover, they discussed the nurse–doctor relationship, where the limited neonatal policies meant that the doctors Care (KMC). The nurses described how they act to meet the best interest of the babies to provide effective tried to dominate the nurses' practice and restrained their professional autonomy.

8.2.1 Nurses challenging the unit's policy

This section focuses on the nurses' reaction towards the irrational policies to meet the babies' best interests by subversive action, such as by giving a pacifier when they are not supposed to:

> *Some of the staff are strict then that's why they cannot break the rules and they cannot give it. Even though the baby is crying. But some of the staff, now are breaking the rules and they are giving pacifier.* (Participant 3*)*

As explained in Chapter 6, the inconsistency of pain practice theme, unit policies related to pain management existed but they were all outdated and irrelevant to neonates, except for three policies specific to neonatal care. However, because the Hope Hospital was a BFHI site, global breastfeeding policies had to be followed in all the departments including NICU. In these policies, the use of pacifier is not permitted, in maternity units as it is considered to create nipple confusion and thus affect the goal of exclusive breast feeding and encourage the mothers (Al Sinani 2008). However, this conflicts with neonatal research evidence whereby use of pacifier[15] was recommended for neonates particularly for the premature infants because it helps to improve the sucking reflex and is used to divert the baby's attention of pain during painful procedures, such as venepuncture and heel lance.

Most of the participants revealed that BFHI policy in relation to prohibited use of a pacifier in the NICU disempowered them and restrained them to use it when needed during painful procedures, to reduce pain and discomfort during painful procedures.

Given that reading the policy and searching the unit's documents was part of the data collection, I found that there was no statement in the BFHI policies which specified ill neonates in particular. It appeared that the BFHI policies were developed only for healthy small babies, not including NICU babies that

[15] Koller and Goldman (2012) cited that distraction with the use of Pacifier is a simple and effective technique that directs children's attention away from noxious stimuli like pain.

were frequently subject to painful stimuli as part of their care. However, many participants in their interviews claimed that there was strict adherence to BFHI, as shown below:

> *Actually, pacifier was not allowed in SCBU in NICU and according to the BFHI and doctors, not to offer pacifier.* (Participant 3).

Meanwhile, based on the nurses' interviews and the field observation, certain babies in NICU were offered a pacifier such as post-operative babies because a distraction technique to alleviate hunger and to reduce post-op pain as they took nothing by mouth after operation for few days. Moreover, it was offered for those babies with sucking difficulties to enhance their sucking reflex, such as children with hypoxic-ischemic encephalopathy (HIE[16]) and cerebral palsy (neurological conditions). However, this information was based on EBP and but was not documented in their policies:

> *When I tried to clarify more about the use of pacifiers from the key informants. They said the information was correct (not permitted to use the Pacifier in NICU) but the nurses did not follow the BFHI policies because they deal with different kind of babies with special needs. They confirmed that pacifiers were used for nil by mouth babies or for a baby with neurological problem. She added that they were in the process of developing neonatal policies related to the use of Pacifier in NICU during painful procedures, to comfort the babies and clarify the need of using it and when to use it because the situation in neonates is different.* (Day Four)

According to the participants, some of the nurses did not follow the unit's policy because they felt it was not appropriate to leave the babies to suffer of pain. It appeared that the nurses tried to use their clinical judgement and did what they thought was best for the baby because to some it was a nursing responsibility to decide when to give or not to apply the pacifier policy. For them, this was still part of neonatal nurse role and practice their professional autonomy. This is supported with the statements of the following participants:

> *Using the pacifier for the baby is part of our nursing role as it is a nursing practice, why to wait or take the permission from the doctors to use it.* (Participant 6)

As some nurses (seniors) were fully aware of their professional boundaries towards their role as a neonatal nurse, they were confident to do what was required for the babies and seemed to act against what the policies state; for example`, they gave pacifier as required to reduce baby's pain because, as stated by one of the participants

[16] Zanelli (2018) Hypoxic Ischaemic Encephalopathy: is a brain dysfunction caused by a reduction in the supply of oxygen to the brain and other organs in the body causing hypoxia.

> *Some staff are strict and adhere to the BFHI policy because they are afraid from the doctors so they do not give, but some of the nursing staff, now were breaking the rules and they were giving pacifier to control the baby's pain, …. I will give when needed. I am giving in fact (stressed on it).* (Participant 3)

Other participants emphasised that they gave the pacifier when the babies cry uncomfortably or when taking nothing by mouth, although they were aware that their actions were against BFHI policy:

> *Yeah, yeah, yeah (Emphasis), if the baby was crying and he was nil by mouth we gave pacifier. But here (Laughing), baby friendly hospital, the doctors do not allow it.* (Participant 5)

From what had been presented, it appeared that the nurses' actions towards pain management was against the BFHI policy, particularly most senior nurses and post-basic graduate. During the field work observation, I observed senior nurses with a better training had more power and override the policy particularly with those against EBP (restriction of pacifier use and KMC), practicing their professional autonomy with confidence and without any fear, although the unit's culture does not fully support implementation of EBP. The senior nurses seemed to be very advocating strongly and challenging the doctors' decision in the baby's care as was observed:

> *Few of the nurses showed to be challenging the doctors to get them do the right management. This was seen in the most senior trained staff particularly neonatal diploma graduates.* (Day Ten)

Some other supporting example of why the nurses go against pacifier policy, it showed during the observation that the nurse's act in the best of baby's interest. According to the observational field notes, in other circumstances like the absence of mother, the nurses did offer a pacifier to comfort and settle the baby, this was confirmed during the interview by many participants:

> *We cannot wait for the mothers. Some mothers will be at home so we have to give attention (laughing). If baby is quiet without pacifier, no problem but if he's in need of that pacifier then we have to give. What we will do? It will be against the BFHI, but, it will be good for the babies to give him comfort.* (Participant 6)

From this example, it appeared that the nurses enjoy practicing their professional autonomy. The seemed to act to meet the baby's needs to comfort him/her.

The following section will elaborate more on the limited neonatal pain protocols and how the doctors dominate and affect the nurses' clinical and professional autonomy.

8.2.2 Nurse–doctor relationship

This section focuses on the doctors' dominance and how this affects the nurses professional autonomy to practise their neonatal nursing role, in particular to babies' pain management, as elaborated below:

> *According to the BFHI policy no use of pacifier, doctors were not allowing use of pacifier for the management of pain in NICU.* (P*articipant 2)*

Most of the nurses revealed that doctors' dominance was one of their major concerns because doctors intervene with their daily work even in some areas of nursing practice like giving pacifiers,

> *A pacifier is not allowed in SCABU, in NICU and according to the BFHI doctors, not to offer pacifier, we cannot give it when they are around because some of them comments on it and stop us.* (Participant 13)

The nurses expressed various concerns regarding implementation of (KMC[17]). They reported that one of the barriers in practicing KMC was the doctors,

> *Kangaroo care? That is not common here. We cannot practise KMC hear because the doctors don't allow us.* (Participant 2)

In other circumstances in terms of doctors intervening in their practice for giving pacifier, the nurses reported that they had to wait for the doctors written order to this nursing interventions (i.e. pacifier). Moreover, to practice KMC, they had to take the doctors agreement, although these practices are considered being part of nursing practice.

> *Sometimes, for neonates, if we are about to give kangaroo care, some doctors they didn't want to give kangaroo care. They stop us from practicing it. Sometimes they will tell the baby is not fit for that.* (Participant 13)

Some nurses said that the doctors did not permit them to practice KMC. Other nurses described that they encouraged parents to practice KMC at times and ignore doctors' orders because the doctors have no confidence on the nurse's ability to practice KMC autonomously, safely and competently. Seemingly, they were afraid that they will be criticised by the doctors and by supervisors in the unit, particularly when giving a pacifier without any written policies or protocols. From the fieldwork observation, it was noticed that the supervisors that come during each shift were not neonatal nurses, their educational background is adult, and as a result, they were so strict about BFHI policies.

[17] Kangaroo mother care is a method of caring for a premature baby in which the infant is held in skin-to-skin contact with either the mother or the father to improve mother and baby attachment (Chan et al. 2016).

When I tried to find the reasons behind the doctors' rejection in using KMC, it turned out that there were various reasons behind that as reported by the nurses during the interviews, some of the reasons were to do with doctors and others were from the nurses' side. For example, one of the most senior participants had different views on the doctors' interference. She stated that the doctors do not intervene in implementation of KMC because:

> *There is no barrier. There is no barrier to do kangaroo care. Doctors nowadays did not stop staff from implementing it.* (Participant 3)

Another participant supported Participant 3 and reported that the doctors do not stop them from implementing this, as stated below,

> *No barriers, nobody is obstructing us from practicing KMC.* (Participant 15)

Participant 3 added that most of the nurses received training on how to implement KMC. But, it appeared that after training the nurses had no follow-up, to ensure that the nurses were implementing it and whether they were confident to practice it:

> *I don't know if this to do with staff knowledge but not all staff were implementing kangaroo care. One of the senior staff was assigned to teach all the nursing staff how to do kangaroo care. However, when the staff completed KMC training then there was no follow-up so since then it is barely practiced.*

The participant added that the only staff who practiced KMC were the most skilled nurses and who had their neonatal training speciality as she emphasised in her statement:

> *Kangaroo care is mainly practiced by skilled staff who have finished their post-basic diploma in NICU training.* (Participant 3)

It can be seen from the above quotes that training is crucial for the nurses to implement any skills, like KMC, because the nurse deals with ill babies and various needs; however, follow-up is needed to ensure that the staff is capable to implement it, to be able to confidently practice it for the babies with various health needs, such babies under ventilators and attached to various monitors.

In another example, the nurse was advocating and spoke for the patient during the doctors' discussion:

> *Five doctors came in to the high dependency from the room next door intermediate dependency after finishing their rounds. They stood up next to baby's incubator, discussing issues irrelevant to baby's conditions (General discussion about football match). The discussion took 10 minutes without realizing the impact of noise that was caused by them. Luckily one of the senior nurses (graduate of neonatal diploma speciality) stopped them in a polite way and requests them to discuss their personal*

> *issues away from the baby's incubator. The doctors immediately without arguing left the room. It was such a brave thing to stop their discussion. When I looked at her she said "They do not realize that those babies were in need of rest.* (Day One)

It appeared that the nurse was assertive her actions. She could get the doctors to stop the discussion in a polite and firm ways. It seems that her position as a senior nurse and specialisation helped her to advocate for the baby.

The same participant showed her positive reinforcement for using KMC and shared she her experience when she practiced it and described how beneficial KMC was, as below stated,

> *But, I am doing kangaroo care because it makes babies and mothers satisfied. I remember years ago I implemented kangaroo care for twin babies. The effect of it was unbelievable, both babies recovered soon and kept off continuous positive airway pressure (CPAP) and so fast got discharged.* (P*articipant* 3)

It was noticed that Participant 3 seemed to differentiate her role from other participants as earlier on she was saying how 'other' nurses challenge policies and in the above quote she again referred to the nurse on how 'other' nurses do not do what they were supposed to do. Going back to this staff role in particular, she was one of the senior staff who had her neonatal training and also practicing managerial role. This could be why she kept referring on the nurses as 'others'. Based on the observational field work, she was one of the most advocative nurses for patients. It seems her role gave power and confidence to act and advocates the neonatal practice that is beneficial for the babies.

In Hope Hospital, I observed that doctors intervened in the nursing interventions to their patients, for example, the doctors did not permit the nurses to implement KMC for premature infants undergoing CPAP.[18] The nurses linked the doctors' rejection of practicing KMC and actions to lack of knowledge of the updated practice, in the following quote,

> *For ventilated babies, some of the doctors also did not allow us (to implement KMC). Some of the nursing staff feel afraid to give ventilated babies to the mothers for kangaroo care. Because doctors think babies will become ill when handled, and that would disturb them, but, actually it was the opposite, it will give good comfort to the babies when they were attached to their mothers. You know some doctors were outdated. So maybe that is why they do not want us to practise KMC.* (*Participant 7)*

[18] Continuous Positive Airway Pressure (CPAP): is a mode of ventilation used to administer oxygen under positive airway pressure to prevent alveolar collapse and ensure gas exchange throughout the respiratory cycle. CPAP is indicated in infants with decrease lung compliance.

One of the participants found KMC beneficial for the ventilated babies and she described her experience about the positive effect of KMC although the doctors ordered them not to implement because, as shown below:

> *For one of the babies, doctors actually advised to stop KMC because that baby was on prolonged ventilation and still he was on nasal ventilation… when we practiced kangaroo care for that baby, the result was good, then we started weaning the baby off the ventilator gradually. It depends on the doctors, some they will be updated, some they are not.* (Participant 6)

This quote shows that the doctors have a belief that babies' condition may deteriorate if KMC was practiced particularly for ventilated babies. They seemed that they still held on an old belief and a lot of healthcare providers had believed in it. However, research has shown that KMC had a number of positive outcomes, such as decreased morbidity and mortality rate, increased weight, early discharge, improved mother-infant bonding, frequent and exclusive breast feeding, and accelerated weaning from ventilators (Conde-Agudelo and Díaz-Rossello 2016). It could be argued that the doctors were very concerned about the babies and worried about the baby's safety. Meanwhile, they did not appear to have confidence in the nurses practicing autonomously and they control the whole care in the unit, including the nurses' care. Moreover, implementation of EBP was not supported.

Many participants added that they cannot implement some of the nursing practice because there is requirement to comply with the doctors' 'written orders', as stated below:

> *It's difficult, because we have to obey the doctors, we cannot do any decision alone. After writing the order, we have to do it. Without an order we cannot do it.* (Participant 5).

The nurses stressed that because they were not actively involved in the decision making, they had to find their own way to influence the doctors' practice, such as by being very polite and by making the doctors feel that they are in control in the management of the patients. As one participant described:

> *We cannot tell the doctor what to do, we cannot tell do not start feeding. We have to ask for things in a nice way. We can ask for their permission but not to advise them on what to do.* (Participant 5)

It seemed that the nurses played what has been described as 'the doctor–nurse game' (Leonard et al. 1990), where the nurses present their own ideas as if it was doctors' ideas to get the doctors to do what the nurses want. For example, many nurses described how they influence the doctors in more subtle ways by the use of the approaches of 'reminding' and 'requesting'. As Participant 1 pointed out:

> *With our request the doctors give (Adol). Doctors do not usually add paracetamol, I am not saying all of them but, that is usually the practice. As nurses, we are there to remind the doctors that the baby is going through pain so, we request them in a nice way, to write to reduce baby's pain.*

Unfortunately, I did not get an opportunity to observe such interaction between the doctors and nurses regarding the same matter. However, some nurses revealed that some doctors do like to involve them in the babies' management discussion to share their decision during the rounds. The nursing staff seemed to be pleased to be part of the decision making in babies' management because they can see their role is crucial in babies' care. Moreover, it enhances their motivation to fulfil their role. In other words, increased their professional autonomy as mentioned by Participant 5:

> *Yeah, some doctors if they are accepting, we would be really happy (Laughing), who does not like to be involved.*

In support of these findings, while conducting the field observation some doctors were observed to involve nurses in their rounds,

> *As a routine, the round starts with the assigned nurse hand over.* (Day Two)

> *During the round, the acting head (senior doctor) was noticed to encourage the nurses to be proactive such as share their decision in the round and take the control of the baby's situation, for example when a baby should go for breast feeding.* (Day Two)

I will next focus on the nurse's views on the importance of effective teamwork between the nurses and doctors and had to be encouraged because they see their role as nurses as vital in their patient's care and in advocating and delivering high quality of care. They reported that they should be involved actively in the decision making for the babies' care because:

> *Why nurses work alone and doctors alone, we should be involved in the care and should work as a team. We should be involved in the decision about the babies' management, we can tell the doctor what supposed to be done for the baby and advocate them. We were also sharing in taking care of the baby.* (Participant 11)

8.2.3 Nursing confidence and autonomy

Inconsistency of care in the NICU was a common concern of the nurse participants in this study.

This section discusses the nurses' confidence and autonomy in relation to personal preference where care-giving choices were concerned, as supported with the findings during observations and interviews. Although in the previous section the nurses claimed that their professional autonomy was limited by the doctors, some participants described a different view about some barriers they faced. During the fieldwork, some nurses also reported different views on why KMC was not practiced by the nurses; for example, that nurses lack confidence and that resources are lacking, as shown in the following example:

> *The nurse mentioned that KMC was previously practiced. However, due to staffs' lack of confidence, it is no more practiced.* (Participant 13)

This was emphasised by another member of staff when she said, it is to do with the nurse's confidence:

> *Confidence (AAAH)? We cannot do kangaroo care if the baby is extremely sick baby, the babies may collapse. If the baby is stable only then we can give. For stable baby not continuously de-saturating.* (Participant 5)

Participant 13 added that lack of resources (lack of screens) was one of the barriers that KMC was not implemented, she said that the mothers do not feel comfortable when there was no privacy, and this gives them a sense of security:

> *KMC was practiced before but because there were no screens to use, the mothers do not feel comfortable without it because a result of that KMC disappeared.*

The participants also noted that KMC was demanding of the nurses' time. The nurses mentioned that to put the baby for KMC, they need to closely observe him to detect any changes and make sure that the baby is stable, which would be difficult for them to just stay with one baby and ignore others.

> *The staff avoid KMC as to them it is time consuming as the staff has to keep an eye on that baby and the mother.* (Day Two)

Other nurses raised similar issues related to the above reason (lack of time) to why nursing staff cannot KMC, they revealed that the unit's heavy routine was one of the barriers and hindered them from practicing KMC, staff shortage also made a contribution:

> *Sometimes when we are busy with admission, we don't have time to cuddle the baby, we don't have enough nursing staff, sometimes we also face shortage of staff.* (Participant 15)

The participants reported that some nurses themselves who did not co-operate because they fear of taking the responsibilities particularly the nurses who had not been trained in neonatal nursing:

> *Expatriate nurses would say "No no the baby should not be moved from the incubator as they are afraid of taking responsibility." They say "If we do something that is not written in the policy it will be a problem" (her tone of voice un happy frustrated). If it is not written for them they will not do it even if it is a simple thing like giving pacifier when needed. I remembered one of the incidences when I was doing shift in charge. I asked one of the expatriate staff to practice kangaroo care. The nursing staff refused to do it because she said she cannot take the responsibility if something happen to the baby. So, I told her write my name that I told you do it and write that I said I will take the full responsibility if something happen to the baby while doing the procedure(angry tone and frustrated).* (Participant 3)

This quote shows that there were power differences within the nursing team and strained relationships between senior and junior nurses. It also showed that the nurses have fear to take initiative due to perceived repercussions. This could be expatriate nurses may not have had equal opportunity for specialist education and training and, hence, could be reluctant to take responsibility, as mentioned by the same participant, KMC was mainly implemented by post neonatal diploma graduates:

> *KMC is mainly practiced by skilled staff who have finished their post-basic diploma in NICU training.* (Participant 3)

It appeared that training and education may affect staff confidence because the nurses who were trained in neonatal care were observed to act differently during fieldwork observation. They seemed to be advocating their patients and were confident enough to share their decision with the doctors and challenging them at times in the care. This was confirmed during observations of the interactions between the nurses and doctors:

> *Few of the nurses were observed to be challenging the doctors to get them do the right management. This was seen in the most senior trained nurse's particularly neonatal diploma graduates.* (Day One*)*

8.3 Theme 4: Complexity of organisational culture

The following section will elaborate and explore the fourth major theme in the findings, how organisational culture negatively impacted on the nursing staff and their daily practice in relation to the management of neonatal pain. In this section, I will discuss the importance of why the complexity of organisational culture should be considered as a factor that may hinder the nursing staff's professional

growth and development in NICU specialty, which can in turn influence the nurse's knowledge and skills in pain management in the NICU. Moreover, it will also illustrate why nursing staff think that training is important.

In my initial fieldwork and data collection, the role of organisational culture on nurses' practice, in particular to pain management, was missed and eventually was identified in my consecutive returns to Hope Hospital. During the data analysis, I identified organisational culture as a factor that underpinned the other themes and had an impact on the unit's system for managing pain in the NICU. The complex organisational culture appeared to have a negative impact on nurses' behaviour because the culture was described by the nurses as autocratic, unhealthy, blaming, unsupportive and obstructive to the nurses particularly in relation to the nursing office. The nurses experienced hierarchical issues with many lines of authority and power between nurses and doctors, and between nurses in terms of experience, education, nationality, and seniority, all seem to lead to power differentials. Consequently, the nursing staff revealed that they were overwhelmed, depressed, insecure, and unsatisfied. In addition, there was lack of training recognition in the organisation (nurses get less training related to their speciality), despite most of the nurses acknowledging its importance to improve the quality of patient's care.

Prior to data collection, it was anticipated that, due to the diversity of educational backgrounds and experiences of nurses (Omani and non-Omani) in Hope Hospital, diverse perceptions and approaches to pain management might be observed. This was subsequently observed during data collection, particularly during care and in making decision for the baby's management.

The following section will focus on nursing department vision and values and teamwork and compare it with the reality in the unit.

8.3.1 Nursing department values

In my observational fieldwork, which included the examination of hospital policy documents, I gained insights into the structure of the nursing administration. As per the hospital document, the nursing administration of Hope Hospital has a vital role in running the hospital. The nursing department is run by the Principal Nursing Officer and other senior nursing staff (with various educational background), who are responsible for all the nursing staff and other specialities such as laboratory, radiography and physiotherapy departments in the hospital, whatever their training or education. The department directs the career pathway of nurses.

Its mission stated a very clear indication of being committed to provide quality care, and identifies the importance of 'continuing professional education' for achieving this:

> *To provide the highest level of competent, compassionate and ethical patient-centred care. We aim to achieve excellent health and a well-being outcome for our patients with exceptional nursing and midwifery care, in environment that empowers, educate, and nurtures patients and guides them and their families through the healthcare system. We believe this will be accomplished through effective leadership, continuing professional education and research.*

Similarly, its hospital vision focuses on the interests of the patients and families, and notes the importance of working collaboratively and in teams, both within the workplace and also with patients and families, as follows:

Vision:

> *To create a practice environment that provides high quality nursing and midwifery services, reinforced with effective leadership and research and reflecting a proficient, skilled, ethical and humanistic workforce.*

Patient:

> *To provide the highest quality care for our patients and families.*

Teamwork:

> *We are committed to fostering an environment that promotes respective, positive, communication and collaboration among all members of patient/family/healthcare team. We work together for the achievement of outstanding results and take pride in our success.*

The teamwork between the nurses and doctor was not often observed or described, as discussed in the teamwork statement above. However, the spirit of nursing teamwork was evident in most of the nursing staff. The nursing staff was observed to be very comfortable with each other, the flow of communication was very good and they collaborated with each other to meet the needs of their patients, despite the workload and a shortage of staff (as can be seen in the extracts from the field notes below). While the neonatologist usually assumes the final responsibility for patients' treatment plans, a team approach was observed among nurses which allows other staff to take the lead when appropriate.

> *It was noticed that during the afternoon shift, nursing staff were collaboratively working as a team and supportive to each other.* (Day Nine)

It appeared that the nurses while working were effectively supporting each other to meet the baby's needs and accomplish the care through teamwork as observed throughout the shifts. Based on my practical and professional experience in the field of NICU, and in line with current evidence I expected to observe Family Centred Care embedded in the NICU medical and nursing care to meet the baby's family needs.

In contrast, the Family Centred Care (FCC) approach was not mentioned in the unit policy and was barely observed during the fieldnote observation. When mothers were in NICU for visits, it was observed that the mother to participate mainly in giving routine care, such as expressing milk, breastfeeding and changing nappies.

However, it was observed that some nurses did not adhere to the plan agreed between the mother and the nurses, for example they did not wait for the mother to do the baby's care and cuddle the baby. Some nurses were seen to focus on completing their tasks on time rather than encourage baby-mother interaction in the shifts. Patient-centredness was barely seen although the nurses often described that they try to do what is best for the baby, and involvement of parents was not fully applied in NICU, when tried to know why mothers were not actively involved, some nurses revealed that:

> *The parents' presence delays our work and cannot finish the work on time.* (Participant 6)

While doing the observation during the visiting hours, I asked the nurses if anything was difficult for them during the parents' visiting hours because I had noticed some nurses seemed unhappy when parents were around,

> *When I approached one of the nursing staff, to ask why some of the nurses seemed to be uncomfortable during parents visiting hours, then she said that they cannot work freely during visiting hours as parents and grandparents are present.* (Day Seven)

Other nurses recommended keeping the parents away from their babies as that was the practice in the country where they had trained and they believed it had to be practiced in the unit to avoid compromising baby's condition, as stated below,

> *When I worked in our country, we did not allow anybody to come inside NICU without hospital and sterile gown, we do not allow parents to sit with their baby for a long time. Parents in our country are coming to see their baby 3-4 times in NICU. Only breastfeeding mothers were allowed to enter for breastfeeding. We are surprised why this was not practiced here. (Participant 13)*

Other participants from the same culture made similar comments:

> *We do not allow parents to enter NICU at home, we allow parents only to see the baby through the glass to protect them from infection. And if babies are breastfeeding, we are just allowing the mother in the visiting room and we are giving the baby there only.* (Participant 11)

Some participants explained this as an infection control measure:

> *Parents were one of the main sources of infection as they bring the bugs on their clothes and shoes from outside.* (Participant 6)

It was also found that parents' involvement was restricted during the round and while doing procedures, to avoid parents interrupting the doctors so they could work freely without any stress, as observed:

> *Based on the field observation, nursing staff reported that parents' participation was not well considered for the doctors in any procedures because the medical staff believed that parents may interrupt them while doing procedures and create problem.* (Day Two)

The nurses reported that all parents have to leave the room before the doctors rounds and during any procedures as it is a policy; however, no written policy was found:

> *Most of the time the parents are waiting outside. Yeah it is the policy.* (Participant 2)

This was confirmed during the field observation, all the parents were asked to leave the rooms, during the observation, I observed some parents disliked to leave from their facial expression,

> *Before starting the procedure, the mother was asked to leave the room for the doctors to do the arterial blood specimen. From the mother's facial expression, I could see that she was upset to leave the baby alone, however, it was the unit routines that do not allow the mothers to stay during the procedure.* (Day Five)

From these quotes, it appeared that parents' involvement is not well accepted among many of the nursing staff, who think that the parent's visits had to be restricted to avoid infection and to avoid compromising the baby's condition. However, these ideas are not supported by the recent evidence.

Other participants support mother's involvement but some parents appeared to be afraid to get involved in the care as they do not want to disturb their baby, for example:

> *No, actually, we have to involve them especially the mothers. Some of the mothers are afraid and we'll have to ask them "Come, do this one." Then they are saying, "No, no, I'm afraid." Then we'll tell them, "No problem, it's okay." They will tell, "Do it and I will do it next time." (Participant 5)*

She added that if some parents do not get the nurses' attention and communication, then they may become disengaged,

> *Some are not interested; they will just come and go because some of the staff nurses are not communicating with them.* (Participant 5)

From the quote above the parents' reactions towards their involvement in the care of their baby is normal and expected as it is scary for parents in the NICU to see their babies connected to wires in an incubator. The parents' fear of NICU is well documented in the literature (Gavey 2007). It seemed that parents lacked positive re-enforcement from the nursing staff to get involved in their baby's care and thus reduce their fears.

The following section focuses on the nurses' professional development, in particular to the training opportunities that were available in the organisation for the nursing staff. It will also discuss the nurses' view about the importance of training.

8.4 The nurses' professional development

In terms of professional development, while reviewing the hospital's documents, the nursing department stated that it was committed to providing excellence in nursing through effective leadership and supporting lifelong learning that integrates EBP, research and professional development guided by the Omani Code of Professional of Conduct.

The following section will compare the stated training opportunities available for the nursing staff with the reality that was observed during conducting the observational fieldwork.

In terms of training, the hospital aimed:

> *To provide a comprehensive orientation/ induction and ongoing in-service education training programmes to enable staff to attain departmental objectives.*

The hospital's aim was in line with best practice. Kleiman (2000) observes that, the fundamentals of a good employee training programme are: orientation, soft skills training, technical skills training. These concepts are being considered as the general foundation for any staff development department.

However, this training did not concur with the study findings. During the observational fieldwork and interview with the participants, I found out that the aim of the hospital under professional development was not really being put into effect. It was noticed that there were some positive and negative aspect aspects related to training. Some of the positive aspects included in-house training opportunities, attending national and international conferences, induction and orientation programme and preceptorship, and neonatal diploma speciality course for (Omani nurses).

Most of the nursing staff in NICU were given the opportunity to attend national and international conferences; however, the conferences that the nursing staff attended were related to paediatrics due to the unavailability of neonatal conferences. The training department does provide core training such as Basic Life Support (for Paediatrics), NICU resuscitation for all the staff, and intravenous infusion and intravenous therapy courses to some nursing staff. As one of the participant stated:

> *Yes, I am allowed to attend national and international conferences. But, no neonatal courses we attended. (Participant 15)*

Based on the hospital's documents when I reviewed the list of hospital training, the Education and Training Department is a very active in-service department in the hospital. It provides various training, courses and scientific updates throughout the year for their employees. However, according to their training list, the department rarely conducted on the job training relevant to neonatology or neonatal courses, such as pain management, ABG interpretation[19] and advanced ventilation.

I also observed that new staff were supported. Hope Hospital has a system where all of the newly recruited staff undergo a one-week orientation, followed by a three months induction to their area of work. During the observation, I observed that the nursing staff were preceptored for a period of one to three months, depending on the staff progress. Also, based on the staff development staff, all wards and departments hold their own weekly/monthly updates in-house teaching sessions for nursing and medical staff at the hospital, ward, and department level.

[19] Arterial Blood Gases (ABG) interpretation is a course designed to train healthcare providers (doctors, nurses, respiratory therapist) to enhance their arterial blood gas interpretation skills; raise awareness and understanding of the various aspects of arterial blood gases. This is to learn the causes of respiratory and metabolic acidosis and alkalosis, to immediately and effectively treat them and avoid serious complication.

Based on the research findings, a monthly update is applied in NICU and an induction training was seen to take place for newly joined staff. In support of this, the participants said that they have a monthly meeting where half an hour presentation is done in the unit and when they joined the unit they attended one-month introductory course to orient them about various levels in the unit such as high dependency, intermediate and low dependencies. However, they seemed to be unsatisfied with the amount of training, as shown below:

> *Yeah! Initially we started with doing preceptorship programme, we have three independence rooms, so, each room we have spent around two to three months starting from low dependency which I spent maybe two month there. After that I worked maybe one month in high dependency, then I transferred to intermediate for three months also there. After that independence, I worked three months then within nine or one year I completed all dependencies, now I'm independent.* (Participant 10)

I observed during the preceptorship programme that the new nurses had to work with a senior nurse throughout their orientation to guide them during their training. For the first month, they have to be supernumerary then after that they will have patients but will still be under the supervision of a senior nurse.

In contrast to the positive points on training, the negative views relating to training were as follows.

First, some of the nurses said they attended very little training as mentioned below by some participants:

> *NO training. I gain some knowledge about care and procedures through internet, books and all. No, authorize new training. From here we got some general training. That's it.* (Participant 9)

> *Only here after coming in Oman. I had 2 days course, short course only… Yeah, preparatory course.* (Participant 15)

Second, other participants reported that although they got exposed to some of the neonatal seminars, no training was give on neonatal pain. Some said they did attended on pain but for adults:

> *We had classes but not particularly on neonatal pain.* (Participant 12)

> *No, no pain management (Emphasis). Pain management for the adult is available but not for neonates, I have not attended that.* (Participant 14)

The importance of training was identified as a subtheme in the data, the nursing staff explores their views on why they feel that training was important. Different views came from the nursing staff where some nurses said that they had enough training others said not. Those participants who said that they had enough training were very senior members of staff and they had received on the job training in the early 2000s when it was available. Currently, no more on job training courses are run. Others had pursued their speciality in the past (Omani- and non- Omanis) when the neonatal intensive care course was also available, this course was stopped in 1997 because no clinical teachers were available. Since that time, no neonatal long courses have been run. Consequently, the nurses complained about the need for training in neonatal pain and they reported that no training had been started yet in the unit a part from the assessment tool.

8.4.1 The views of the nursing staff on the importance of training

The participants reported that training was very important because they provide care using their previous experience, which could be outdated. However, they described how their training was general and irrelevant to their speciality. Most of them held the view that focused training would improve practice for optimal quality of care, as stated below:

> *Yeah! It is important if they can provide us with courses focusing only on small babies, on how to manage the pain with the neonatal baby because we didn't get anything at all regarding pain... You know how we are managing babies? We are only use our old experience. It is important (emphasis).* (Participant 10).

She added,

> *It will help in how we handle the baby when using the pain assessment tool. Help us on how we control the environment, how we can manage the baby and the environment and to prevent any harm on the baby.* (Participant 10)

Many of the participants emphasised that pain training was important to handle the babies in NICU with caution and to treat their pain effectively, as in the following example:

> *Yes, it is very important (pain training), when we get well oriented about neonatal pain cues and its management, then we would be able to deal with the babies' pain effectively.* (Participant 8)

It appears from these quotes that the nurses had great concerns about their training, particularly their neonatal pain training, although the opportunity for training was open for the nurses to attend national and international conferences, most of the training that was provided was almost irrelevant to their

speciality and to the babies' needs. It was more related to the paediatric speciality. Most of nurses stressed that they are in need of neonatal pain training to be able to provide proper care because they had no training in this specialism, as mentioned by many staff

> *Yes, in the early-1990s when we joined here, we attended various. Resuscitation training, IV therapy courses and then all the seniors and most staff had neonatal intensive care course, but when the affiliation with --- university ended we had no neonatal training after that, particularly for neonatal pain, no training was run ever.* (Participant 11)

Another nurse mentioned that since she joined NICU, she had only attended short seminars

> *Yeah short, short seminars was over, that runs for half an hour only, not that much long class, but not on neonatal pain training.* (Participant 13)

The nursing staff felt that they need to update themselves in line with current evidence:

> *According to the day-to-day practice, we have to update our knowledge, to be able to reflect and improve our practice.* (Participant 15)

> *For quality of care, we have to update our knowledge, we have to improve.* (Participant 6)

A very senior nurse who had undertaken a neonatal speciality programme also stressed that training was important to help her manage the babies pain better, she added that having the knowledge was different than demonstrating it. Here, she was referring to the importance to underpin practice with knowledge. She said that the course prepared her to manage the babies, regardless of their conditions, and this gave her confidence:

> *Yes, it is very important to have neonatal training. It prepares us to manage the baby's condition regardless to the problem the baby may have. It makes us confident enough to deliver high quality of care without fear, including their pain.* (Participant 8)

Based on the interviews, some of the nurses said that they had received training related to NICU in the past because they had undertaken on the job training (3 months) and some of them had attended the neonatal intensive care course (6 months training) when it was available. As pointed out in the following quote:

> *Yes, we had so much training since joining here. Resuscitation training, IV therapy courses and surgical up to date, cardiology up to date. Almost whatever cases we were dealing with, those departments were giving special training for the nurses. We got chance to attend, it's great thing.* (Participant 9).

This participant was referring to a training course that was run in the past (on job training) by MOH across Oman. However, the course was discontinued after 8 years for unknown reasons. This course was run for all nursing staff to enable them to give appropriate and high quality care to the babies in NICUs. Most of the old Omani and non-Omani nurses had received neonatal intensive care courses when the unit used neonatal instructors from abroad the course was discontinued when the clinical instructors left the country.

Based on the key informant, in 2001 the Directorate of General Training Education launched a new course post-basic speciality diploma that was only for Omani nurses because part of the Omanisation process is to prepare the nurses for neonatal speciality and to take over from the expatriate nurses:

> *During the field observation, it was found that some Omani nurses were given the chance to go for neonatal specialised diploma courses for a year. From the time post-basic diploma course had started, the unit had around nine senior nurses.* (Day Nine)

Based on the field work, for the Omani nurses, the hospital could not release many Omani nurses at once for training because the duration of the course is 12 months, which would compromise the patient's care. Sending fewer nursing staff for specialisation training was discussed with one of the key informants:

> *The hospital keeps expanding and open new wards because a result, they pull nursing staff from every department and we get no replacement after that.* (Day 10)

The issue related to unequal training for Omani and non-Omani nurses will be discussed in the discussion chapter.

Some participants added that, there was no monitoring to ensure that the nurses are still up to date, this is supported by the following statement. From the interviews, the nursing staff reported that from the time that they had finished their training years ago and had received no follow-up training to stay up to date, such as neonatal resuscitation:

> *When staff completed their training, then there is no follow-up.* (Participant 3)

It appeared that there was lack of recognition of neonatal pain training in the organisation, and particularly in NICU. Most of the nurses complained that there was no training undertaken. It seemed that there was a mismatch between what the organisation aims to achieve and what was happening in

reality in the field. Therefore, there was a gap between what is ideal and what was happening in reality. Based on the fieldwork observation, the nursing staff reported that their organisation was not supporting them to continue their education and there were few opportunities for the nursing staff to get a good position.

Several excuses were given by their senior managers, such as they had shortage of staff or the staff were not ready to go for training. This prevented the nurses asking for training and professional development. This was confirmed during the observation:

> *From the managers' side, obstacles were always made to stop the nursing staff going for training particularly when the organisation did not want these staff to go for further training. Irrational reasons were always given to the nurses, for example the hospital has shortage of staff, or nurses were not ready to be released although most of the nursing staff had more than 5 years of experience that qualify them to apply for neonatal diploma speciality. According to the nurses these reasons were given to stop the nurses asking for joining any long training (diploma or Baccalaureate) because a result, nursing staff were not released. When I tried to enquire the reasons behind this*. One of the senior nurses said that the administration has no faith on their staff. *Nursing* staff experienced of inequality in terms of their training opportunities, the Omani nurses have opportunity to go for higher qualification than the expatriate nurses. (Day Fifteen)

In terms of training, it appeared that the nurses in NICU experienced a lack of neonatal training and had difficulties to attend the short (on job training) neonatal training that is available for the old staff. Moreover, neonatal diploma speciality is only made available for Omani nurses. It could be argued that that MOH has made the higher diploma a speciality for the Omani nurses because this is part of the Omanisation process.

The staff seemed to experience hierarchical issues with their administration. It also appeared that the administration had the responsibility to decide the career path for the nurses.

8.5 Hierarchical culture

The nursing department leadership was described as being unsupportive and unreceptive with the nursing workforce, especially when the nurses accomplished their neonatal diploma and came to the job with new knowledge related to EBP and were eager to implement it to make a difference to the care of infants. They reported that the energy that the nurses come with was suppressed gradually because no one listened. One of the senior nurses reported on this problem during the observation:

> *One of the senior nurses said, if the idea of change (EBP) in neonatal care was introduced by the nursing staff, the nursing department leadership changes to become autocratic and obstructive, all the ideas of change are rejected and needing the administration approval, even for a simple nursing practise. Their leadership approach with the nursing workforce was top-down, and the majority of work matters had to be approved by nursing department, and at the end the idea of change we looked for any neonatal care may not be considered or delayed.* (Day Fifteen)

It seemed that the nurses experienced great difficulty to practice their professional autonomy because they were not allowed to apply the knowledge they gained from their diploma speciality course. Moreover, they had no voice.

Various nurses expressed their pain and feeling of being let down because they did not have the freedom to improve the babies care and practice EBP. The nurses feel restrained and demotivated because, after their post-basic training, they were expected to be a change agent and make the changes evidenced in their care; as explained during the observation,

> *We felt jealousy when we heard our colleague's achievement and the changes they made in their units, we felt disappointed and helpless because we could not help to improve the practice in our unit. The motivation dies within us after all of that years.* (Day Fifteen)

Some of the nurses added that the change is welcomed by the administration if it comes from the doctors and well supported,

> *However, they added if the doctors support that change, then nursing department will not delay the change and will facilitate it to take place soon or later.* (Day Nine)

It seemed that nursing has a lower status and is underestimated. A gender difference is dominating patient care (this will be discussed in the discussion chapter).

As recorded in my fieldwork observation, it appeared that NICU was dominated by the doctors. It seemed that to implement a nursing practice related to neonatal care, the doctors would have to approve it first before it could come into effect. It feels as if the nurses had no control of their nursing practice. The nurses seemed to be demotivated because their decision was unvalued and not appreciated. They had no control over their patients care.

Moreover, based on the fieldnote data, one of the key informant mentioned that they did not have the power to take the decision for all the matters related to the nursing staff in the department or even in patient care,

> *One of the key informant added that when any matters regarding patients' management needed attention and had to be improved or changed, nursing administration had to be informed to get their approval. Approval process was prolonged regarding that, therefore, work matters stay hanging. When I asked was this not causing any problem to take a quick decision she said this makes the work of in-charges (ward sisters) difficult and unable to take immediate action and individual decision making. She added that ward sisters cannot implement any changes pertaining nursing practice without the nursing department approval. At the level of the unit, the unit can do minor changes in the care of patient.* (Day Fifteen)

It appeared that for major changes, everything had to go through nursing department. Their leadership was based more on formalities than practicalities, where many papers had to be filled up (as I observed). Therefore, the nurses found it difficult to change practice.

During the observation, some of the senior nurses reported that the hospital's culture was controlled by the medical team and the nursing practice had to be approved by the DG office, who were also doctors:

> *One of the key informants mentioned that that the leadership from the DG Office is controlled by a doctor. Although the DG sent all the nursing matters regarding nursing workforce to the nursing department, the final decisions for nurses had to pass through him for approval. Moreover, the culture gives more respect to doctors than the nurses.* (Day Nine)

It appeared that hierarchical culture was evident. The nursing department had no power to make decisions about the professional development of nursing personnel. The nurses were not able to control their nursing practice themselves or make decisions about the professional development.

In my observational field notes, at a unit level, a lack of collaborative relationship between the doctors and nurses was observed in the NICU, particularly in implementation of EBP. However, one of the key informant gave an example of the doctors introducing an EBP:

> *Based on of the key informants, the unit is striding towards EBP. For example the doctors in the unit were planning and preparing the NICU environment to use oral sucrose to reduce procedural pain.* (Day Eight)

The following section focuses on other work complexities the nursing staff face, which includes a culture of blame in the unit.

8.6 Blame culture

According to the fieldwork observation, some of the nurses described that the nurses experienced a blame culture. The nurses always blamed for any bad practice, even if the incidence was the doctors fault. The nurses felt as if they were being blamed for the doctors' negligence. They found their nursing department was not supportive and did not investigate these incidences in-depth to identify where the problem or malpractice came from. The doctors authority was very strong and the doctors were well supported. For example, investigating the incidences in the field and problems were handled in embarrassing ways by the nursing department. The nursing staff were made to feel embarrassed by news of the incidences spreading in other departments without respect for staff anonymity before clarifying the issue, which made them lose face in there nursing administration. Consequently, the nurses had to deal with all the embarrassment wherever they go in the hospital or outside it, they reported that they felt like they did not want to continue working in the unit:

> *In an incidence the nurse had while doing her duty, the patient she looked after was ventilated baby with respiratory distress Syndrome and electrolytes imbalance (Hypocalcaemia). As a result, the baby was nil by mouth on intravenous fluid and had to get Calcium infusion for correcting the deficiency. When the doctor inserted a separate line for the Calcium infusion, she said she went for break. When she came back she found that the doctor put an adhesive plaster to firmly secure the line and Calcium infusion was already started. Usually if the line is used for a dangerous drug like Calcium, the line should be secured by a transparent plaster to be able to observe the insertion site as Calcium can cause skin burn. The nurse said when she came from the break she was shocked and tried to remove the plaster and replace by a transparent one but she said it was very difficult and told the doctor to help her do it. He said not to touch the line because with great difficulty he got it. She added she struggled a lot during the shift just tried to be cautious to see the line but with the amount of the adhesive plaster put she could not see the insertion site. Two hours later the infusion pump kept alarming and it was not clear why in the third hour, the hand changed in colour. When the infusion stopped and the plaster removed, the*

> *insertion site showed burned and dark. As a usual practice, the shift in charge was called then the nurse had to write incidence report explained what happened. During the shift the nursing officer had to come and see the baby and the nurse to understand what happened. The nurse according to her they blamed her of negligence although she explained all the situation and the news was spread in and outside the unit about it. She went home depressed. She said for more than 2 weeks everybody was talking about it behind her back in the unit and pointing on her. The nurses while explaining the incidence, she said I felt like "I wanted to disappear from the unit for ever and not wanted to come back. Finally, the doctor was not involved as she had to bare all the consequences of that incidence."* (Day Eleven)

The difficulties in collaboration between nursing and nursing team are apparent in this quote.

During the observation, one of the key informants mentioned that the system was not supportive and the culture was not motivating. She added that the nurses held a heavy responsibility in the unit, and there were high expectations and demands of the nursing department to work effectively:

> *We are expected to work effectively and stay upto date, work for long hours and sometimes extra hours but the unit did not think to reward us with at least training or even bonus. She added we could not work like that in such environment when we were not appreciated.* (Day 11)

In my fieldwork observation, some nurses added that they also felt confused because they did not have a clear role. They mentioned that what was expected of them to improve or do better was not documented:

> *When I was looking for the NICU policies, there was no clear and identified job description for each designation, I found there was only one that explain the senior and junior nurses' responsibilities.* (Day Eleven)

It appeared that role confusion could be due to the unavailability of a clear job description because the nurses said they do not know what was expected of them. A job description acts as a map for the nurses to know how far they can go on with their role as a nurse to accomplish their primary goal, which is patient care. The absence of a job description put the staff into many unwanted and embarrassing situations where the staff cannot fulfil their role effectively.

In terms of support, a senior nurse said that the nurses were let down by their nursing department due to the lack of support. The nurses had no voice. Many senior Omani nurses had left the NICU and had even left the hospital to work in health centres, even though some of them had specialised in neonatal care:

> *The hospital has many hard working staff who have all the potentials needed, but unfortunately the nursing department was suppressive to nursing staff and did not recognise their potentials. Therefore, they lose their best workforce year by year. As a result of the above, most of the nursing staff request transfer from the wards to the health centres, including the specialised diploma nurses who had their specialisation. Others request for transfer to other hospitals and some resign.* (Day Eleven).

8.7 Conclusion

This chapter discussed two main themes, the impact of nursing culture and organisational culture on the nurses' practice. The 'nursing culture' section discussed all of the barriers related to the nursing culture in the unit, to elaborate why the nurses were unable to effectively manage their nursing practice in particular to babies' pain, such as use of pacifier for the babies and the implementation of KMC due to the doctors' dominance.

The impact of organisational culture seemed to have a negative influence on the nurses practice. It appeared that there was lack of recognition of training because the nurses had less and unfair training opportunities, particularly in pain and pain management. Throughout, the organisation appeared autocratic, blaming and unsupportive to the nurses. Hierarchical issues were a major concern and many nurses had experienced issues with many lines of authority, including nurses to nurses and doctor to nurses. Within the NICU, the doctors were dominating and the role of the nurses was underestimated. Consequently, the nurses felt unsupportive, overwhelmed, depressed and demotivated.

Chapter 9: Discussion

9.1 Introduction

This chapter will first give a brief overview of the research findings, highlighting the main issues and discussing why the existing issues occur within the current healthcare system in Oman. It will then discuss the study findings in relation to the literature.

The study's primary aim was to explore the experiences and understanding of neonatal pain and its management among NICU nurses caring for babies who have been admitted to NICU in Hope Hospital. This study used an ethnographic approach in one NICU site to explore how nurses' approach and interact with babies being cared for in a neonatal intensive care unit in Oman, with a particular focus on pain management. The focus was also on how organisational culture informs the management of neonatal pain; for example, how pain was perceived, assessed, and managed by nurses, the barriers or challenges the nursing staff face from implementing appropriate strategies and the impact of the NICU environment on how nurses interact with babies.

The four key themes were:

- The inconsistency of pain management practice,
- The NICU environment of Hope Hospital,
- Nursing culture,
- Complexity of the organisational culture.

The findings will be critically discussed from the perspective of organisational culture (healthcare in Oman), power relations and professional hierarchies. The discussion will include issues such as gender dynamics, socio-cultural factors, and the relationships between healthcare providers (doctors and nurses) and with patients. It will explore how these issues contribute to non-collaborative relationships (lack of interprofessional collaboration), lack of nurses' professional autonomy, and most importantly how the lack of recognition of parental role impacts the care of their babies. To explore these issues, the literature on organisational culture, power relations, power dynamics, nurses-nurses relationship, gender, NICU environment, critical care environment, and culture are critically discussed.

The discussion will take place in the following sequence: institutional culture in the NICU, the professional status of nursing, knowledge, NICU environment and routine, parental role and involvement, and implications for practice.

9.2. Institutional culture in the NICU

This section explores the power relations and hierarchies within nursing, between nurses and doctors and between healthcare professionals, to explain the relationship between doctors and nurses and how this impacts the nurses' professional autonomy in the hospital and the management of neonatal care. As per the findings, patient management is dominated by the doctors, and the nurses had limited autonomy in their patient's management.

Before discussing the kind of relationship that existed between the doctors and the nurses, I will explain the culture of the healthcare system in the country to help the reader to understand how the issues I discuss are inter-related. I will then explore the contributing factors that hinder doctor–nurse relationships and impact the nurse's professional autonomy in the hospital.

9.2.1 Leadership in Oman's healthcare system

Looking at the leadership of the MOH, partial decentralisation is adopted in Oman's healthcare system through the delegation of a number of financial and administrative authorities and responsibilities to health governorates. This is done to encourage local initiatives, local planning, administration, budget control through greater cost consciousness and greater local accountability, which collectively contribute to developments in the health status of the community. Based on health vision 2050, the Ministry of Health took decentralisation a step further to adopt Hospital Autonomy Initiative in 2001, which has been implemented in nine referral hospitals. The executive directors of the hospitals have received management education and training. The hospital directors (the majority of them are doctors) have been responsible for the delivery of health services in terms of administrative and financial authority, to manage hospital services efficiently (MOH 2014). However, MOH recognised that the healthcare system is not geared yet for patient-centred care. From the minister's office to undersecretary's office, the departments are chaired by doctors. The Directorate of Nursing Affair is not autonomously run. Although the department is led by the nurses, it is controlled by the Excellency office (i.e. doctors). All the decisions made by the Director of Nursing Affair have to be approved by the minister of MOH and the undersecretary of planning in MOH.

The care of patients is shaped by the doctor's views and personal preferences. Therefore, the nursing profession is not autonomous. The leadership adopted in the healthcare system in Oman is top-down as all the circulars, policies, rules and regulation for standardisation including the scope of practice for nurses have to come from MOH, which is controlled by doctors.

From a social and cultural perspective, the Oman's hospitals are dominated by the doctors. For example, the Director Generals and Medical Officers in charge of the hospitals are doctors. Moreover, the administrator officers of the hospitals are not health-based and are purely managers who have no background in health. Consequently, their work is mostly focused on the budget and finance, and no decision can be taken without their approval in terms of the hospital's budget. In addition, the healthcare system is developed from the administrative point of view, which does not emphasise patient-centredness.

9.2.2 Doctor–nurse's relationship

A large number of articles in the literature highlight the function of power and authority in a health organisation, in particular the doctors' abilities to communicate effectively their medical intervention through power (Wang et al. 2018; Schmalenberg and Kramer 2009; McKay and Narasimhan 2012; McDonald et al. 2012). In this section, I will explore the constraints that the nurses experience in NICU, which stops them from advocating their patient's care. However, this does not mean that the nurses are not capable of advocating for their patients. Therefore, I will discuss how the nurses' power is perceived in the healthcare organisations as described in the literature and what strategies nurses use to practice their power, to advocate their patient's care.

In terms of the power and authority of the nurses in the healthcare organisation, power is defined as the ability to act, to influence, have control or autonomy, to use resources to achieve desirable goals or outcomes and the ability for the application of knowledge to implement autonomy (Skår 2010). May (1993) described how nurses maintain significantly little authority and autonomy within healthcare. He added that there remains an organisational mandate for nurses to follow doctors' directives based on institutionally recognised power and hierarchical structures.

Nursing should be considered as a distinct profession, which follows a different approach to medicine. De Raeve (1993) argued May's views of institutional power in healthcare are dependent on the traditional biomedical model, which gives doctors the ultimate authority to make the medical decision. She added that nursing education is not inferior but is different than that of the doctors' role. Looking at the approach of care for both professions, it can be seen that both nursing and medical are different in the approach of care. The doctors depend on the biomedical model they see the patient as a multisystem that focuses on the defect, or dysfunction, using a problem-solving approach. The medical model is thus focused on the physical and biologic aspects of specific diseases and conditions. So, if the patient has a health problem, such as asthma, then the doctor will concentrate on the deficit that can contribute to other dysfunctions in other systems in the body. However, nursing draws on other models and theories their approach of care focuses on a holistic, humanistic approach. The nurses know the

pathophysiology of what asthma is and how to treat it, but also see the patient problem in a broader context of the patient not being able to do something they could do before.

The nurse would help and guide the patient, be able to reduce the impact of the discomfort and teach patients to overcome their problem for better outcomes (Leng 2013). This indicates that while both professions work differently, they do complement each other. Hence, for a better patient outcome, both professions need to collaborate effectively.

The expectation that nurses should be under the control or authority of the doctors is applied in Oman's healthcare system culture, where the doctors are at the top of the hierarchy and the nursing role is not yet fully respected. The nurse's role is not seen as important but inferior to the doctor's role, and the doctors have more power to challenge the nurses. Accepting a culture that encourages the doctors to have the sole responsibility for the patient's care can be very frustrating for nurses, especially when nurses and doctors have opposing views on the patient's condition and the nurse's suggestions are disregarded. This was presented by the participants in my study, such as when they stressed their dissatisfaction with the lack of involvement in the management of the patients during the doctor's rounds.

In a study conducted in Slovenian hospitals by Skela Savič and Pagon (2008), the nurses reported that hierarchical culture does not promote communication between the doctors and nurses because doctors tend to control nurses and patronise them. Their study also showed that the professional growth of the nurses was mainly threatened by organisational factors such as hierarchy, control orientation, a lack of co-operation and team building between doctors and nurses, as well as insufficient involvement of nurses into change implementation, as also presented in my study.

Skela Savič and Pagon (2008) reported that the doctors interfere in their daily nursing care for their patient, which supports the participant's views in my study. For example, in my study the nurses stressed that they did not have the freedom to make changes through the use of evidence-based practice for better pain care and comfort, such as the implementation of Kangaroo care. They felt that they were always supervised. However, the nurses were seen to challenge the policies in place and tried to practice their informal power during the afternoon shift, when the doctors were usually absent. For example, the nurses were able to practice developmental care to control the environmental stressors; that is, minimise noise through the use of the quiet hour, dim unit's light, cover the top of the incubators with sheets to reduce the baby's distress during the excessive routine of the morning shift. The nurses' action (change of behaviour) indicate the nurses' lack of professional autonomy because they were observed to work freely in the absence of the doctors.

Tsai (2011) found that proper and open communication between the organisation and its staff in promoting the organisational vision may influence staff behaviour. Open communication enhances staff

ownership because their decision is valued. Consequently, their input increases and the passion of work increases (enhanced job satisfaction). In turn, their patient care will be improved.

A study conducted in the UK by Churchman and Doherty (2010) found that a strong medical hierarchy discourages nurses from challenging doctors' practice. They added that "nurses would not challenge doctors if they perceived that this would result in conflict or stress if they were afraid of the doctor or feared reprisal" (Churchman and Doherty 2010, p. 1). This situation would be dangerous because it stops the nurses from taking their decision in patient care or practicing their role effectively (Carr 2007). It also has implications for patient safety because the nurses feel unable to speak up. This hierarchical culture has a negative impact on both nurses and patients. Montgomery et al. (2013) state that organisational culture plays an important role in the development of healthcare providers job burnout, which in turn influences the patient experience and quality of care. The results of Montgomery et al. (2013) study emphasise how problems in the system contribute to the social context of private experiences of health workers by pointing out the underlying similarities and differences across eight European countries. For example, the perceived sources of job stress were workload (e.g. administrative tasks, high number of patients, high responsibility, and decisions for treatment), work environment (staff shortages, lack of resources), and poor hospital management (lack of co-operation between departments). Moreover, some of the occupational stressors were identified by the health professionals such as continuous administrative reforms, use of the top-down decision-making strategies, the chronic shortage of resources and supplies. Referring this to my study, the use of top-down decision-making strategies in Hope Hospital creates a stressful and a complex relationship between the doctor–nurse relationship, making the work of the nurses very difficult to achieve a high quality of patient care. According to Korner et al. (2015), interprofessional teamwork within the organisation increased the quality of teamwork, job satisfaction, better clinical outcome, better team climate, and team efficiency.

Ineffective nurse-physician collaboration affects patient outcome, and nurses' job satisfaction (Elsous et al. 2017). Referring this to my study, the nurse's lack of power influences their nursing role because they cannot challenge the doctors, which is affecting their patient outcomes particularly to pain management.

9.2.3 The role of the organisational culture on patient care

Based on the research findings, the focus of the care in the unit was found to be task driven and the nurses seemed to focus more on organisational needs than their patients' needs. Lack of collaborative relationship and team work between the doctors and nurses was also evident. The hospital and unit culture were not supportive of evidence-based practice (e.g. there were limited neonatal policies and standards) and the patients' management was based on the doctors' personal preferences. Based on the

participants' views, the babies experience inconsistency of pain practice. Many contributing factors for the inconsistency of pain management were found in the literature, which supports my research findings. For example, the inability of neonates to verbalise their pain was one of the main factors (Wallace and Jones 2017). Meanwhile, when the babies are extremely premature and critically ill, they will not react to pain because of their poorly condition. Therefore, HCPs may misinterpret their pain and consequently no proper pain management will be provided. In addition, the inconsistency of pain practices was associated with variations in the doctors' individual preferences, (Stevens et al. 2011; Golec 2009), as also observed in my study, and deficient use of neonatal pain standards.

There was a lack of opportunities for professional growth and development in the organisation in the field of neonatal nursing. The complexity of the organisational system was linked with the non-availability of resources, which added to the complexity of delivering optimal pain care. Most importantly, the hospital culture has been shown to not support the implementation of patient-centredness, which is not a priority in the unit's daily routines.

Organisational culture has a significant role in its effective leadership and management. For example, the organisational leadership style has a role in the organisational success, so if the organisation embraces the culture of innovation, then it is more likely to improve and expand the organisational system in terms of supporting and accepting the input of its employees. Whereas if it chooses the top-down or hierarchical culture, then it is more likely that its employees will be less involved and this will lower productivity (Naqshbandi et al. 2018).

James et al. (2013) state that an organisational culture explains how an organisation's members do things to succeed, as well as how their behaviours can contribute to a group's failure. In other words, a proper direction from the organisation may serve as a cognitive map for neonatologists, paediatricians and NICU nurses, which will enable them to understand what is valued in their organisation and how their behaviours can be directed accordingly, such as in the application of pain management.

It can be argued the inconsistency of pain practice in Hope Hospital is related to the existing culture of the healthcare system. From the research findings, it can be seen that there is a lack of strategic direction from the organisational management for their staff, specifically in relation to patient care. The organisation is not geared to meet patient-centredness because it is task driven, often focusing on task completion as a measure of quality rather than the patient's interaction and experience of care. It was evidenced that NICU nurses were pressured to meet the organisational needs rather than their patient's needs, such as when they reported that the unit environment hinders their daily routine and interaction with their patient. Overall, it was evidenced that the patient's centrality was absent and was not a priority, the routine focus was on tasks and ritual practice. The nurses were also seen to focus more on the computer work than care for the babies. However, this is not the fault of the staff because it is part of MOH's system to protect patients' records.

The nurses were caught between their organisational goals and what is required from them to serve their patients based on their role as nurses. It appeared that the nurses were unsatisfied because the work environment was not supportive. Because the nursing culture is not supportive to the nurses and does not empower its nurses or even value their role in the patients' care, it was observed that the nurses had no voice in the babies' management, which affected their professional autonomy and impaired their decision making. Tsai (2011) argued that organisational culture plays a vital role in whether the hospital is a friendly and healthy environment. By communicating and promoting the organisational ethos to staff, their acceptance can influence the staff's work behaviour and attitudes. This impact can be linked with the positive and negative behaviours and approaches of the nurses in Hope Hospital, which were observed while they were handling babies and providing their care.

Michie and West (2004) propose that staff performance affects the success of an organisation, while institutional factors affect the performance of workers. Another study conducted in Pakistan by Saeed et al. (2013) pointed out that in terms of institutional factors, building an organisational culture, where the staff are allowed to perform their care freely and are acknowledged and rewarded when they do, has a positive effect in boosting staff performance, making the staff highly motivated and more creative at work. In addition, organisational support for innovation and providing a supportive work environment and valuing staff involvement are significant factors that improve staff productivity (Saeed et al. 2013). Looking at this from my study's perspective, these factors are not applied in Hope Hospital, where the participants reported that they experience a non-collaborative and stressful environment, a lack of support from the nursing administration, and a lack of involvement in the patient's care, in particular to evidence-based practice (for more details, see Chapters 7 and 8). Consequently, the participants experienced a lack of autonomy, due to lack of involvement in the patients' care and not being able to practice with full autonomy their nursing care due to doctors' interference. This may create a sense of lack of ownership and responsibility, which in the long run puts the patient's care at risk of negligence because the staff become bored of doing the same routine task all of the time (Saeed et al. 2013).

In support of these findings, Crow et al. (2006) reported that providing a transparent culture where cultural values are described, which includes information that helps the staff to achieve high productivity, has a noticeable benefit on the organisation. This means that the staff in an organisation need to understand the management styles, the reward, and the evaluation system, to ensure better collaboration. This may be achieved through effective training and education (Bell 2013). The lack of a reward system in Hope Hospital, in particular the lack of training in neonatal pain management, is one of the factors that may impact patient care in delivering proper pain management and was mentioned by the participants. The participants reported that providing continued training would serve as a reward for them to work effectively to improve their patient's care. Their main concerns were to give high quality of care to all the babies in the NICU. In particular, the nurses had no training in pain management. James et al. (2015) state that the well-rewarded employee feels more committed to the

organisation and therefore works harder and is better able to achieve the organisational goals and objectives. Stevens et al. (2011) in their study found that unit cultures that supported opportunities for growth and development were viewed as enhancing pain-management best practices by the nurses.

In my study, the culture in the unit contributed to the complexity of delivering high quality of care and was a significant concern to nurses because managing their patient's pain competed with the value placed on meeting timelines and efficient task completion. These findings are similar to those found by Stevens et al. (2011), where the nurses experienced difficulty in delivering optimal pain care thanks to the stressful nature of the NICU. The nurses in their study complained of having to accomplish many tasks in a short period under very stressful situations, and when they tried to prioritise their care, sometimes the pain portion ends up being given less attention than it probably should have received (Stevens et al. 2011).

The next section will explore how the nurses use their informal power to improve their patient care, in particular to neonatal pain.

9.2.4 Nurses use of informal power

Based on the study findings, the nurses have limited contribution in decision making for their patient care, as stated by the participants. Northouse (2001, p.6) defined power as "the capacity or potential to influence." He adds that the staff of the organisation uses "position power" and "personal power." Based on Northouse, the formal position power of the nurses is mainly understood as being beneath that of healthcare organisation and doctors. This can be applied in my study because patient care is primarily controlled by the doctors, and the nurse contribution to decision making barely exists. This results in nurses using their personal power because they lack positional power. Personal power includes expert and referent power, taken from a leader's personal attributes and appearance, and consequently representing additional potency to influence (Rahim 2009). For example, during the afternoon shift and in the absence of doctors, the nurses were observed to exercise their personal power on the patient care where they use the pacifiers to settle the baby's pain and distress, despite the policy which forbids them from doing so. They also used other evidence-based nonpharmacological strategies (i.e. developmental care), such as quiet hour and dimmed the lights to control the environmental stressors. In comparison, during the morning duty, the nurses cannot practice their personal power on their patient care, particularly when they practice EBP, because the doctors keep interfering and even stop them from providing nursing care.

Although the nurses are often perceived as not having a significant amount of positional power, they can use their personal power to implement and advocate patient care (Northouse 2001). This may

happen because the nurses played the 'doctor–nurse game' strategy to get the doctor to change the management or get the doctors to prescribe pain killer, to manage the baby's pain because they had no other options. Using such covert strategies enables nurses to use their power indirectly in their patient care for the patient's sake. The nurse–doctor game has been described as a way that is used by the nurses to make their suggestions appear as if they were the doctor's ideas (Stein 1967). Paynton (2008) argues that this game is not the ideal way to be used by the nurses because it devalues the nurses and does not acknowledge their role as independent professional healthcare providers. Using the doctor-game was seen as making the nurses subservient to doctors. In my study, the nurses appeared as if they are always after the doctors, begging their approval for everything (including patient management). The nurses look like as if they are not-in-control of patient care and are unable to decide for their patient care. And yet, using this game could affect some change that otherwise would have been impossible.

It should be considered that the nurse uses doctor–nurse game because they cannot act on the medical treatment of the patient. Medical intervention is the responsibility of the doctors and therefore requires the doctor's approval because it is beyond the nursing role. The nurse can only give her opinion to remind the doctors when the doctor makes a wrong decision on certain practice, or remind the doctor when the doctor needs to give more attention to the patient, such as extra pain management when required.

Based on these findings it can be recommended that power is necessary for the nurses to influence others (doctors and patients), particularly for their patient care. Manojlovich (2007) states that Powerless nurses are ineffective nurses. This means that power is essential in nursing profession to enable nurses to work effectively in terms of decision making in relation to patients needs and to demonstrate assertiveness in problem-solving approach towards the patient's car and to protect the patient's rights.

Powerless nurses are less satisfied with their jobs and more susceptible to burnout and depersonalization (Manojlovich 2007). Referring this to the patient's care, according to Montgomery et al. (2011) burnout reduces the ability of the staff to provide the best quality of care possible and increases the risk that they will make errors. They also highlighted that there is a direct link between the working conditions of the staff, organisational factors and burnout, and how they function and thus how patients are treated. This may be applied to my study's findings, where the nurses expressed their feelings of not being satisfied, depressed and lacking autonomy.

With the loss of power, the nurses may have a lack of autonomy. Manojlovich (2007) mentioned that lack of nursing power may also contribute to poorer patient outcomes. When the nurses have the power of their duty, they will be more satisfied and will feel appreciated, which may enable them to authorize their job. Therefore, their performance may improve, which results in better patient outcomes.

9.2.5 The culture of nursing leadership

Nursing administration in Hope Hospital is still under the control of both the hospital administration and the Director General's Office, where all the rules and regulation in regards to patient's care and nurses are developed. The Matrons or the Nursing Principal are not entirely independent in terms of decision making. The decisions in regards to the nursing staff and nursing care updates have to be approved and agreed by the Director General of the hospital, who is a doctor. Also, based on one key informant (NICU ward nurse), the older nursing leaders themselves have the same traditional idea of the doctors, where the doctors come first in terms of professional hierarchy. According to Madsen et al. (2013), if professionals can see what is different about their profession, then there is a chance to value their profession more. They also note that research has found Registered Nurses with strong professional identity are more likely "to display self-efficacy and be resilient to role pressures and demands" (2013, p.2).

Lack of support compromises the nurse's role and makes the healthcare environments vulnerable to workplace conflict (Wieck et al. 2009). For example, where power dynamics exist, and power imbalance and doctor dominance, lack of trust and respect among healthcare team members are common in Hope Hospital. Also, low job satisfaction and work overload related stress are also significant reasons behind many conflicts. Kane-Urrabazo (2006) states that managers have an important role in enhancing the workplace environment to increase staff satisfaction. This can be achieved through developing trust, empowerment, and delegation, consistency and mentorship (Kane-Urrabazo 2006).

Various articles have correlated the role of managers in shaping the organisation and enhance its success (Kane-Urrabazo 2006). According to Tsai (2011), the manager's leadership skills can contribute to the success of their organisation. Crow and Hartman (2002) state that organisations are at risk of failure if the healthcare organisations neglect the detrimental elements of their culture, and may find themselves not only at risk of poor employee relations but also unable to apply discipline effectively, such as when the organisation is not consistent with the managerial policies and their culture tolerates disrespect of any kind (e.g. male doctors power differential over nurses in the healthcare sector). These findings indicate the complexity of Hope Hospital culture.

According to Hoeve et al. (2014), the doctor's domination may lead to the development of low self-concept of nurses, which can, in turn, lead to negative self-presentation. As discussed earlier, this can be linked in my findings when the nurses expressed their feelings of suppression, depression and when they complained about the lack of support from nursing administration and the doctor's dominance. It should be noted that doctors' dominance is not just a problem in Oman health system or within the Middle East, many studies demonstrate that the nurses in the west do also face challenges with doctors (Churchman and Doherty 2010), as stressed by the participants in my research.

To resolve this, nursing leadership has an important role to identify the gaps causing the interprofessional conflict between doctor and nurses ((Faisal 2017), such as knowledge deficit, lack of training and education, lack of confidence and lack of communication as stated in the findings to find the solutions. Nursing leadership has a greater responsibility to keep the nurses well prepared, updated through continuous training (neonatal and pain management), to enhance the nurses' confidence to face the challenges that they may face and advocate their patients' care. The style of leadership has to change from top-down to participatory leadership to strengthen the nurses' autonomy and be able to make their own decision. According to Faisal (2017) participative leadership style is the best choice for conflict prevention and conflict management between doctors and nurses.

9.3 The professional status of nursing

9.3.1. Low status of nursing as compared with doctors

As depicted earlier, it is important to see the hidden picture of why nurses are facing these challenges. Historically, doctors and nurses have shared a complicated relationship for various reasons, including social status, gender difference and power (Faisal 2017), in comparison to medicine. Initially, nursing was a role that women were expected to do in the home (Boschma et al. 2009). This could be because practicing nursing at home is part of a woman's 'natural' caring role as mothers. The unpopularity of nurses' work decreases nursing's social status and perceived value and has contributed to the powerlessness of the nursing profession (Manojlovich 2007)).

In the 1960s, the feminist movement opened doors for women to join in other professions on equal footing with men. However, nursing's low status in the healthcare hierarchy remains. The low status of nursing was affected by a number of reasons such as low level of qualification. Historically, when nursing training started across the world, it took place in hospitals. In comparison, the doctors' training started as a baccalaureate degree in a university. However, the nursing profession in Oman started as less than diploma level (assistant nurses), it was then developed to diploma level. As a result, many nurses are still educated only to the level of diploma in Oman. This educational factor contributed to nursing's low status in relation to doctors and other healthcare professionals (Manojlovich 2007) and, may still be a contributing factor to nursing's powerlessness. Although nursing has now received more recognition and been through a process of professionalisation, even where the role and status of nursing have been redefined, and a university qualification has been introduced, doctors continue to hold a powerful and acknowledged position in the clinical field (Hoeve et al. 2014).

This has led to negative stereotypes of medicine and nursing professions held by each other and has been seen to disrupt communication in the workplace and adds to the confusion of each other's roles (McKay and Narasimhan 2012). Although the belief about nursing as a low-status profession is outdated, it is still dominant in the medical profession, as in Oman's healthcare system.

9.3.2 Gender inequalities

In Oman, medicine is gendered more by males and nursing is mostly occupied by females. Although many males in Oman are entering nursing, nursing is still considered as a female profession, with nurses engaging in the supporting roles to doctors and occupying a subordinate position about decision making and delegating tasks (Hoeve et al. 2014). Gender imbalance is an existing issue that creates tensions between healthcare professionals in various culture (Hall 2005).

The idea of being subordinated to the medical profession is a factor that influences the self-concept and professional identity of nurses (Hoeve et al. 2014). Because medicine has more recognition and power in Oman healthcare system than nursing profession, this may have a negative impact on the nurses and lead to low professional self-esteem and low satisfaction of their position in the hospital, as the findings show. Self-esteem is defined as how the nurses perceive themselves professionally (Hoeve et al. 2014).

According to Hoeve et al. (2014) nurses develop their self-concept and professional identity from their community image, work environment, work values, education, and traditional social and cultural values. They suggested that nurses have to work hard to make their existence valued; for example, to emphasise the positive contributions to the society through engaging media to improve public perception by focusing on positive achievements in response to negative allegations or representations, and also to improve their self-image by valuing the essence of work they do themselves (Mishra 2015).

Hoeve et al. (2014) found that education and training is one of the factors that are mentioned to get recognition because it gives the nurses the power to voice their decision, stand up for their patients and themselves and gain professional autonomy. These findings were reported by many participants in my study. They added that the nurse had to promote themselves more in the community, to show the public what their work entails.

In Oman, the educational training differences for both professions may have an impact on the way that the nurses perceive themselves as inferior to doctors in their knowledge and profession, which hinders them from being an authority in the decision-making in patient care. In regards to the educational qualification, nursing became a BSc degree in 2018, and all the diploma graduates have to complete their qualification and update it if they want to join the nursing specialty programme. A higher education level might begin to increase nurses' confidence and involvement in decision making.

Based on this discussion, it can be seen that the organisational culture, professional hierarchy, cultural issues such as gender inequalities, and the low nursing status may have an impact on the nurses low self-esteem, low self-concept (the way how the nurses feel about themselves) and their professional identity, which allows the doctors to control them. In addition, these factors may contribute to the reason why the nurses change their behaviour in the care of the patient in the doctors' absence; that is, to avoid doctors' dominance and intimidation due to lack of autonomy.

For effective and safe patient care, it is imperative that both the doctors and the nurses work collegially and collaboratively to meet the patient's needs. It should be acknowledged that each profession (nursing and medicine) is of great importance and they complement each other. Stevens et al. (2011, p.759) pointed out the importance of "characterised collaboration by openness to the contribution of other team members, respect for their knowledge, joint decision making, and the shared goal of improving clinical outcomes."

The lack of teamwork and collaborative effort between the doctors and nurses can affect the patient's outcome and satisfaction (Babiker et al. 2014). Therefore, the exclusion of nurses contribution from patient care can be detrimental to optimal pain care, and limiting pain care advocacy can create feelings of helplessness and ambivalence in nurses and this make it difficult for nurses to establish consistent care, as supported by Stevens et al. (2011) and as evident in the NICU nurses behaviour in Hope Hospital (as verbalised by the nurses and by the observation).

The next section focuses on other factors that also affect the nurses' autonomy, including the nurses' knowledge, lack of training, and the impact of NICU environment on staff morale and behaviours. Finally, parental role and involvement will be discussed.

9.3.3. The nurses' knowledge of pain

Lack of training and education of the nurses in NICU was one of the main concerns the nurses reported in my study. Being knowledgeable and confident was found to enhance autonomy in nursing practice. For nurses to have the authority of total patient care, with the power to make decisions and the freedom to make clinical judgements in a relationship with the patient, they need to experience autonomy in nursing practice (Skår 2010). To be an independent practitioner, nurses must be competent and have the courage to take charge in situations where they are responsible (Skår 2010).

The following section focuses on where and why the nurses have a lack of knowledge in neonatal pain. Knowledge is considered as power. The more the knowledge and skills that the nurses have, the better patient outcome and a better image they have in their profession, which improves their respect.

At a unit level, within the intensive neonatal care unit, the lack of nursing knowledge was one of the major barriers to pain management that was highlighted in the study. This has been reported in similar studies where knowledge was an issue with nurses in particular to assessment and management of neonatal pain (Young et al. 2008; Pölkki et al. 2010; Dodds 2003). In this study, most of the nurses in the NICU appeared to have adequate knowledge about the premature babies' ability to feel pain. However, the lack of knowledge about effective pain management was significant, as were the factors that influenced their ability to act on their knowledge that were described in previous sections. The barriers to effective pain management included resistance to change, lack of knowledge, lack of time, and fear of the side effects of pain medication. These findings are consistent with the recent findings (Cong et al. 2014), particularly in Europe (Akuma and Jordan 2011; Pölkki et al. 2010), Young et al. (2008) in Taiwan, and Abdul Razeq et al. (2016) in Jordan. Most of the participants in these studies agreed about the ability of the babies to experience the long-term adverse effects of pain (Cong et al. 2014; Pölkki et al. 2010). The participants were also able to assess neonatal pain through physiological and behavioural cues. However, Cong et al. (2014) has similar findings to my study, where some of the participants considered that the use of assessment tools was not necessary. In my study, this happened because the participants believed that they are knowledgeable about pain assessment. They also said that this is time-consuming because the documentation was lengthy and needed lots of writing. Added to this, the doctors are not interested in the final pain assessment score of the babies because it is a tool that is made for the nurse's sole use.

In some of the nurses' perception, the doctors seemed to accept their own assessment criteria and do not accept the nurses' assessment tools. This culture of 'them and us' permeates the organisational silo style of patient care between doctors and nurses within the hospital culture at Hope Hospital. This may imply that nurses and doctors have limited shared knowledge about the importance of pain assessment and, therefore, fail to build a shared community of pain practice. This may lead to poor management of pain.

Cong et al. (2014) argued that the lack of knowledge and uncertainty about pain assessment tools might result in a perception of resistance and fear during pain practice by the nurses. This finding can be applied to my study because when the pain assessment tool was implemented, it was found that some of the nurses were not trained or prepared to use the tool. Therefore, resistance was expected because it was newly launched. Change to some people is a threat and it can shake their stability. Dubois et al. (2013) state that resistance to change is actually an employee response to a threat to work-based identity and connected to a perception of loss of status. It may also make employees see the bad side rather than the positive side of the change (Rick 2013). Based on Cong et al. (2014), the staff who were involved

in their study felt confident in their ability to recognise and interpret pain indicators when Neonatal Pain Agitation and Sedation Scale (NPASS) was used. In Australia, Boyd and Stuart (2005) found that using a structured pain assessment tool and nurse initiated oral analgesia protocol could significantly reduce time to administration and increase analgesic cover in children presenting with mild to moderate pain. Developing neonatal protocols is also seen as important and facilitates patient care for the staff.

Staff acceptance of the pain assessment tool in Cong et al. (2014) was significantly correlated with adequate education/training, use of accurate tools, and use of research-based protocols. In my study, the lack of education and training before using the pain assessment tool was one of the factors that hindered the use of the pain assessment tool by the nurses, because most of the participants mentioned that they were unprepared and untrained to use the tool, while the limited evidence-based protocols contributed to this problem.

According to Plost and Nelson (2007, p.153), "the use of protocols simplifies process, standardised care, facilitates patient's safety". This means that the availability of the protocols will make the nurses work with confidence to care for the patients because the protocols may enhance the sense of the staff security given that they are documented and approved by policy makers. This will also reduce the risk of staff of being exposed to legal questions because they will be able to refer to the policy when needed. Moreover, the availability of the guidelines will allow the nurses to challenge the doctors and advocate for their patients and it will stop the doctors from using their own personal preferences in the patient's management. Plost and Nelson (2007) found in their study that with the use of protocols staff nurses became more assertive, while patient survival rates increased and intensive costs decreased. As a result, active involvement and preparation of the staff in the change is required to ensure their co-operation.

In terms of sensitivity to pain, in my study some of the nurses were aware that premature babies are more sensitive to pain than full-term babies, contradicting Young et al.'s (2008) finding that many of their nurses said premature babies were not capable of experiencing more pain than term babies. In my qualitative study, some nurses have a more robust knowledge base than others about the different actions of analgesia and sedation, which could be linked to level of education and clinical expertise. However, this needs further investigation in a quantitative study.

Analgesia and sedation terms were used interchangeably by several nurses apparently without knowing the difference. Moreover, low awareness among the doctors regarding the importance of nonpharmacological intervention still exists in my study, as in an Australian study where the doctors hindered nurses from practicing 'soft' interventions, such as the implementation of KMC and the use of pacifiers without their permission (Wang and Tsai 2010). In this study, the top barrier to managing pain identified by their nurses was giving proper pain prescription that needed doctor's approval. Their findings were in line with my study findings, particularly when my participants said that pain management "cannot depend on me." Wong and Tsai (2010) found that knowledge of pain management

was significantly and negatively related to perceived barriers to pain management. Knowledge also differed significantly by nurses' education level, clinical competence level, as my findings also suggest. In addition, Young et al. (2008) and Dodds (2003) observed that the doctors and nurses had not undertaken any training on neonatal pain, similar to my study findings in Hope Hospital where the participants mentioned said there was no neonatal pain training available.

The actions of the nursing and medical staff may be influenced by the healthcare system's culture, as discussed earlier. Moreover, nursing practice factors related to these attitudes and perceptions of pain could be linked with lack of education (Pölkki et al. 2010; Dodds 2003), work experience and the heavy and stressful working environment (Pölkki et al. 2010). From the research findings, it was noticed that the senior staff with higher levels of education were more confident in deciding their patient's care and they strongly advocated for their patients. It could be argued that the level of education and specialised training and experience may affect the level of nurses' confidence, as this was observed with the post-basic diploma graduate staff. Moreover, they were more likely to make an independent decision for their patients than those junior nurses who were not trained, particularly junior nurses. The nursing students are not prepared during their education to challenge the doctors to advocate their own decision for their own patients. However, the situation is different when the students join their specialised neonatal diploma because they are expected to work independently using evidence-based practice knowledge, and they should be able to advocate for their patient and challenge the doctors. The neonatal diploma students are prepared to have these skills, which is why the trained nurses acted confidently and advocated to their patients and parents.

Few researchers have examined whether education has an impact on the nurses' expertise. For example, Aiken et al. (2003) found that the number of prepared (i.e. Baccalaureate in Nursing) nurses in a hospital was associated with lower surgical patient mortality and failure to rescue. In the same study, the years of nurses' experience in a hospital was not associated with outcomes and did not alter the relationship between education and outcomes. Aiken et al. (2003) hypothesised that the effect of education led to better critical thinking and clinical judgement skills associated with Baccalaureate in Nursing training. Educational certification particularly specialisation is necessary for best patient care. According to Asadi-Noghabi et al. (2014), there is a significant link between nurses' knowledge scores and the level of education. They found that specialised training programme not only enhanced the knowledge and attitudes of nursing staff on pain management, but could lead to optimal pain management in neonates.

According to McClearly et al. (2004), Ellis et al. (2007) caring for children in pain, in general, can be challenging and requires adequate knowledge, experience and training. They stressed on the need to manage hospitalised children's pain effectively (Ellis et al. 2007; Howard et al. 2012), through specialist practitioners to improve standards of pain management (McClearly et al. 2004; Ellis et al. 2007). Beckett et al. (2016) found that increased specialisation, reduced clarity between different pain

modalities and decreased training opportunities. Pain as an 'expert' skill was found as one of their themes in their study. Their staff showed to be comfortable with some drugs and have deficit knowledge on their use and risks, indicating the need of training. This finding is similar to my own, where pain management should be given more attention in NICU of Hope Hospital and the need of training needs.

Guidelines can be another important means to improve the effectiveness and consistency of care. This indicates the needs for continuous training and education for the nursing staff, to ensure that they provide safe care to patients. Several studies have reported that neonates are often exposed to pain and receive inadequate pain management (Cong et al. 2013; Abdel Razeq et al. 2016; Namnabati et al. 2012; Young et al. 2008). This may be taken as evidence that pain strategies are not always used in NICUs (Wallace and Jones 2017). In Hope Hospital, most of the nurses interviewed felt that the babies' pain was poorly managed because pain management was in the hands of the doctors. This could be due to various factors, such as gaps in the caregivers' knowledge (doctors and nurses) in relation to the physiology of pain, assessment of pain and lack of knowledge in the use of pharmacological and nonpharmacological strategies of pain. Other factors could be a lack of time due to the heavy workload of NICUs (Cong et al. 2013). In my study, the participants reported that the doctors were resisting the use of nonpharmacological pain strategies and often gave ineffective or no analgesia for painful procedures. Indeed, it was observed that the doctors rarely prescribed analgesia and did not use analgesia for painful procedures, which they justified through the fear of drug addiction and slower weaning from the ventilation. This indicates that pain in the units was under managed.

The pain practices were associated with variations in the treatment preferences of individual doctors in the unit and were not evidence-based. Each neonatologist had a different way of practicing, where some administer analgesia while others do not. Moreover, this occurs due to medical hierarchies where pain care decisions are always taken by the individual preferences of those at the top of the hierarchy, such as the consultants, excluding the contribution of the junior doctors in baby's management, which limits team discussion. My findings support those of Stevens et al. (2011, p. 761), especially where their nurses stated that "It's hard to get the residents to write something because they know they might get their hand slapped, so they're hesitant to make changes." In addition, the lack of time and heavy routine of the unit was a major concern to the participants in providing adequate and proper care for the babies in the NICU of Hope Hospital.

In summary, quality of patient care depends on knowledge and skills of HCPs particularly in a critical care unit where staff has to be highly efficient and knowledgeable. Abdel Raziq et al. (2016) argued that lack of knowledge might lead to misjudgement of neonatal pain, which may put the babies at risk of not being assessed and treated improperly, as was the case in Hope Hospital NICU. This explains the reasons behind the nurses' dissatisfaction in the unit and the lack of collaboration and lack of respect

between the doctors and nurses. It also reflects that the unit's environment is not conducive for learning. Therefore, the next section elaborates the influence of NICU environment on the nursing practice.

9.3.4. NICU environment and routine

According to the participants and the observation, the unit working environment was noisy, challenging and stressful, and it had a negative influence on their ability to deliver a proper quality of care. NICU babies were frequently bombarded with unnecessary routine. The units' routine was task-oriented. The nurses were observed to approach the babies differently, where their care was on a continuum with holistic care at one end and mechanistic at the other. Even though the nurses were shown to be knowledgeable on the negative effect of the environmental stressors, they did not demonstrate in their actions to change the practice or advocate for the babies under their care. Although the nurses may have wanted to do something about it, they felt unable to because of the lack of support from their managers.

Due to the nature of the NICU environment and lack of knowledge about the negative impact of the environment on patient growth and development, it was obvious in my study that the centrality of babies' care is absent because the babies' pain was not regarded, which was demonstrated by excessive handling and uncontrolled noise. These findings are also supported by Young et al. (2008) and Dodds (2003). In Young et al. (2008), it was reported that HCPs were unaware of the degree of pain and believed that neonates were incapable of experiencing pain. Meanwhile, Dodds (2003) found that they underestimated the pain caused by procedures, which indicated a lack of knowledge. However, in my study, while the participants believed that the babies feel pain, their actions did not reflect this. For example, during the night shift the babies were bombarded with frequent traditional routine, such as awaking the babies from their deep sleep after midnight just to do top to tail procedures, which are not recommended because they are a stressful procedure.

In terms of prescribing less analgesia, Young et al. (2008); Dodds (2003) in their findings showed similar response to my findings when their staff reported that analgesia was rarely prescribed by doctors for procedures. Moreover, Dodds (2003) reported that their staff showed resistance to use the pain assessment tools, same as in my study. In comparison to my study, he highlighted that their staff under-utilised the nonpharmacological strategies, where control of noise and minimal handling were not practiced. Consequently, care may decline and result in a deleterious situation for babies in care. Such an environment in an NICU can be challenging, stressful and anxiety provoking for the nurses (Rooda et al. 1999).

Developmental care should be used to control the NICU environment and relieve the stress of the babies and parents, where the nurse's learn how to let go and give space for the parents to look after their own babies. Developmental care can help to individualise care of infants to maximise neurological development, and reduce long-term cognitive and behavioural problems (Gardner et al.2015). Training the nurses on how to effectively implement developmental care will give them a chance to become more conscious about the effect of their actions on the infants and the parents (WHO 2014).

The hectic and stressful environment puts the babies and the nursing staff at risk of committing unintentional errors. For example, one participant noted that, "When the environment is very busy we sometimes forget to do things right, for example when doctors write new medication, then we have to check the seven rights but then after giving the medicine we forget to sign."

Cullen and Bates (2000) described medication errors as a major threat to patient safety, while the nurses are the key to intercepting errors before they reach patients (Rothschild et al. 2005). Flynn et al. (2012) studied the relationships between nurse practice environments and medication error interception in acute care hospitals. The busier an environment is, the more errors get intercepted. Consequently, high quality care may reduce the risk faced by these babies. This environment in the NICU can be challenging, stressful and anxiety provoking (Rooda et al. 1999).

In terms of unit routine, during the observation, the unit routine was seen to be poorly distributed throughout the day. For example, during the day the unit was busy and most the procedures were done during the morning shift. However, during the night shift, the babies were kept awake and were not given enough chance to sleep as all the traditional routine was carried out, such as bathing, weighing, and changing the incubators. This traditional routine may put the babies at risk of sleeplessness and poor weight gain (Polin et al. 2003). Extremely premature babies weighing less than 1.5 kilograms have poor autoregulation (Grunau et al. 2005), which means that they are at risk of intraventricular Haemorrhage (IVH) and poor neuro-developmental outcome, such as cerebral palsy (Leppanen et al. 2014; Vesoulis and Mathur 2017). Therefore, prolonged hospitalisation can be expected, thus these babies will be more likely exposed to recurrent infection due to excessive handling (Gardner et al. 2015).

Blackburn (1998) demonstrated that NICU environmental stressors have a negative impact on babies' developmental outcomes. Greenwood (2017) and Hunt (2011) point out to the necessity of joint care (clustered care) in environment, where all the procedures should be done all at once in environment with the use of nonpharmacological pain strategies, such as use of quiet hour, dim light, control the noise. This is to avoid bombarding the babies and reduce the chances of the neurodevelopmental outcomes, reduce their pain and enhance their comfort.

It appeared that the nurses in my study had no control over the unit's environmental culture because all of the clinical decisions related to patient care were controlled by the hospital managers. The organisational culture was a key main factor in this because the expectation of the organisation to meet its targets was high and disregarded the needs of the patients, family and the nurses. This may indicate that the organisation fails to help staff and does not recognise and value their work.

9.3.5. Impact of the environment on staff morale

The environment would have a deleterious effect on staff morale, especially if the unit environment is not rewarding because the nurses are not getting enough training to develop themselves and improve their nursing practice to achieve a high quality of care as the participant repeatedly mentioned in the study. Stress may affect staff capacity to do their job and in time they may show defensive behaviours as was seen in my research during the observation. A cross-sectional study by Terzioglu et al. (2016) in a University Hospital accredited by Joint Commission International in Turkey aimed to identify the relationship among variables affecting nurses' performance and productivity (professional attitude, organisational culture, and organisational justice). This study found that providing a fair, democratic and peaceful workplace has a direct impact on patients' quality of care. This was achieved through the nurses' active participation in decision making for patient management. Additionally, the study found that professionalism plays a significant role in nurses' commitment to improve patient quality care. It is assumed that this may mean that if the staff in an organisation are treated professionally, where they are allowed to take their own decision making and let them participate in strategy making such as renewing the policy. This will not only enhance their ownership and dedication to work but also it enhances positively morale. In such a culture, the staff become attached to the organisation (Terzioglu et al. 2016). This empowers staff abilities to be creative and enhance their sense of belonging and loyalty. In contrast, in Hope Hospital there was negative organisational culture where there was a lack of professional growth and development in the organisation in the field of neonatal nursing. There was also a lack of team spirit among the doctors and nurses in the unit and a hierarchical structure, which meant that the nurses had no freedom to independently make the decision for their own practice and their participation was not valued. Consequently, the nurses experienced a lack of trust and support from their organisation.

Negative consequences can have a serious impact on both patients and healthcare providers. According to Meier et al. (2001), this kind of stress is a risk to emotional health for nurses and is mostly hidden in healthcare organisations, notwithstanding stress-related burnout, absenteeism, and resignation. This may be due to frequent exposure to highly critical sick patients like NICU babies.

It is crucial for managers to identify that emotional labour might affect general health and job satisfaction among nurses. Developing emotional support services to meet the psychological needs of the staff is needed. This means great attention has to be put on the current environment of Hope Hospital, to avoid distressing the nursing staff, as staff emotional well-being is crucial for good quality patient care, which is not addressed at Hope Hospital.

Therefore, it is essential to create a positive, friendly environment that is conducive for learning. Terzioglu et al. (2016) said that when the organisational culture in a healthcare setting is not supportive, the nurses will be negatively affected in the workplace. However, if the organisation has a transparent culture, it helps its staff to accomplish the organisational goal because it is considered as a driving force to job satisfaction. However, if the staff experience a poor unhealthy and negative environment in the workplace, then the organisation may be at risk of failure to achieve its goals (Crow et al. 2006). Therefore, for high organisational achievement, effective leadership is needed.

Empirical studies have found that a supportive nursing practice environment in hospitals is associated with higher job satisfaction (Aiken et al. 2002; McHugh et al. 2011; Patrician et al. 2010). Healthy work environments are essential for nurse-physician communication for better collaboration in the patient's care. A healthy work environment not only establishes a desirable workplace but also provides the infrastructure to impact the effectiveness of the work itself (Weston 2010).

In summary, the success of the healthcare sectors and the efficiency of their services is dependent on the organisational culture (Stanley and Lincoln 2016). The organisation has to aim at providing exceptional patient care by adopting a wide team-based culture in which certain values and principles are shared and transparently communicated among team members, this includes patients, who should be placed in the centre of the care (Babiker et al. 2014). There is a great need for a supportive and friendly environment to enhance the staff performance and productivity to overcome the challenges the staff may go through. Leaders have a role in shaping the organisation to flourish the practice. Supportive leadership with uncompromising practice mission and clear vision is vital to success (Stanley and Lincoln 2016). It is crucial for the managers to be aware of their roles and responsibilities in facilitating a positive workplace environment, to uplift staff job satisfaction (Kane-Urrabazo 2006). However, this was not evident in the culture at Hope Hospital—there is no clear role identified for the managers because they were not given the authority to control their departments.

9.4 Parental role and involvement

The following section focuses on the nurses and doctor's relationship with the parents in NICU, taking into account the consequences of lack of involving them in their baby's care. Parental involvement will be explored in more detail to show the perception of parent's experiences of having a baby in NICU, and to clarify the advantages of their involvement for both parents and babies, to explain the importance of their participation particularly in pain management and what the consequences might be if they are not involved. Prior to that, an overview of the history of FCC will be briefly discussed. The role of the parents on pain is then elaborated. The strategies needed for the parent's involvement in NICU of Hope Hospital are developed and discussed in the recommendation section in Chapter 10.

9.4.1 Parent–baby involvement and separation in NICU

In relation to parents, the observation field notes and the participants' interviews showed that the parents seemed to be disempowered in relation to both the nurses and doctors. They did not have a voice in how their baby's pain was managed, and they were not consulted about whether their baby seems to be in pain and how best to care for their baby. Moreover, parents were seen as a source of infection, and some participants wanted parents to be separated from their baby to avoid the risk. Parents are not allowed to stay while making any procedures to avoid parent's interference in doctors' work. Intensive care environment is not conducive to parents to spend more time with their babies. The unit culture at Hope Hospital is made more convenient for doctors than the parents (e.g. contravening evidence-based practice which recommends for a mother to room in).

The role of parents in managing the pain of neonates has received relatively little research attention. Franck et al. (2004) found that parents in the UK were aware of their infant's pain and that almost half had worries about their infant's pain management. Their study findings suggest that there are important gaps in professional understanding of parental expectations, involvement, and satisfaction with infant pain management in the NICU.

In my study, parent's involvement in painful procedures was not something routinely encouraged in Hope Hospital as observed. Franck et al. (2012) in their empirical study conducted in the United States also found that parents strongly wanted to be involved in their babies' pain, every time that the babies were put through painful procedures, in order to provide comfort for their babies. In my study I observed parental separation was the norm, despite the evidence from many studies (Bowlby 1952) of the benefits of involving parents, from both the baby's and parents' perspectives. First, I will briefly give an overview of the history of FCC, and how involving parents in their babies' pain management is part of FCC.

9.4.2 Background of Family Centred Care (FCC)

FCC was developed three decades ago. Until 1950, it was an unacceptable concept to paediatricians because parents were seen as a negative factor in the care of hospitalised children (Shields 2010). In the 1920s, Sir James Spence was the first to question the exclusion of parents from paediatric wards, and he set up the first mother and baby unit in Newcastle-upon-Tyne (Court 1975 cited in Shields 2010). He believed that breastfed babies should not be separated from their mothers, although his views were rejected at the time. In the 1950s, some hospitals in the UK allowed the parents to stay with their infant, but others did not accept them because some of the HCPs believed that parents undermined the relationship between the nurses and their child (Frank 1952 cited in shields). Parents were not accepted as a primary care giver. After several investigations by Bowlby (1952) the effects of separating the child from the mother were discovered, particularly after Bowlby propounded the adverse effects of breaking the emotional ties between the infant and the mother (Shields 2010). FCC development was credited with helping to improve premature infants' survival rate (Richardson et al. 1998). Various research has supported the essential importance of a family-centred care environment to the premature babies' optimal outcomes (Holditch Davis et al. 2003).

In the following section parents' experience of having a baby in NICU will be discussed to explore the need for implementing FCC in Hope hospital NICU.

9.4.3 Parents' experiences of having a baby in the NICU and why they should be involved

Over the two last decades, researchers have started to investigate parental opinions regarding the management of babies' pain in NICU. However, it is reported that there has been limited improvement in the evidence-based related to the parental involvement in their infant's pain in NICU (Gale et al. 2003), due to lack of literature on this topic.

Nowadays, neonatal nurses are challenged not only to provide up to date developmental care for premature babies but they are also expected to support parents throughout their baby's hospitalisation, particularly in relation to the transition to motherhood (Aagaard and Hall 2008; Hurst 2001). To meet that challenge, all NICU nurses have to understand the parents' views and feelings, needs and expectations (Hurst 2001). Parents often face challenges of carrying out their parenting role when their baby is in an NICU (Lupton and Fenwick 2001). There is still limited research on how NICU parents experience mothering. Therefore, most of nurses are less likely to be aware of the parents' experiences (Fenwick et al. 2008), which will consequently affect how NICU nurses deal with parents.

It is also reported in the literature that parents of a sick infant in an NICU/ICU experience feeling of shock, and alienation (Jackson et al. 2003). A study conducted in Denmark aimed to identify. Danish parents' lived experiences during a new born or small child's critical illness. Seven sets of mothers and fathers of new born and small, critically ill children transferred to the NICU were recruited, and the findings showed that the majority of the parents complained of feelings of fear, worry, unhappiness and suffering, and feeling guilty, and vigilance (Hall 2005).

In a study based in Australia, Lupton and Fenwick (2001) explored the experiences of parents with infants in neonatal nurseries, with a focus on the interactions between healthcare professionals and parents. The researchers found that the idea of being a 'real mother' is difficult for the mothers, especially in the early days in NICU, and the expected bond of love that connected with birth is absent, due to separation from the baby This could also be applied to parents in an NICU because both environments are stressful. Due to NICU admission, parents develop a feeling of alienation (Jackson et al. 2003), feeling threatened and frightened because the mother is overwhelmed by the busy, crowded, and noisy environment; the use of high technology of equipment; the expertise of the nurses; and the language and culture of the healthcare providers (Lupton and Fenwick 2001). This shows how much proper communication is essential to develop a trusting relationship between the healthcare team and the patient's family, to improve parents' satisfaction.

The mother's involvement in having the dual role of mother and being involved in decision making about the infant's care was positively regarded and studies suggest that the sense of being a mother can be improved by participating in the baby's care (Lupton and Fenwick 2001; Hall 2005). Parental participation in the care is essential in neonatal intensive care, not only to maintain continuity of family unity throughout infant's hospitalisation but also to facilitate parent's confidence in caring for the infant (Knafl et al. 1992) and improve health outcomes of the child (O'Haire and Blackford 2005), particularly to reduce the impact of the negative stimuli on the babies such as pain. Hall (2005) describes parenting as the key to the baby's growth, development and health in the next generation, as recognised and evidenced in previous studies. For example, developmental research has shown the link between the advantage of mother-infant attachment and child development outcomes (Bee et al. 1982). Some has research shown that the impact of mother-infant attachment does not only influence the short-term behaviour of the infant but it can shape the structure of the brain, thereby influencing the long-term behavioural and cognitive outcomes (Shore 1997).

For many parents, having a baby in the NICU can be unexpected shock and disappointment over not having a healthy baby (Dadkhahtehrani et al. 2018). The parents experience many emotions and feelings when their baby is admitted to a NICU, such as feelings of helplessness and guilt, confusion, separation from the baby (Dadkhahtehrani et al. 2018). Coping with these feeling can be made easier with the help and support of the HCPs through active involvement to reduce their stress (Franck et al. 2012).

In response to the NICU environment stressors, family-centred care concept is not only crucial to enhance the parent's sense of control, confidence, involving in decision making, and develop baby-mother attachment but also their involvement is vital to improve the quality, continuity, and consistency of neonatal care and ensure a smooth transition from hospital to home (Warre et al. 2014). Landry et al. (2001) found that maternal responsiveness was a particularly important contributor to the cognitive development of children born preterm, whereas Clark et al. (2008) found that sensitive and responsive mother-child interactions are associated with better self-regulation, improved joint attention, and fewer behaviour problems in preterm children.

The babies and their parents have to be the centre of the care and HCPs should respect and support the parents' role in their baby's care. The nurses need to consider how they can contribute to enhance the parents' involvement, as well as providing clinical care for the babies. The literature review has shown that there is a need for implementing FCC, to meet the baby and parent's needs. Nurses have an essential role in the successful implementation of FCC in NICU. FCC is a way of supporting family involvement with a child's care (Franck et al. 2012). FCC implementation will make a difference to decreasing the distress associated with a child's critical illness by improving communication, helping manage stress and coping, and reduced conflicts between staff and parents.

9.4.4 Link between parental involvement and improved pain management

According to Filippa et al. (2019), parental involvement has an imperative role in nonpharmacological method for reducing pain in neonates. Parental involvement can be applied in NICU in different ways, such as through Kangaroo care, breastfeeding, and holding the baby. The effectiveness of breast feeding and Kangaroo care are well established (Cignacco et al. 2007; Riddell et al. 2015). Therefore, Kangaroo care can relieve pain responses to single painful procedures such as a heel lance (Mooncey et al. 1997) and decreases cortical pain reactions after venepuncture procedures in premature infants. Pain relief is usually given for a painful procedure but it may not be given for minor painful procedures for blood sampling, such as heel lance or venepuncture.

However, breastfeeding can provide pain relief for newborn babies undergoing painful and minor procedures. Moreover, breast milk appears to have similar effectiveness as sucrose solutions for reducing pain in full-term neonates (Watterberg et al. 2016). However, breast milk given by syringe has not shown the same efficacy as breastfeeding itself (Shah et al. 2012).

Also, the odour of mother's milk appears to reduce the pain from a heel lance in both full-term neonates (Nishitani et al. 2009) and premature infants (Baudesson de Chanville et al. 2017).

Parents can also help their babies remain calm during painful procedures, especially the mother, to help pain relief rapidly through cuddling and swaddling. Although parental involvement reduces the procedural pain of infants, the parents may need help to develop coping strategies that reduce distress related to their infant's pain. Moreover, the parents' sensitivity to pain has to be considered because not all the parents may like to get involved or accept seeing their own baby going through pain.

Parental involvement appears to be associated with reduced pre-procedural pain (Carbajal et al. 2008). However, it is expected that there will be some challenges when FCC is introduced to Hope Hospital's NICU. For example, rejection of the FCC from the staff is expected because the nurses need to give more time to the family teaching and attention. In addition, the parents' presence might be a source of stress for the nurses at the beginning because their presence could be distracting and exhausting (Coats et al. 2018). Given that the NICU at Hope Hospital has not had a FCC culture, the nurses at the beginning might face difficulty to adapt to the change. Disagreements over the importance of a child's care needs might arise and this may lead to distress to the nurses (Coats et al. 2018). Consequently, unit in charges and senior nurses who are trained and well prepared for FCC should always be available to support the staff on each shift. Finally, preparation of the environment can be one of the main challenges in FCC implementation. Therefore, Chapter 10 will make some practical suggestions on how to implement FCC.

Chapter 10: Conclusion

10.1 Introduction

This study's primary aim was to explore the experiences and understanding of neonatal pain and its management among NICU nurses caring for babies who have been admitted to NICU in 'Hope' Hospital in Oman. This study used an ethnographic approach to explore how nurses' approach and interact with babies being cared for in a NICU in Oman, with a particular focus on pain. An ethnographic approach enabled me to explore how organisational culture informs the management of neonatal pain; for example, how pain was perceived, assessed, and managed by nurses, the barriers or challenges the nursing staff face from implementing appropriate strategies, and the impact of NICU environment on how nurses interact with babies. The data collection took place over six months. Various qualitative data collection methods (i.e. observation and Interviews and Hospital documents) were used to answer the research questions and to give a clear picture of what was going on.

10.2 Research questions

The study specifically seeks to answer the following questions:

- How do NICU nurses' approach, handle, and interact with babies while providing care?
- How do NICU nurses assess a baby's pain?
- What strategies and approaches do NICU nurses use to reduce and control the baby's pain and what are the influences that affect the use of these strategies? For example, do they use 'quiet hour', positioning devices, minimise light and noise, swaddle, or communicate with the babies when handling them?
- How do nurses perceive babies and their experiences/ability to experience pain? The relationship between the research questions and the data collection methods is shown in Appendix B- Data collection methods).

Four themes emerged following data analysis,

- The inconsistency of pain-management practice.
- The NICU environment of Hope Hospital.
- Nursing culture.
- Complexity of the organisational culture.

Given these themes, most of the findings were barriers that hinder effective neonatal pain management. The babies in Hope Hospital NICU suffer a lack of pain management because pain practices in the NICU were inconsistent. Inconsistency of pain practice were associated with variations in the doctors' treatment preferences in the unit due to lack of staff knowledge in the aspect of pain management, limited of standardised guidelines and lack of pain resources. The limited standardised guidelines with the lack of neonatal resources were found to be very challenging for the nurses because it prevented them from delivering high quality care.

Hierarchical culture, in particular to medical relationship, was the key barrier for this and was one of the main challenges to nurses that limited the nurses' professional autonomy, devaluing their contribution to the babies' care. The doctors' dominance was evidenced in the unit, organisational and policy maker levels. The organisational culture showed to be task oriented, not receptive to change and not accepting the evidence -based practice and their leadership style was autocratic, the nurses' role was held in low regard and was not rewarded. With regards to the culture, the staff suffer role ambiguity and lack of training because their role was not transparent due to lack scope of practice. This culture was reflected in the staff's lack of collaboration and there was lack of interprofessional collaboration among nursing and doctors' team and with the family as the parents were not fully involved in their baby's care, reflecting that patient-centredness was not considered as it was not part of the unit routine.

From the research finding, the NICU environment was stressful and very challenging to the nursing staff throughout the day, particularly during the morning and night shift. There was poor control of the environmental stressors (light, noise, crowed, too much handling), which exposed the babies to risk of short and long-term complications. The environment had a negative influence on the nurses' practice and their interaction with the babies, affecting the nurse's well-being. In particular, the environment was hectic and stressful. This hindered the nurses to effectively provide individualised care to all the babies. The complex role of the nurse can be made more challenging by this environment. Changing certain aspects of this environment may improve the experience for the nurses and the babies as patients. These changes include offering proper training and education to nursing staff to be able to deal with babies' in pain (Turner et al. 2014).

In addition, the nurses were found to act differently when handling the babies (mechanistic and holistic), this could be linked with their educational qualification because some of the nurses had a specialised neonatal diploma, and others had attended a four month neonatal intensive care course while others had neither. However, this needs further research to oversee the link of culture because some the nurses were Omani while others were non-Omani. In addition, Nurses' knowledge on neonatal pain (analgesia and sedation action) differed significantly, which could be linked by nurses' education level, clinical competence level. However this needs further investigation in a quantitative study.

From what had been presented, there is an urgency to tackle these barriers and enhance the care in neonatal unit. Training has been found to influence pain management (Lago et al. 2013). Specific attention should be given to enhancing interprofessional collaboration between doctors and nurses, and support evidence-based practice.

The barriers to effective pain management that were reported by the participants were identified and supported in other studies include resistance to change, lack of knowledge, lack of time, lack of education (Young et al. 2008; Dodds 2003; Pölkki et al. 2010; Cong et al. 2014; Abdel Raziq et al. 2016), lack of training, limited EB guidelines and protocols, fear of side effect (Young et al. 2008), lack of interprofessional collaboration, and lack of professional autonomy as a result of hierarchical organisational culture (Stevens et al. 2011).

10.3 Strengths and limitations of this study

The outcomes of this study will help to improve neonatal care in the only tertiary hospital in Oman. They could also be tailored for the benefit of other countries with similar culture, traditions, and customs. The findings from this study provide new theoretical insights. They also provide rich insights into neonatal pain and its management, in particular to power relations and gendered power (i.e. doctor and nurses relationship).

Considering that this as the first research study to discuss neonatal pain from an ethnographical approach in Oman using observation and interviews to explore how the nurses' approach, handle and interact with the babies in a NICU, focusing on the unit's culture. However, there could have been other ethnographic studies of neonatal care, including pain management in other regions.

An ethnographic approach has enabled me to collect data from a range of sources to get a well-rounded view of my research focus.

To ensure that change happens, it is not only the nurses who need to change but the healthcare system, its culture and its leadership style also have to change to empower the staff in the organisation, particularly the nurses.

The main limitation of the study is that it was conducted in one clinical setting in Oman and with a small number of nurses. However, to ensure transferability of the findings, a sufficient description has been provided for readers to interpret the findings and consider their applicability for their circumstances. Finally, my inside status may have influenced the data.

It is important to note that the researcher's positionality not only shapes the research but also influences the interpretation, understanding, and therefore disclosure of the researcher's positionality is important. Consequently, where and how the researcher believes that they have influenced their research should be addressed for the reader to be able to make an informed judgement about the study rigour and learn from the pitfalls of the researchers.

My role as an insider has generally had a positive impact on the data because of my ability to competently understand the experiences of those inside the culture in comparison with the outsider researcher. However, I could not detach myself from the culture without any bias (Kusow 2003). Consequently, I took time to position myself as a researcher. However, I could not detach my feelings and turn my emotions off from that data, which meant that sometimes I could not see the deep side of the situations. In these cases, my supervisors have been of great assistance because they have helped me to see my positions and made me to think of the bias that I might have created, which might have led me to miss important areas that are necessary to see the hidden picture. For example, my insider position in the research might have influenced my interpretation of the data because I had prior knowledge on the speciality, although I was seeing the situation in a very different way from my ordinary clinical perspective.

10.4 Recommendations for practice

The research findings suggest some areas of improvement to enhance the collaboration and relationship between doctors and nurses. The first recommendation is that effective interprofessional collaboration must be improved, as it is of great importance in NICU environments because it can facilitate the care of the patients. Therefore, the nursing leaders have to be enabled to empower their own staff in the departments, to create a friendly and healthy environment. Also, interprofessional team meetings and study days are required to enhance mutual respect and collaborative working.

A supportive leadership with uncompromising practice mission and clear vision is vital to success (Stanley and Lincoln 2016). Therefore, it is crucial for the managers to be aware of their roles and responsibilities in facilitating a positive workplace environment, to uplift staff job satisfaction (Kane-Urrabazo 2oo6).

The nurses require considerable support from their administrative system. At a national level, through the Ministry of Health, a code of conduct policies and procedures must be developed to support staff in their practice and ensure their ongoing professional development. This can be achieved if a strong regulatory health body is developed.

The work environment in NICU needs attention to implement a friendly and supportive climate, to achieve optimal outcomes for the babies and their families, and to care for the nurse's well-being and

ensure patient safety. The patient care culture has to shift from task orientation to patient-centred care. The hospital organisation has to make PCC and FCC a priority by putting the patients and their families first through involving them in the decision-making process of their own baby's care, to help the nurses provide individualised care to patients and improve their quality of life. This will develop a trusting relationship between the nurses and the baby's families.

To create a culture of PCC, the hospital culture has to be sensitive and reject any behaviours that do not put patients first. In addition, training of how to implement PCC and FCC is imperative to bridge the gap of knowledge and empower the nurses. It is recommended that all nurses should undertake educational programmes on pain management, including the physiology of pain, misconceptions of pain, assessment, the physiological and behavioural cues shown by the patient, and the pharmacological and nonpharmacological strategies and ethical issues related to pain management. Also, training to use the assessment tool is essential for evaluating neonatal pain and its management, and to avoid staff rejecting the tool and to help them to use it effectively.

The documentation of pain is also crucial because there can be a large variation in pain perception in babies between various healthcare providers. Consequently, all of the nurses should be educated on the importance of documenting the baby's pain. A job description for the NICU nurses should be developed at all levels and implemented across the country to avoid role ambiguity and to ensure that the nurses know their role towards their patients. Evidence-based pain policies and guidelines should also be put in place for neonatal practice, particularly on neonatal pain for babies' safety. They should be evaluated periodically to ensure consistency of practice and improve quality of care and maintain patient-centredness. For sustainability, the nursing staff has to take an active role in developing the unit protocols to be part of it. Also, preparing the staff to use the protocols is very important to gain their co-operation and avoid rejection.

To protect staff professional autonomy and control malpractice, a health council should be established to oversee all aspects that relate to health at the national level. Also, clear rules and responsibilities for the nurses and midwives should be set.

The availability of emotional support services also needs to be considered to meet the nurses and family's emotional well-being for a holistic approach and maintain productivity.

To enhance PCC, more training for the staff on communicating well with parents and listening to their concerns is required, to actively involve the parents in the care, and to meet the baby's and parents' needs. Some practical suggestions for beginning to involve the parents follow:

For effective FCC to take place, certain steps should be followed:

1. To introduce the policy makers in the Ministry of Health to FCC, to develop a patients' charter, and to facilitate initiation of FCC across the country.
2. To train all the staff in the concept of FCC:

a. What FCC means,

b. The advantages of FCC for the baby and mother,

c. The role of the staff and the family members on the baby's care,

d. How the nurses provide FCC.

3. Develop policy and procedure to support FCC.
4. Develop a model of care in the NICU, such as the Orem model of care.
5. Develop a philosophy that supports FCC.
6. Proper management of high staff to patient ratio for effective FCC.
7. Clarify the pitfalls and experiences of other countries implementation of FCC for the staff to learn from.
8. To develop a patient's charter through the policymaker.
9. Educate parents and families about FCC through the media (e.g. television) and develop a pamphlet in the unit introducing FCC.

10.5 Implications for nursing management

The results of this study are important to the improvement of the nurses' performance and productivity. They give attention to a very important aspect of the factors affecting the nurse–doctor relationship, in particular to the nurses' lack of professional autonomy in patient care and how this impacts on the management of neonatal pain. Consequently, healthcare organisations in Oman need to pay special attention to the relational aspects of the nurse–doctor relationship for future research.

It would be useful to compare the perspectives of other healthcare professionals from different health disciplines to gain a better insight into the impact of the current healthcare culture and to manage neonatal pain effectively.

A professional regulatory health body in Oman is of great importance because it can represent the interests of the nurses, protect their integrity, and raise the standards of their work. Being attached to a professional body not only strengthens nurses' professional identity (Allen 2016) but will also increase their national status. It will give them recognition because they will be licensed. In addition, it will act as the voice for the nurses and midwives (Oman Health Vision 2050). The health body would serve as an umbrella for all the governmental and non-governmental hospitals, as well as institutions associated with health professions education to oversee policy implementation and grant licensure for health professions.

This will lead to the development of standardised policies and procedures, such as pain management policy, the scope of practice, code of conduct and job description, which are not currently available in Oman's healthcare system and which will control the inconsistency of pain practice (Oman Health Vision 2050). Healthcare regulations and standards are essential to ensure legal compliance and to provide safe healthcare to every individual who accesses the system (Grimm 2014). For the safety of the patients, healthcare practices and management, educational training, and scope of practice are monitored through the health body to maintain public confidence and safety, as well as to ensure impartiality in the process (Baldwin 2012).

10.6 Dissemination

Aspects of this study open many opportunities for dissemination to the nursing profession to improve care. For example, I will publish a number of publications in relation to neonatal pain and its management, including the barriers to providing effective pain management and the barriers to parental involvement for a baby with pain in the NICU.

I will write a report to the research committee about the research findings to be able to approach the policy maker to show the importance of change in this area. I will also present the research findings in national and international conferences to show the gaps and act on them. When presenting the findings of my study, I will carefully consider how to present the high-level findings in a way that does not breach the anonymity and confidentiality of the participants. I will also focus on areas for change rather than focusing on a critique of current care.

References

Aagaard, H. and Hall, E.O. (2008). Mothers' experiences of having a preterm infant in the neonatal care unit: a meta-synthesis. *Journal of Pediatric Nursing* 23(3), pp. e26-e36.

Abdel Razeq, N., Akuma, A., Jordan, S. (2016). Status of Neonatal Pain Assessment and Management in Jordan. *Pain Management Nursing* August 17 (4), pp. 239–248.

Abdellatif, M., Ahmed, M., Bataclan , A., Khan, A., Al Battashi, A., Al Maniri, A. (2013). The Patterns and Causes of Neonatal Mortality at a Tertiary Hospital in Oman. *Oman Medical Journal* Nov 28 (6), pp. 422–426.

Aiken, L., Clarke, S., Cheung, R., Sloane, D., Silber, J. (2003). Educational levels of hospital nurses and surgical patient mortality. *Journal of the Medical Association* 290, pp. 1617–1623.

Aiken, l., Sloane, D., Clarke, S., Poghosyan, L., Cho, E., You, L., Finlayson, M., Kanai-Pak, M., Aungsuroch, Y. (2011). Importance of work environments on hospital outcomes in nine countries. *International Journal for Quality in Healthcare* 23(4), pp, 357–364.

Aiken, L.H., Clarke, S.P., Sloane, D.M., Sochalski, J. and Silber, J.H. 2002. Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Jama* 288 (16), pp. 1987-1993.

Aita, M., Johnston,C., Goulet, C. (2012). Intervention Minimizing Preterm Infants' Exposure to NICU Light and Noise. *Clinical Nursing Research* Dec 28, pp. 337–358.

Akuma, O. and Jordan, S. (2011). Pain management in neonates: a survey of nurses and doctors. *Journal of Advanced Nursing* Jun 68(6), pp. 1288–1300.

AL Sinani, M. (2008). Breastfeeding in Oman: the way forward. *Oman Medical Journal* Oct 23(4), pp. 236–240. Available at URL https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3273917/ [accessed on 18/3/17 at 11pm].

Alasfoor, D., Elsayed, M., Al-Qasmi, A., Malankar, P., Sheth, M., Prakash, N. (2007). Protein–energy malnutrition among preschool children in Oman: results of a national survey. *Eastern Mediterranean Health Journal* (on line) 13(5), pp. 146–154. Available at http://www.moh.gov.om/en/reports/Protein_energy-au_proofs.pdf. [accessed on April 2013 at 12:00 am]

Alghemini, M. and Denham, S. (2008). Professional nursing in Oman (on line). Available at http://www.minoritynurse.com/features/other/042308f.html#two [accessed on 25 March 2013].

Al-Ryiami, A., Afifi, M., Al-Kharusi, H., Morsi, M. (2000). National health survey Vol 2- Reproductive health study (online). Directorate of Research and Studies. Directorate of General Planning. Oman: MOH. Available at www.moh.gov [accessed on 16.04.13].

Alshenqeeti, H. (2014). Interviewing as a Data Collection Method: A Critical Review. *English Linguistics Research* 3 (1), pp. 39–45.

Alwan, A. and Modell, B. (1997). *Community Control of Genetic and Congenital Disorders EMRO Technical Publications Series 24*. Cairo: World Health Organisation Regional Office for the Eastern Mediterranean.

American Academy of Pediatrics. (2000). Prevention and management of pain and stress in the neonate. *Pediatrics* 105 (2), pp. 454–461.

American Academy of Pediatrics. (2006). Prevention and Management of Pain in the Neonate: An Update. *Pediatrics* 118 (5), pp. 2231–2241.

Anand, K. (1998). Clinical importance of pain and stress in preterm neonates. *Biology of the Neonate* 73 (1), pp. 1–9.

Anand, K. (2000). Effects of peripheral pain and stress. *Progress in Brain Research* 122, pp. 117– 129.

Anand, K. (2001). Consensus statement for the prevention and management of pain in the newborn. *Archives of Pediatrics Adolescent Medicine* 155, pp. 173–180.

Anand, K. and Scalzo, F. (2000). Can adverse neonatal experiences alter brain development and subsequent behavior? *Biolology of the Neonate* 77, pp. 69–82.

Anand, K., Aranda, J., Berde, C., Buckman, S., Capparelli, E., Carlo, W., Hummel, P., Johnston, C., Lantos, J., Tutag-Lehr, V., Lynn, A, Maxwell, L., Oberlander, T., Raju, T., Soriano, S., T addio, A., Walco, A. (2006). Summary proceedings from the neonatal pain-control group. *Pediatrics* 117 (3), pp. S9–S22.

Anand, K., Coskun, V., Thrivikraman, K., Nemeroff ,C., Plotsky, P.M. (1999). Long-term behavioral effects of repetitive pain in neonatal rat pups. *Physiolology Behavior* 66, pp. 627–637.

Anand, K., Khoshnood, B., Carbajal, R. (2014). Does neonatal pain management in intensive care units differ between night and day? An observational study. *British Medical Journal*. doi:10.1136/bmjopen-2013-004086.

Anand, K., Palmer, F., Papanicolaou, A. (2013). Repetitive neonatal pain and neurocognitive abilities in ex-preterm children. *The Clinical Journal of Pain* 154 (10), pp. 1899–1901.

Anand, K., Sippell, W. G., Aynsley-Green, C. (1987). Randomised control trial fentanyl anasthesia in preterm babies undergoing surgeries: Effects on the stress response. *The Lancet* 329 (8524), pp. 62–66.

Anand, K., Sipple, W; Schofield, N., Green, A. (1988). Does halothane anesthesia decrease the metabolic and endocrine stress responses of the newborn infants undergoing operation? *British Medical Journal*, pp. 296668–2966671.

Anand. K., Phil, D., Hickey, P. (1987). Pain and its effects in the human neonate and fetus. *New England Journal Medicine* 317, pp. 1321-1329.

Andrews, K. and Fitzerald, M. (1994). The cutaneous withdrawal reflex in human stimulation, *Pain* (Amsterdam) 56, pp.95–101.

Angrosino, M. (2007). *Doing ethnography and observational research*. Thousand Oaks, CA: Sage.Green, C., Duan, N., Gibbons, R., Hoagwood, K., Palinkas, L., Wisdom, P. (2015). Approaches to Mixed Methods Dissemination and Implementation Research: Methods, Strengths, Caveats, and Opportunities. *Administration and Policy in Mental Health and Mental Health Services Research* Sep 42 (5), pp. 508–523.

Asadi-Noghabi, F., Tavassoli-Farahi, M., Yousefi, H. and Sadeghi, T. (2014). Neonate pain management: what do nurses really know? *Global Journal of Health Science* 6 (5), p. 284.

Atkinson, P. and Hammersley, M. (1994). *Ethnography and participant observation. Handbook of Qualitative Research*. Available at: http://hevra.haifa.ac.il/~soc/lecturers/sgooldin/files/6461181041799.pdf [Accessed: 4 January 2017].

Awases, M., Bezuidenhout, M., Roos, J. (2013). Factors affecting the performance of professional nurses in Namibia. *Curationis* 36 (1), pp. 1–8.

Babiker, A., El Husseini, M., Al Nemri, A., Al Frayh, A., Al Juryyan, N., Faki, M.O., Assiri, A., Al Saadi, M., Shaikh, F. and Al Zamil, F. (2014). Health care professional development: Working as a team to improve patient care. *Sudanese Journal of Paediatrics* 14 (2), p. 9.

Barribal, L. and While, A (1994) Collecting data using a semi-semi-structured interview: a discussion paper. *Journal of Advanced Nursing* 19, pp. 328–335.

Bassett, C. and Bassett, J. (2003). Quantitative and qualitative research. *British Journal of Perioperative Nursing* Mar 13(3), pp. 116–117.

Baudesson de Chanville, A., Brevaut-Malaty, V., Garbi, A., Tosello, B., Baumstarck, K., Gire, C. and Cozannet, R. L. (2017). Analgesic effect of maternal human milk odor on premature neonates: A randomized controlled trial. *Journal of Human Lactation* 33(2), pp. 300-308.

Beckett, K., Henderson, E.M., Parry, S., Stoddart, P. and Fletcher, M. (2016). A mixed method study of pain management practice in a UK children's hospital: identification of barriers and developing strategies to maintain effective in patient paediatric pain management. *Nursing Open* 3(1), pp. 19-29.

Bee, H.L., Barnard, K.E., Eyres, S.J., Gray, C.A., Hammond, M.A., Spietz, A.L., Snyder, C., Clark, B. (1982). Prediction of IQ and language skill from perinatal status, child performance, family characteristics, and mother-infant interaction. *Child Development* Oct 53(5), pp. 1134-1156.

Beharrya, k., Valencia, G., Lazzaro, G., Aranda, J. (2016). Pharmacologic interventions for the prevention and treatment of retinopathy of prematurity. *Seminars in Perinatology* 40(3), pp. 1–14.

Bell, E. (2013). Organisational culture and learning: a case study. *Nurse Education Today* 33(11), pp. 1337-1341.

Binnie, A. and Titchen, A. (1999). *Freedom to practice: The development of patient centered nursi*ng. Oxford, UK: Butterworth Heinemann.

Blackburn, S. (1998). Environmental impact of the NICU on developmental outcomes. *Journal of Pediatric Nursing* Oct 13 (5), pp. 279–289.

Blaxter, L., Hughes, C., Tight, M. (2006). *How to research*. (3rd Ed.) New York: McGraw-Hill Education.

Boschma, G., Davidson, L. and Bonifacio, N. (2009). Bertha Harmer's 1922 textbook–The Principles and Practice of Nursing: clinical nursing from an historical perspective. *Journal of Clinical Nursing* 18(19), pp. 2684-2691.

Bowlby, J. 1952. *Maternal Child Care and Mental Health.* Geneva: World Health Organisation.

Boyatzis, R. (1998). *Transforming qualitative information*. Cleveland: SAGE.

Boyd, R. J. and Stuart, P. (2005). The efficacy of structured assessment and analgesia provision in the paediatric emergency department. *Emergency Medicine Journal* 22 (1), pp. 30-32.

Boykova, M. and Kenner, C. (2015). Routine Scheduled Patient Care Versus Individualized Patient-centered Care in Relationship to Day-night Cycling of Light in the NICU. *Newborn & Infant Nursing Reviews* 15, pp. 83–84.

Boyle, J. (1994). *Styles of Ethnography in critical issues in qualitative research*. Thousand Oaks, CA: SAGE Publications Inc.

Boyle, S. (2004). Nursing unit characteristics and patient outcomes. *Nursing Economics* 22, pp. 111–123.

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, pp. 77–101.

Briggs, E. (2010). Understanding the experience and physiology of pain. *Nursing Standard* 25 (3), pp. 35–39.

Britten, N., Moore, L., Lydahl, D., Naldemirci, O., Elam, M., Wolf, A. (2016). Elaboration of the Gothenburg model of person centred care. *Health Expectations* Jun 20(3), pp. 407–418.

Brown, D., Cameron, S., Martin, J., Watson, C. and Dillon, H. (2010). The north american listening in spatialized noise sentences test (NA LISN-S), Normative data and test-retest reliability studies for adolescents and young adults. *Journal of the American Academy of Audiology* 21, 629–641.

Brown, S. and Timmins, F. (2005). An exploration of nurses' knowledge of, and attitudes towards, pain recognition and management in neonates. *Journal of Neonatal Nursing* 11, pp. 65–71.

Bvumbwe, T., 2016. Enhancing nursing education via academic–clinical partnership: an integrative review. *International Journal of Nursing Sciences* 3(3), pp.314-322.

Carbajal, R., Rousset, A., Danan, C., Coquery, S., Nolent, P., Ducrocq, S., Saizou, C., Lapillonne, A., Granier, M., Durand, P. and Lenclen, R., 2008. Epidemiology and treatment of painful procedures in neonates in intensive care units. *The Journal of the American Medical Association* 300 (1), pp. 60-70.

Carr, G. (2007). Changes in nurse education: being a nurse teacher. *Nurse Education Today* 27(8), pp. 893-899.

Carter, B. and Simons, J. (2014). *Stories of children's pain, linking evidence to practice*. Washington, DC: SAGE.

Cassell, C. and Symon, G. (1994). Qualitative research in work contexts. In: Cassell, C. and Symon G. eds. Qualitative methods in organizational research. Thousand Oaks, CA: SAGE Publications, pp. 1–13.

Cecchini, M., Sassi., F., Lauer, J., Lee, Y., Guajardo-Barron, V., & Chisholm, D. (2010). Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. *The Lancet* 376 (9754), pp. 1775–1784.

Chamberlain, D. (1989). Babies Remember Pain. *Pre- and Peri-natal Psychology* 3(4), pp. 297–310.

Chan, G., Valsangkar, B., Kajeepeta, S., BoundY, E., Wall, S. (2016). What is kangaroo mother care? Systematic review of the literature. *Journal of Global Health* 6 (1), p. 010701.

Churchman, J. and Doherty, C. (2010). Nurses' views on challenging doctors' practice in an acute hospital. *Nursing Standard* 24, pp. 42–47.

Cignacco, E., Hamers, J. P., Stoffel, L., van Lingen, R. A., Gessler, P., McDougall, J. and Nelle, M. (2007). The efficacy of non pharmacological interventions in the management of procedural pain in preterm and term neonates: a systematic literature review. *European Journal of Pain* 11(2), 139-152.

Clark, C.A., Woodward, L.J., Horwood, L.J. and Moor, S. (2008). Development of emotional and behavioral regulation in children born extremely preterm and very preterm: Biological and social influences. *Child Development* 79(5), pp. 1444-1462.

Coats, H., Bourget, E., Starks, H., Lindhorst, T., Saiki-Craighill, S., Curtis, J.R., Hays, R. and Doorenbos, A. (2018). Nurses' reflections on benefits and challenges of implementing family-centered care in pediatric intensive care units. *American Journal of Critical Care* 27(1), pp. 52-58.

Conde-Agudelo, A. and Díaz-Rossello, J. (2016). Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane Database of Systematic Review* 8(CD002771). doi: 10.1002/14651858.CD002771.pub4.

Cong, X., Delaney, C., Vazquez, V. (2013) Neonatal nurses' perceptions of pain assessment and management in NICUs a national Survey. *Advanced Neonatal Care* 13 (5), pp. 353–360. doi: 10.1097/ANC.0b013e31829d62e8.

Cong, X., McGrath, J.M., Delaney, C., Chen, H., Liang, S., Vazquez, V., Keating, L., Chang, K. and Dejong, A., 2014. Neonatal nurses' perceptions of pain management: survey of the United States and China. *Pain Management Nursing* 15(4), pp.834-844.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. 3rd ed. Los Angeles: SAGE.

Crow, S.M., Hartman, S. J., Henson, S.W. 2006. Satisfaction for health care employees: a quest for the Holy Grail? *The Health Care Manager* 25(2), pp. 142-154.

Crows, M. and Hartman, S. (2002). Organizational culture: its impact on employee relations and discipline in healthcare organisations. *Healthcare Manager* 21 (2), pp. 22–28.

Cruz, E. and Higginbottom, G. (2013). The use of focused ethnography in nursing research. *Nurse Researcher* 20 (4), pp. 36–43.

Cullen, D. and Bates, D. (2000). Prevention of adverse drug events: a decade of progress in patient safety. *Journal of Clinical Anesthesia*, Dec 12(8), pp. 600–614.

Dadkhahtehrani, T., Eskandari., N., Khalajinia, Z. and Ahmari-Tehran, H. (2018). Experiences of fathers with inpatient premature neonates: Phenomenological interpretative analysis. *Iranian Journal of Nursing and Midwifery Research* 23(1), p. 71.

Dani C, Poggi C, Bertini G, Pratesi S, Di Tommaso M, Scarselli G, Rubaltelli, F. (2010). Method of delivery and intraventricular haemorrhage in extremely preterm infants. *Journal Maternal Fetal Neonatal Medicine* 23, pp. 1419–1423.

Davidson, P., Halcomb, E., Hickman, L., Phillips, J. & Graham, B. (2006). Beyond the rhetoric: what do we mean by a model of care? *Australian Journal of Advanced Nursing*, 23 (3), pp. 47–55.

De Raeve, L., Danau, W., De Backer, A. and Otten, J. 1993. Prepubertal melanoma in a medium-sized congenital naevus. *European Journal of Pediatrics* 152(9), pp. 734-736.

Department of Health Information and Statistics (2017). *Annual health report 2016*. Directorate General of Planning and Studies. Ministry of Health. Sultanate of Oman.

Department of Health Information and Statistics. (2011). *Annual health report 2010*. Ministry of Health, Sultanate of Oman. Muscat: Department of Information and Statistics. Annual Health Report of Ministry of Health. 49.

Department of Nutrition. (2004). *National Study on Prevalence of Iodine Deficiency Disorders (IDD*). Ministry of Health, Sultanate of Oman. Muscat: Ministry of Health, Sultanate of Oman, Study Report.

Dodds, E. (2003). Neonatal procedural pain: a survey of nursing staff. *Paediatric Nursing* 15(5), pp. 18–21.

Dubois, C., Bentein, K., Mansour, J., Gilbert, F. and Bédard, J. (2014). Why some employees adopt or resist reorganization of work practices in health care: associations between perceived loss of resources, burnout, and attitudes to change. *International Journal of Environmental Research and Public Health* 11(1), pp. 187-201.

Durrmeyer, X., Vutskits, L., Anand, K., Rimensberger, P. (2010). Use of analgesic and sedative drugs in the NICU: integrating clinical trials and laboratory data. *Pediatric Research* 67, pp. 117–127.

Early Childhood and education. (2010). *Philosophy. Module 3*. (on line). Available at http://www.ecceleadership.org.au/node/14. [Accessed on 25 March 2013].

Edvardsson, D., Koch, S., Nay, R. (2009). Psychometric Evaluation of the English Language Person Centred Climate Questionnaire Î Patient Version. *Western Journal of Nursing Research* 31 (4), pp. 235–244.

Ellis J.A., McCleary L., Blouin R., Dube K., Rowley B., Macneil M.,Cooke C. (2007). Implementing best practice pain management in a pediatric hospital. *Journal for Specialists in Pediatric Nursing* 12, pp. 264–277.

El-Nemera, A., Downe, S., Smalle, N. (2006). She would help me from the heart': An ethnography of Egyptian women in labour. *Social Science & Medicine* January 62 (1), pp. 81–92.

Elserafy, F., Alsaedi, S., Louwrens, J., Bin Sadiq, B., Mersal, A. (2009). Oral sucrose and a pacifier for pain relief during simple procedures in preterm infants: A randomized controlled trial. *Annals of Saudi Medicine* 29 (3), pp. 184–188.

Elsous, A., Radwan, M. and Mohsen, S. (2017). Nurses and physicians attitudes toward nurse-physician collaboration: a survey from Gaza Strip, Palestine. *Nursing Research and Practice*, 2017: 7406278 doi: 10.1155/2017/7406278.

Eurocat. (2015). *European surveillance of congenital anomalies. Statistical monitoring report* 2012. Available at www.eurocat-network.eu [accessed on 20/2/18 at 8:00 hrs].

Evans, J. (2001). Physiology of acute pain in preterm infants. *Newborn and Infants Nursing Review* June 1(2), pp. 75–84.

Evans, J., Vogelpohl, D., Bourguignon, C., Morcott, S. (1997). Pain behaviour in LBW infants accompany some "non-painful" caregiving procedures. *Neonatal Network* 16 (3), pp. 33–40.

Faisal, A. (2017). Nurse-Physician Conflict and Power Dynamic. *Journal of Juniper Nurse Health Care* 5(3), p. 555665. doi: 10.19080/002 JOJNHC.2017.05.555665.

Farrelly, P. (2013). Choosing the right method for a qualitative study. *British Journal of School Nursing* Mar 8(2), pp. 93–95.

Fenwick, J., Barclay, L. and Schmied, V. 2008. Craving closeness: a grounded theory analysis of women's experiences of mothering in the Special Care Nursery. *Women and Birth* 21(2), pp. 71-85.

Fetterman, D. M. (2010). *Ethnography step by step*. 3rd ed. Thousand Oaks, CA: sage.

Filippa, M., Poisbeau, P., Mairesse, J., Monaci, M.G., Baud, O., Huppi, P., Grandjean, D. and Kuhn, P. (2019). Pain, parental involvement, and oxytocin in the neonatal intensive care unit. *Frontiers in Psychology*, 10, p. 715.

Fitzgerald, M. and Beggs, S. (2001). The neurobiology of pain: developmental aspects. *Neuroscientist* 7, pp. 246–57.

Fitzgerald, M. and Walker, M. (2009). Infant pain management: a developmental neurobiological approach. *National Clinical Neurology* 5, pp. 35–50.

Fitzgerald, M., Millard C., Macintosh, N. (1988). Hyperalgesia in premature infants. *Lancet* 6, pp. 292.

Flynn, L., Liang, Y., Dickson, G., Xie, M., Suh, D. (2012). Nurses' practice environments, error interception practices, and inpatient medication errors. *Journal of Nursing Scholarship* 44(2), pp. 180–186.

Foote, M. and Bartell, T. (2011). Pathways to equity in mathematics education: How life experiences impact researcher positionality. *Educational Studies in Mathematics* 78(1), pp. 45–68.

France, N., Byers, D., Kearney, B., Myatt, S. (2011). Creating a healing environment: nurse-to nurse caring in the critical care unit, *International Journal for Human Caring* 15 (1), pp. 44–48.

Franck, L., Cox, S., Allen, A., Winter, I. (2004). Parental concern and distress about infant pain. *Archives of Disease in Childhood - Fetal and Neonatal Edition* 89, pp. F71-75.

Franck, L. (1997). The ethical imperative to treat pain in infants: are we doing the best we can? *Critical Care Nurse* 17(5), pp. 80–87.

Franck, L., Greenberg, C., Stevens, B. (2000). Pain assessment in infants and children. *Pediatric Clinic of North America* June 47 (3), pp. 487–512.

Franck, L. S., Oulton, K., Bruce, E. (2012). Parental involvement in neonatal pain management: an empirical and conceptual update. *Journal of Nursing Scholarship* 44 (1), pp. 45–54.

Gale, G., Franck, L.S., Kools, S. and Lynch, M. 2004. Parents' perceptions of their infant's pain experience in the NICU. International Journal of Nursing Studies, 41(1), pp. 51-58.

Gallagher, J. (2016). *UK 'world's worst' at breastfeeding*, at URL http://www.bbc.com/news/health35438049, [accessed on 21/4/18 at 11;00].

Geest, D. and Finkler, K. (2004). Hospital ethnography. *Introduction to Social Science & Medicine* 59, pp. 1995–2001.

Genzuk, M. (2003). *A synthesis of ethnographic research*. Center for Multilingual, Multicultural Research Digital Papers Series. Center for Multilingual, Multicultural Research, University of Southern California. Available at: http://wwwrcf.usc.edu/~genzuk/Ethnographic_Research.html [Accessed 21 June 2007].

Ghosh, B. (2009). *Health workforce development planning in the sultanate of Oman- a profile 19912009*. Directorate of General of Planning. MOH. sultanate of Oman (on line). Available at www.moh.gov.om/en/hr/hrdprofile.pdf.[accessed on 13/072013).

Glass, H., Costarino, A., Stephen A. Stayer, S., Brett, C., Cladis, F and Davis, P. (2015). Outcomes for Extremely Premature Infants. *Anesthesia and Analgesia*, 120 (6), pp. 1337–1351.

Godfrey, H. (2005). Understanding pain, part 1: physioiogy of pain. *British Journal of Nursing* Sep 8-21;14 (16), pp.846-52.

Gohar, A. and Ismail, I. (2002). *Child nutrition in Oman: qualitative study report on perception, attitudes and believes in Oman towards nutrition of children under five years and predisposing causes of protein energy malnutrition*. nutrition, Ministry of Health. Muscat : Ministry of Health, Sultanate of Oman and UNICEF, Study Report.

Golec, L. (2009). The art of inconsistency: evidence-based practice my way. *Journal of Perinatology* 29, pp. 600–602.

Gooding, S., Cooper, L., Blaine, A., Franck, L., Scott, H. (2011). Family support and family-centered care in the neonatal intensive care unit: origins, advances, impact. *Seminars in Perinatology* 35, pp. 20–28.

Goodson, L. and Vassar, M. (2011). An overview of ethnography in healthcare and medical education research. *Journal of Educational Evaluation for Health Professions* 8 (4), p. 4.

Grant, R. and Sugarman, J. (2004). Ethics in Human Subjects Research: Do Incentives Matter? *Journal of Medicine and Philosophy* 29 (6), pp. 717–738.

Green, C., Duan, N., Robert, D., Gibbons, R., Hoagwood, K., Palinkas, L, Wisdom, J. (2015). Approaches to Mixed Methods Dissemination and Implementation Research: Methods, Strengths, Caveats, and Opportunities. *Administration and Policy in Mental Health and Mental Health Services Research* Sep 42(5), pp. 508–523.

Grimm, N. (2014). Healthcare Regulations: Who Does What? - Online Training. Retrieved from http://www.yourtrainingprovider.com/blog_main/bid/203291/Health-Care-Regulation. On 26 February 2019.

Groves, P. (2003) Old Omani Ways of Healing. Oman. *Oman Observer* (on line). Available at www. Newsbriefsoman.info/item/2006/04/old-omani-ways [Accessed on 1/04/2013].

Grunau, R. (2002). Early pain in preterm infants. A model of long- term effects. Clinics in *Perinatolology*, 29(3), 373–394.

Grunau, R. (2013). Neonatal pain in very preterm infants: longterm effects on brain, neurodevelopment and pain reactivity. *Rambam Maimonides Medical Journal* 4(4), pp. e0025.

Grunau, R. E., Holsti, L., Haley, D. W., Oberlander, T., Weinberg, J., Solimano, A., Whitfield, M. F., Fitzgerald, C. and Yu W. (2005). Neonatal procedural pain exposure predicts lower cortisol and behavioral reactivity in preterm infants in the NICU. *Pain* 113 (3), pp. 293-300.

Grunau, R., Oberlander, T. F., Whitfield, M., Fitzgerald, C., Lee, S. (2001). Demographic and therapeutic determinants of pain reactivity in very low birth weight neonates at 32 weeks' post conceptional age. *Pediatrics* 107, pp. 105–112.

Hagens, V., Dobrow, M., Chafe, R. (2009). Interviewee transcript review: Assessing the impact om qualitative research. *BMC Medical Research Methodology* Jul 6 (9), pp. 47. doi: 10.1186/1471-2288-9-47.

Halimaa, S., Julkunen, V., Heinonen, K. (2001). Knowledge, assessment and management of pain related to nursing procedures used with premature babies: questionnaire study for caregivers. *International Journal of Nursing Practice* 7(6), pp. 422–430.

Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. *Journal of Interprofessional Care* 19 (sup1), pp. 188-196.

Hall, R. and Anand, K. (2015). Pain Management in Newborns. *Clinics in Perinatology* Dec; 41(4), pp. 895–924.

Hammersley, M. and Atkinson, P. (2007). *Ethnography: Principle in Practice*. 3rd ed. London: Routledge.

Hatherley, C., Jennings, N., Cross, R. (2016). Time to analgesia and pain score documentation best practice standards for the Emergency Department, a literature review. *Australasian Emergency Nursing Journal*, 19, pp 26—36.

Hill, C., Knox, S., Thompson, B., Williams, E., Hess, S., Ladany, N. (2005). Consensual qualitative research: An update. Journal of Counseling Psychology 52, pp. 196–205.

Ho, D. (2006). The focus group interview: rising the challenge in qualitative research methodology. *Australian Review of Applied Linguistics* 29(1), pp. 1–19.

Hoeve, Y.T., Jansen, G. and Roodbol, P. (2014). The nursing profession: public image, self concept and professional identity: a discussion paper. *Journal of Advanced Nursing* 70 (2), pp. 295-309.

Holditch Davis, D., Schwartz, T., Black, B. and Scher, M. (2007). Correlates of mother–premature infant interactions. *Research in Nursing & Health* 30(3), pp. 333-346.

Holloway, I. and Wheeler, S. (2002). *Qualitative Research in Nursing*. 2nd ed. London: Wiley Blackwell.

Holloway, I. and Wheeler, S. (2010). *Qualitative Research in Nursing and Healthcare*. London: John Wiley & Sons.

Houghton, C., Casey, D., Shaw., Murphy, K. (2013). *Rigour in qualitative case-study research*. http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-16-2011/No2-May-2011/Developing-Person-Centred-Care.html [last accessed on 14/8 2015].

Howard, R., Carter B., Curry, J., Jain A., Liossi, C., Morton N., Rivett, K., Rose M., Tyrrell J., Walker S. (2012). Good practice in postoperative and procedural pain management. *Paediatric Anaesthesia* 22, pp. 1–79.

Hughes, C. (2015). *Qualitative and quantitative approaches to social research* [Online]. Department of sociology. Available at: C.L.Hughes@warwick.ac.uk. Uk/ researchprocess/quantitative_and_qualitative_ap [Accessed 08/1/15].

Hunt, K. (2014). Safeguarding children: the need for vigilance. *Practice Nurse,* Jun 44 (6), pp. 18–22.

Hurst, I. 2001. Mothers' strategies to meet their needs in the newborn intensive care nursery. *The Journal of Perinatal & Neonatal Nursing* 15(2), pp. 65-82.

Inhorn, M. (2003). *Local babies global science gender, religion, and in vitro fertilization in Egyption medical traditions*. New York. Routledge.

Inhorn, M. (2012). *The Arab man: emergent masculinities, technologies and Islam in the Middle East*. Princeton. Princeton University Press.

Jackson, K., Ternestedt, B. M. and Schollin, J. (2003). From alienation to familiarity: experiences of mothers and fathers of preterm infants. *Journal of Advanced Nursing* 43(2), pp. 120-129.

James, E.H., Crane, B., Wooten, L.P. (2013). *Managing the crisis lifecycle in the information age. Handbook of research on crisis leadership in organizations*. United Kingdom: Edward Elgar Publishing Limited.

Johnston, C., Fernandes, M., Campbell-Yeo, M. (2011). Pain in neonates is different. *Pain* 152 (3), pp. S65–73.

Kane-urrabazo, C. (2006). Management's role in shaping organisational culture. *Journal of Nursing Management* 14, pp. 188–194.

Kenny, M. and Donaldson, G. (1991). Contributions of parental attachment and family structure to the social and psychological functioning of first-year college students. *Journal of Counseling Psychology* 38(4), p.479.

King, K. and Horrocks, C. (2010). *Interview in qualitative research*. London: SAGE.

Kleiman, M. (2000). What happens if you don't train them and they stay? *Occupational Health & Safety*, January 69 (1), pp. 18, 70.

Kluska, K., Laschinger, H., Kerr, M. (2004). Staff nurse empowerment and effort-reward imbalance. *Nursing Leadership* 17, pp. 112–128.

Knafl, K., Breitmayer, B., Gallo, A. and Zoeller, L. (1992). Parents' view of health care providers: An exploration of the components of a positive working relationship. *Children's Health Care* 21(2), pp. 90-95.

Koller, D. and Goldman, R. (2012) Distraction Techniques for Children Undergoing Procedures: A Critical Review of Pediatric Research. *Journal of Pediatric Nursing* 27, pp. 652–681. DOI: http://dx.doi.org/10.1016/j.pedn.2011.08.001.

Körner, M., Wirtz, M.A., Bengel, J. and Göritz, A.S. 2015. Relationship of organizational culture, teamwork and job satisfaction in interprofessional teams. *BMC Health Services Research* 15(1), p. 243. Retrieved from https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-015-0888-y on 28 Feb 2019 at 10:00hrs.

Krishnan, L. (2013). Pain Relief in Neonates. *Journal Neonatal Surgery* 2(2), p. 19.

Lago, P., Boccuzzo, G., Garetti, E., Pirelli, A., Pieragostini, L., Merazzi, D., Ancora, G. (2013). Pain management during invasive procedures at Italian NICUs: has anything changed in the last 5 years? *Journal of Maternal Fetal and Neonatal Medicine* (4), pp. 148–150.

Landry, S.H., Smith, K.E., Swank, P. R., Assel, M.A. and Vellet, S. (2001). Does early responsive parenting have a special importance for children's development or is consistency across early childhood necessary? *Developmental Psychology* 37(3), p. 387.

Lecompte, M. and Pressissle, J. (1993). *Ethnography and qualitative in educational research*. 2nd ed. London: Academic Press Ltd.

Legendre, V., Burtner, P., Martinez, K., Crowe, T. (2011). The evolving practice of developmental care in the neonatal unit: a systematic review. *Journal Physical & Occupational Therapy In Pediatrics* 31(3), pp. 315–338.

Leng, S. 2013. The medical model versus the nursing model: A difference in philosophy Retrieved from https://www.kevinmd.com/blog/2013/05/medical-model-nursing-model-difference-philosophy.html.

Leonard, I., Stein, M., David, T., Watts, M., Timothy Howell, M. (1990). The Doctor–Nurse Game Revisited, *The New England Journal of Medicine* 322, pp. 546–549.

Leplege, A., Gzil, F., Cammelli, M., Lefeve, C., Pachoud, B., Ville, I. (2007). Person-centredness: conceptual and historical perspectives. *Disability and Rehabilitation* 29, pp. 1555–1565.

Leppanen, M., Lapinleimu, H., Lind, A., Matomaki, J., Lehtonen, L., Haataja, L. and Rautava, P. 2014. Antenatal and postnatal growth and 5-year cognitive outcome in very preterm infants. Duodecim 130(7), pp.738.

Lewis, S. (2009). *Patient-centered care: an introduction to what it is and how to achieve It: A discussion paper for the Saskatchewan Ministry of Health.* Ontario. Saskatoon SK.

Lincoln, Y. and Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills: SAGE.

Lindsay, G., Cross, N., Ives-Baine, L. (2012). Narratives of neonatal intensive care unit nurses: experience with end-of life care. *Illness, Crisis and Loss* 20 (3), pp. 239–253.

Linhares, M. and Gaspardo, O. (2017). Non-pharmacological management of neonatal pain: Research and clinical practice in the Neonatal Intensive Care Unit. *Estudos de Psicologia Campinas* 34(3), pp. 345–354.

Lossaco, V., Cuttini, M., Greisen, G., Haumont, D., Pallas-Alonso, C., Pierrat, V., Sizun, J. (2011). Heel blood sampling in European neonatal intensive care units: compliance with pain management guidelines. *Archives of Disease in Childhood. Fetal and Neonatal* 96, pp. F65–F68.

Lupton, D. and Fenwick, J. (2001). 'They've forgotten that I'm the mum': constructing and practising motherhood in special care nurseries. *Social Science & Medicine* 53(8), pp. 1011-1021.

Lynch, M. (2001). Pain as the fifth vital sign. *Journal of intravenous nursing* Mar-Apr 24(2), pp.85–94.

Maben, J., Al-Thowini, K., West, E., and Rafferty, A. M. (2010). Un even development: comparing the indigenous healthcare workforce in Saudi Arabia, Bahrain and Oman. *International Journal of Nursing Studies* 47(3), pp. 392–396.

Madsen, W., McAllister, M., Godden, J. Greenhill, J. and Reed, R. (2013). Nursing's Contemporary Nurse, p. 10. Available at: http://www.tandfonline.com/doi/abs/10.5172/conu.32.1-2.9?journalCode=rcnj20 [Accessed 01/08/2016]

Mama, R (2010). Needs, Rights, and the Human Family: The Practicality of the Convention on the Rights of the Child. *Child Welfare Journal* 89 (5), pp. 177–189.

Manojlovich, M. (2007). Power and empowerment in nursing: Looking backward to inform the future. *Online Journal of Issues in Nursing* 12(1), p. 2. DOI: 10.3912/OJIN.Vol12No01M an01.

Marie, A. (2007). The reality of neonatal pain and the resulting effects. *Journal of Neonatal Nursing*, December 13 (6), pp. 236–238.

Marjan, H. (2004). *Educational Challenges in Oman and Omanization*. Oman Observer. Oman.

Mason, J. (2002). *Qualitative research*. 2nd ed. London: SAGE Publications Ltd.

Matlakala, C., Bezuidenhout, M., Botha, A. (2014). Challenges encountered by critical care unit managers in the large intensive care units. *Original Research*, pp. 1-7. Available at URL http://dx.doi. org/10.4102/curationis. v37i1.1146 [accessed on 05/4/18 at 13:00hrs].

Mattingly, C. (2010). The paradox of hope; journey through a clinic borderland. London, England. University of California Press Ltd.

May, T. (1993). The nurse under physician authority. Journal of Medical Ethics 19(4), pp. 223-229.

Mays, N. and Pope, C. (1995). Rigour and qualitative research [PMC free article]. *British Medical Journal* 311, pp. 109–112.

McCleary, L., Ellis, J., Rowley, B. (2004). Evaluation of the pain resource nurse role: a resource for improving pediatric pain management. *Pain Management Nursing* 5, pp. 29–36.

McCormack, B. and McCance, T. (2010). *Person-centred nursing: theory and practice*. Chichester, West Sussex: Wiley-Blackwell.

McCormack, B., Dewing, J., Breslin, L., Coyne-Nevin, A., Kennedy, K., Manning, M., Peelo-Kilroe L, Tobin,, C. (2009). Practice Development: Realising active learning for sustainable change. *Contemporary Nurse* Apr-Jun 32(1-2), pp. 92–104.

McCormack, B., Dewing, J., McCance, T. (2011). Developing Person-Centred Care: Addressing Contextual Challenges Through Practice Development. *The Online Journal of Issues in Nursing*, 16(2), Manuscript 3. DOI:10.3912/OJIN.Vol16No02Man03. Available at URL

http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-16-2011/No2-May-2011/Developing-Person-Centred-Care.html [last accessed 23/4/18 at 01:30].

McDonald, J., Jayasuriya, R., Harris, M.F. (2012). The influence of power dynamics and trust on multidisciplinary collaboration: a qualitative case study of type 2 diabetes mellitus. BMC Health Services Research 12(1), p. 63. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3376040/. doi: 10.1186/1472-6963-12-63.

McFadyen, J. and Rankin, J. (2016). The Role of Gatekeepers in Research: Learning from Reflexivity and Reflection. GSTF *Journal of Nursing and Healthcare* 4(1), pp. 82-88.

McGraw, L., Zvonkovic, A.,Walker, M. (2000). Studying postmodern families: A feminist analysis of ethical tensions in work and family research. *Journal of Marriage and the Family* 62(1), pp. 68–77.

McHugh, M.D., Kutney-Lee, A., Cimiotti, J.P., Sloane, D.M. and Aiken, L.H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs* 30(2), pp. 202-210.

Mckay, K. and Narasimhan, S. (2012). Bridging the gap between doctors and nurses. *Journal of Nursing Education and Practice* 2(4), p. 52.

McMillan, S., Kendall, E., Sav, A., King, M., Whitty, J., Kelly, F., Wheeler, A. (2013). Patientcentered approaches to healthcare: a systematic review of randomized controlled trials. *Medical Care Research and Review* pp. 1–46.

Mead, N. and Bower, P. (2000). Patient-centredness: a conceptual framework and review of the empirical literature. *Social Science and Medicine* 51, pp. 1087–1110.

Mead, N. and Bower, P. (2002). Patient-centred consultations and outcomes in primary care: a review of the literature. *Patient Education and Counseling* 48(1), pp. 51–61.

Meek, J. (2012). Options for procedural pain in newborn infants. *Archives of Disease in Childhood* 97, pp. 23–28.

Meier, D., Back, A., Morrison, R. (2001). The inner life of physicians and care of the seriously ill. *Journal of the American Medical Association* 286, pp. 3007–3014.

Gardner, S. Carter, B., Enzman-Hines, M., Hernandez, J. (2015). *Merenstein & gardner's handbook of neonatal intensive care*. St Louis, United States: Publisher Elsevier - Health Sciences Division Imprint Mosby.

Merriam, B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.

Michie, S. and West, A. (2004) Managing people and performance: an evidence based framework applied to health service organizations. *International Journal of Management* 5/6(2), pp. 91–111.

Miles, M. and Huberman, A. (1994). *Qualitative data analysis: An expanded source book*. 2nd ed. London: SAGE.

Millan, M. (1999). The induction of pain: An integrative review. *Progress in Neurobiology* 57, pp. 1–164.

Ministry of Health (2007). *Oman's nursing profession comes of age* (on line). Available at http://www.moh.gov.om/nursing/History%20of%20Nursing%20in%20Oman.htm [accessed on 16/05/2013].

Ministry of Health (2009). *Number of students Enrolled and Graduated from Basic Diploma from MOH institutes during 2009* (on line). Available at http://www.moh.gov.om/education/Table_3.pdf [accessed on 16/10/2016].

Ministry of Health (2012). *Communicable Diseases Control in the Sultanate of Oman*. Available at http://www.moh.gov.om/en/nv_menu.php?o=reports/comm.htm [accessed on 6/06/2013].

Ministry of Health (2013). *The MOH miracle: The Royal Hospital, Sultanate of Oman* (on line). Available at http://www.Royalhospital.me.om/ministry_of_health_miracle_3.htm.[accessed on 03 May 2013].

Ministry of Health (2014). *Health vision 2050. Sultanate of Oman*. MOH. Oman.

Ministry of Health (2017). *Oman national nutrition survey*. Sultanate of Oman. Unicef.

Ministry of Information (2013). *Government overview*. Ministry of Information, Sultanate of Oman.

Ministry of Information. (2002). *The health sector Oman* (on line). Available at www.Omannet.om/eglish/social/dev4.asp [accessed on 18/03/2013].

Mishra, S. 2015. Respect for nursing professional: Silence must be heard. 413-415. Indian Heart Journal 67(5), pp. 413–415. doi: 10.1016/j.ihj.2015.07.003. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4593846/ [Accessed on 11 April 2019].

Montgomery, A., Todorova, I., Baban, A. and Panagopoulou, E. 2013. Improving quality and safety in the hospital: The link between organizational culture, burnout, and quality of care. *British Journal of Health Psychology* 18(3), pp. 656-662. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23607495 [Accessed on 28 February 2019].

Moola, S., Ehlers, V., Hattingh, S. (2008). Critical care nurses' perceptions of stress and stress-related situations in the workplace. *Curationis* 31(2), pp. 74–83.

Mooncey, S., Giannakoulopoulos, X., Glover, V., Acolet, D. and Modi, N. 1997. The effect of mother-infant skin-to-skin contact on plasma cortisol and β-endorphin concentrations in preterm newborns. *Infant Behavior and Development* 20 (4), pp. 553-557.

Morris, D. (1991). *The culture of pain*. los Angeles: University California Press.

Morse, J. and Field, P. (1996). *Nursing research: The application of qualitative approaches*. Cheltenham: Stanley Thornes Publishers.

Mrayyan, M. (2004). Nurse's autonomy: Influence of nurse manager's action. *Journal of Advanced Nursing* 45, 326–336.

Msiska, G., Smith, P., Fawcett, T. (2014). Exposing emotional labour experienced by nursing students during their clinical learning experience: a Malawian perspective. *International Journal of Africa Nursing Sciences* 1, pp. 43–50.

Nair, G., Gupta, G., Jatana, k. (2003). NICU Environment: Can we be Ignorant? *Medical Journal of Armed Forces India* Jul 21, pp. 377–1237.

Nakkeeran, N. and Zodpey, S. (2012). Qualitative research in applied situations: Strategies to ensure rigor and validity. *Indian Journal of Public Health*, 56, pp. 4–11.

Namnabati, M., Abazari, P., Talakoub, S. (2012). Identification of perceived barriers of pain management in Iranian Children: a qualitative study. *International Journal of Nursing Practice* 18, pp. 221–225.

Naqshbandi, M.M. and Jasimuddin, S.M. 2018. Knowledge-oriented leadership and open innovation: Role of knowledge management capability in France-based multinationals. *International Business Review* 27(3), pp. 701-713.

National congenital anomaly and rare disease registration service (2015). *Congenital anomaly statistics 2015*. Public Health England. London.

Nightingale, F. (1969). *Notes on nursing*. New York, NY: Dover Publications.

Nijhawan, L., Janodia, M., Muddukrishna, B., Bhat, K., Bairy, B., Udupa, B. and Musmada. (2013). Informed consent: Issues and challenges. *Journal of Advance Pharmaceutical Technology and Research* 4(3), pp. 134–140.

Nishitani, S., Miyamura, T., Tagawa, M., Sumi, M., Takase, R., Doi, H., Moriuchi, H. and Shinohara, K. 2009. The calming effect of a maternal breast milk odor on the human newborn infant. *Neuroscience Research* 63(1), pp. 66-71.

Northouse, P. G. 2001. Leadership: *Theory and Practice* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Northway, R. (1997). Disability and oppression: some implications for nurses and nursing. *Journal of Advanced Nursing* 26, pp. 736–743.

Nurani, L. (2008). Critical review of ethnographic approach. *Jurnal Sosioteknologi Edisi* 14 Tahun 7, Agustus, pp. 441–447.

Nursing Advisory Council on Nursing Education and Practice (NACNEP). (2010). *Addressing New Challenges Facing Nursing Education: Solutions for a Transforming Healthcare Environment*. At URL https://www.hrsa.gov/advisorycommittees/bhpradvisory/nacnep/Reports/eighthreport.pdf [accessed on 23/4/18 at 01:30].

Nursing and Midwifery Board in Australia (2016). *Code of professional conduct for nurses in Australia. Nursing and Midwifery Board in Australia*. Australia.

Nyqvist, K. and Karlsson, K. (1997). A philosophy of care for a neonatal intensive care unit. Operationalization of a nursing model. *Scandinavian Journal of Caring Sciences* 11(2), pp. 91–96.

Oberlander, T. F., Grunau, R. E., Whitfield, M. F., Fitzgerald, C., Pitfield, S., Saul, J., P. (2000). Biobehavioral pain responses in former extremely low birth weight infants at four months' corrected age. Pediatrics105 (1) Available at: www.pediatrics.org/cgi/content/full/105/.[Accessed 29 May 2013].

O'haire, S.E. and Blackford, J.C. (2005). Nurses' moral agency in negotiating parental participation in care. *International Journal of Nursing Practice* 11(6), pp. 250-256.

Olt, H. 2013. Healthcare Providers Perceptions Of Diversity And Cultural Competence. Retrieved from https://openarchive.ki.se/xmlui/bitstream/handle/10616/41780/1.1%20Kappa.pdf?seq(accessed 25 February 2019).

Oman Information Center. (2018). *Omanisation programme and policy*. Available at URL http://www.omaninfo.com/manpower-and-employment/omanisation-programme-and-policy.asp, [accessed on 21/4/18 at 3:30pm].

Oman Nursing and Midwifery Council. (2008). *Code of professional conduct for nurses and midwives in Oman. Sultanate of Oman*: MoH, OMNC.

O'Reilly, K. (2012). *Ethnographic methods*. 2nd ed. New York: Routledge.

Paradis, E. and Sutkin, G. (2017). Beyond a good story: from Hawthorne Effect to reactivity in health professions education research. *Medical Education* 51(1), pp. 31–39. doi: 10.1111/medu.13122.

Parahoo, K. (1997). *Nursing research: principles, process and issues.* London: Macmillan.

Patrician, P. A., Shang, J. and Lake, E.T. (2010). Organizational determinants of work outcomes and quality care ratings among Army Medical Department registered nurses. *Research in Nursing & Health* 33(2), pp. 99-110.

Paynton, T. 2009. The informal power of nurses for promoting patient care. *Online Journal of Issues in Nursing* 14(1), pp. 1.

Peters, J., Koot, H., de Boer, J., Passchier, J., Bueno-de-Mesquita, J., de Jong,F., Duivenvoorden, H., Peters, K. (1999). Infant handling in the NICU: does developmental care make a difference? An evaluative review of the literature. *Journal of Perinatal & Neonatal Nursing* 3(3), pp. 83–109.

Petterson, M. (2000). Reduced noise levels in ICU promote rest and healing. *Critical Care Nurse* 20(5), pp. 104.

Petty, J. (2016). Learning from narrative to understand the person-centred experience in neonatal nursing: a literature review. *Journal of Neonatal Nursing* 22, pp. 297–308.

Pillai, R. and Craig K. (2007). Judgments of infant pain: The impact of caregiver identity and infant age. *Journal of Pediatric Psychology* 32 pp. 501–511.

Plekhanow, S. (2004). *A Reformer on the Throne: Sultan Qaboos bin Said Al Said*. Trident Press Ltd, British Library cataloging.

Plost, G. and Nelson, D.P. (2007). Empowering critical care nurses to improve compliance with protocols in the intensive care unit. *American Journal of Critical Care* 16 (2), pp. 153-156.

Polin, R. A., Fox, W. W., Abman, S. H. (2003). *Fetal and neonatal physiology*. Philadelphia, PA: Saunders.

Polit, D. and Beck, C. (2007). *Nursing research principles and methods.* 7th ed. Philadelphia: Lippincott.

Polit, D., Beck, C., Hungler, B. (2001). *Essential nursing research methods, appraisal and utilization*. Philadelphia: Lippincott.

Pölkki, T., Korhonen, A., Laukkala, H., Saarela, T., Vehviläinen-Julkunen, K., Pietilä, A. (2010) Nurses' attitudes and perceptions of pain assessment in neonatal intensive care. Scandinavian Journal of Caring Sciences, pp. 49–55.

Porter, F., Grunau, R., Anand, K. (1999). Long-term effects of neonatal pain. *Behavioral, Developmental Pediatrics* 20, pp. 253–261.

Porter, F., Wolf, C., Gold, J., Lotsoff, D., Miller, P. (1997). Pain and pain management in newborn infants: a survey of physicians and nurses. *Pediatrics* 100, pp. 626–632.

Puchalski, M. and Hummel, P. (2002). The reality of neonatal pain. *Advance Neonatal Care* Oct 2 (5), pp. 233–244; quiz 245.

Purcell-Jones, G., Dormon, F., Sumner, E. (1988). Pediatric anesthetists' perceptions of neonatal and infant pain. *Pain* 33, pp. 181–187.

Rahim, M. A. (2009). *1 3 Bases of leader power and effectiveness. Power and interdependence in organizations,* New York, NY: Cambridge University Press.

Rahman, A., Abdellatif, M., Sharef, S., Fazalullah, M., Al-Senaidi, K., Khan, A., Ahmad, M., Kripail, M., Abuanza, M., Bataclan. F. (2015). Changing Survival Rate of Infants Born Before 26 Gestational WeeksSingle-centre study. *Sultan Qaboos University Medical Journal* Aug 15(3), pp. 351–356.

Rajab, A. and Jaffer, A. (2000). *Genetic disorders in the Arab-genetic diseases in the Sultanate of Oman: Public Health Perspective world–Oman* (on line). Genetic Blood Disorders Unit, Directorate General of *Health* Affairs (DGHA). Muscat, Sultanate of Oman: Ministry of Health. Available at http://www.cags.org.ae/cb36c3.pdf [accessed on 18/12/17].

Rajab, A. and Patton, M. (2000). A study of consanguinity in the Sultanate of Oman. *Annals of Human Biology* 27(3), 321–600.

Raman, T. (1997). NICU environment: A need for change. *Indian Pediatrics* 34, pp. 414–419. Reproductive health study (online). Directorate of Research and Studies. Directorate of General Planning. Oman: MOH. Available at www.moh.gov [accessed on 16.04.13].

Research Governance Framework for Cardiff University (2011). *Guidance for managing research data & records (Version 2). A primary principle of good research practice is the meticulous recording and retention of research data*. Cardiff University. Research ethics committee.

Richardson, D. K., Gray, J. E., Gortmaker, S. L., Goldmann, D. A., Pursley, D. M. and McCormick, M.C. 1998. Declining severity adjusted mortality: evidence of improving neonatal intensive care. *Pediatrics* 102 (4), pp. 893-899.

Rick, R. (2013). Change is not the problem–resistance to change is the problem, At URL https://www.torbenrick.eu/blog/wp-content/uploads/2013/10/change-resistancee1424767157422.png [accessed on 10/05/18].

Riddell, R.R.P., Racine, N.M., Gennis, H.G., Turcotte, K., Uman, L.S., Horton, R.E., Kohut, S.A., Stuart, J.H., Stevens, B. and Lisi, D.M. 2015. Non pharmacological management of infant and young child procedural pain. *Cochrane Database of Systematic Reviews* (12).

Roberts, P. and Priest, H. (2010). *Healthcare research: A textbook for students and practitioners*. Wiley-Blackwell.

Rolfe, G. (2006). *Validity, trustworthiness and rigour: Quality and the idea of qualitative research. Methodological issues in nursing research.* pp. 304–310.

Rooda, L.A., Clements, R. and Jordan, M.L. 1999. Nurses' attitudes toward death and caring for dying patients. Oncology Nursing Forum 26 (10), pp. 1683-1687.

Roper, J. and Shapira, J. (2000). *Ethnography in nursing research*. Thousand Oaks, CA: SAGE

Ross, H., Tod, A., Clarke, A. (2015). Understanding and achieving person-centred care: the nurse perspective. *Journal of Clinical Nursing* 24 (9-10). pp. 1223–1233.

Rothschild, J.M., Landrigan, C.P., Cronin, J.W., Kaushal, R., Lockley, S.W., Burdick, E., Stone, P. H., Lilly, C.M., Katz, J.T., Czeisler, C.A. and Bates, D.W. 2005. The Critical Care Safety Study: The incidence and nature of adverse events and serious medical errors in intensive care. *Critical Care Medicine* 33(8), pp. 1694-1700.

Ruda, M., Ling, Q., Hohmann, A., Peng, Y., Tachibana,T. (2000). Altered nociceptive neuronal circuits after neonatal peripheral. *Science*, pp. 289: 628–63.

Rupp, T. and Delaney, K. (2004). Inadequate Analgesia in Emergency Medicine. *Annals of Emergency Medicine*, 43. pp. 494–503.

Rutter, N. and Doyal, L. (1998). Neonatal Care and management of pain: historical and ethical issues. Seminar Neonatal 3, pp. 297–302.

Sackett, D., Straus, S., Richardson, W., Rosenberg, W., Haynes, R. (2000*). Evidence based medicine: how to practice and teach*. EBM.2nd ed. Edinburgh, UK: Churchill Livingstone.

Saeed, S., Muffatto, M. and Yousafzai, S. 2014. A multi-level study of entrepreneurship education among Pakistani university students. *Entrepreneurship Research Journal* 4(3), pp. 297-321.

Salantera, S. (1999). Finnish nurses' attitudes to pain in children. *Journal of Advanced Nursing*, p. 29.

Sandelowski, M. (1993). Rigor or rigor mortis: the problem of rigor in qualitative research. *ANS Advances in Nursing Science* 16 (2), pp. 1–8.

Savage, J. (2000). Ethnography and healthcare. *British Medical Journal* 321(7273), pp. 1400–1402.

Savitri, A. (2016). *Maternal nutrition and newborn health outcomes*. The Netherlands, Utrecht University.

Schmalenberg, C. and Kramer, M. (2009). Nurse-physician relationships in hospitals: 20 000 nurses tell their story. *Critical Care Nurse* 29(1), pp. 74-83. Retrieved from http://ccn.aacnjournals.org/ by AACN [Accessed on March 27, 2019].

Schore, A.N. (2005). Attachment, affect regulation, and the developing right brain: Linking developmental neuroscience to pediatrics. *Pediatrics in Review* 26(6), pp. 204-217.

Shah, P. S., Herbozo, C., Aliwalas, L. L., Shah, V. S. (2012). Breastfeeding or breast milk for procedural pain in neonates. *Cochrane Database of Systematic Reviews* (12). Available at https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004950.pub3/full.

Sharin, B. (2012). Exploring the professional identity of health visitors. *Nursing Times* 108(25), p. 14.

Shields, L. (2010). Questioning family centred care. *Journal of Clinical Nursing* 19 (17 18), pp. 2629-2638.

Silverman, D. (2013). *Doing qualitative research*. 4th ed. Los Angeles: SAGE.

Simons, J. and MacDonald, L. (2004). Pain assessment tools: children's nurses' views. *Journal of Child Healthcare* 8, pp. 264–78.

Sjögren, K., Lindkvist, M., Sandman, P., Zingmark, K., Edvardsson, D. (2017). Organisational and environmental characteristics of residential aged care units providing highly person-centred care: a cross-sectional study, *BioMed Central Nursing* 16 (44), pp. 1–9.

Skår, R. (2010). The meaning of autonomy in nursing practice. *Journal of Clinical Nursing* 19(15 16), pp. 2226-2234. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2702.2009.02804.x

Skela Savič, B. and Pagon, M. (2008). Relationship between nurses and physicians in terms of organizational culture: who is responsible for subordination of nurses? *Croatian Medical Journal* 49(3), pp. 334-343.

Slater, P., McCormack, B., Bunting, B. (2009). The Development and Pilot Testing of an Instrument to Measure Nurses' Working Environment: The Nursing Context Index. *Worldviews on Evidence Based Nursing* 6 (3), pp. 173–182.

Slater, R., Cantarella, A., Franck, L., Meek, J., Fitzgerald, M. (2008). How well do clinical pain assessment tools reflect pain in infants? Clinical Pain Assessment Tools Reflect Pain in Infants? *PLoS Medicine* 5(6), pp. 0928–0933.

Slevin, M., Farrington, N., Duffy, G., Daly, L., Murphy, J. (2000). Altering the NICU and measuring infants' responses. *Acta Paediatrica* 89 (5), pp. 577–581.

Sommer, C. (2004). Serotonin in pani and analgesia. *Molecular Neurobiology* 30(2), pp. 117–125.

Spence, K. (2010). Pain and its management in NICU. In: Boxwell, G. (Ed.), *Neonatal Intensive Care Nursing,* second ed. Routledge, London.

Sredl, D. (2003). Myths and facts about pain in neonates. *Neonatal Network* Nov–Dec 22 (6), pp. 69–71.

Stanley, T. and Lincoln, H (2016). Improving organisational culture–the practice gains. *Practice* 28 (3), pp. 199–212, DOI: 10.1080/09503153.2015.1087491.

Stein, L. I. (1967). The doctor-nurse game. *Archives of General Psychiatry* 16, pp. 699-700.

Stevens B., Yamada, J., Ohlsson, A., Haliburton, S., Shorkey, A. (2016). Sucrose for analgesia in newborn infants undergoing painful procedures. *Cochrane Database of Systematic Reviews* 7. Available at URL http://www.cochrane.org/CD001069/NEONATAL_sucrose-analgesia-painrelief-newborn-infants-undergoing-painful-procedures [accessed on 22 January 2018].

Stevens, B., Riahi, S., Cardoso, R., Ballantyne, M., Yamada, J., Beyene, J., Breau, L., Camfield, C., Finley, A., Franck, L., Gibbins, S., Howlett, A., McGrath, A., McKeever, P., O'Brien, K and Ohlsson, A . (2011). The Influence of Context on Pain Practices in the NICU: Perceptions of Health Care Professionals. *Qualitative Health Research* 21(6), PP. 757–770.

Stevens, B., Johnston, C., Horton, L (1994). Factors that influence the behavioral pain responses of premature infant. *Pain* 59, pp. 101–109.

Stevens, B., McGrath, P., Gibbins, S., Beyene, J., Breau, L., Camfield, C., Finley, A., Franck, L., Howlett, A., McKeever, P., O'Brien, K., Ohlsson, A., Yamada, J. (2003). Procedural pain in newborns at risk for neurologic impairment. *Pain* Sep: 105 (1–2), pp. 27–35.

Stoll, B., Hansen, N., Bell, E., Shankaran, S, Laptook, A., Walsh, M,, Hale, E., Newman, N., Schibler, K, Carlo, W., Kennedy, K., Poindexter, B., Finerm, N., Ehrenkranz, R., Duara, S., Sánchez, P., O'Shea, T., Goldberg, R., Van Meurs, K., Faix, R., Phelps, D., Frantz, I., Watterberg, K., Saha, S., Das, A., Higgins, R. (2010). Neonatal outcomes of extremely preterm infants from the NICHD Neonatal Research Network. *Pediatrics* Sep126 (3), 443–456. doi: 10.1542/peds.20092959.

Strauss, A. L. (1987). *Qualitative analysis for social sciences*. Cambridge: Cambridge University Press.

Suhonen, R., Välimäki, M. and Leino-Kilpi, H., (2002). "Individualised care" from patients', nurses' and relatives' perspective—a review of the literature. *International Journal of Nursing Studies* 39(6), pp.645–654.

Suleiman, A., Al-Riyami, A., Farid, S. (1995). *Oman Family Health Survey*. Muscat Ministry of Health, Sultanate of Oman, Survey Report.

Symington, A and Pinelli, J. (2006). Developmental care for promoting development and preventing morbidity in preterm infants. *Cochrane Database of Systematic Reviews* 2. Available at URL http://www.cochrane.org/CD001814/NEONATAL_developmental-care-for-promotingdevelopment-and-preventing-morbidity-in-preterm-infants [accessed on 1.1.2018 at 12:30].

Terzioglu, F., Temel, S., Uslu Saha, F. (2016). Factors affecting performance and productivity of nurses: professional attitude, organisational justice, organisational culture and mobbing [on line]. *Journal of Nursing Management* 24(6), pp. 735–744.

Torsney, C and Fitzgerald, M. (2003). Spinal dorsal horn cell receptive field size is increased in adult rats following neonatal hindpaw skin injury. *The Journal of Physiology* 1 (550) (Pt 1), pp. 255–261.

Tsai, Y. (2011). Relationship between organisational culture, leadership behaviour and job satisfaction. *BMC Health Services Research*, 11(9), pp. 1–9.

Tsukamotoa, E Abeb, T and Onob, M. (2015). Inverse roles of emotional labour on health and job satisfaction among long-term care workers in Japan. *Psychology, Health & Medicine* 20 (7), pp. 814–823, available at http://dx.doi.org/10 .1080/13548506.2014.963128.

Twycross, A. and Collis, S. (2013). Nurses' views about the barriers and facilitators to effective management of pediatric pain. *Pain Management Nursing* 14 (4), pp. 164–172.

Ulrich, B., Lavandero, R., Woods, D., and Early, S. (2014). Critical nurse work environments 2013: a status report. *Critical Care Nurse* 24 (4) August, pp. 64–78.

UN General Assembly (1989). *Convention on the Rights of the Child*, 20 November 1989. United Nations, Treaty Series, vol. 1577, pp. 3, available at: http://www.refworld.org/docid/3ae6b38f0.html [Accessed 5 May 2018].

United Nations General Assembly (1948). Declaration of Montréal: declaration That Access to Pain Management is a Fundamental Human Right. *Journal of Pain and Palliative Care Pharmacotherapy* 25 (1), pp. 29–31.

Valizadeh, L., Zamanzadeh, V., Farnam, A., Bafandehzendeh, M. (2012). Sources of Stress for Nurses in Neonatal Intensive Care Units of East Azerbaijan Province, Iran. *Journal of Caring Sciences*, 1(4), pp. 245–254.

Vesoulis, I. and Mathur, A. (2017). Cerebral Autoregulation, Brain Injury, and the Transitioning Premature Infant. *Frontiers in Pediatrics* 5, p. 64

Wachman, E. and Lahav, A. (2011). The effect of noise on preterm infants in the NICU [on line]. *Research Gate* July 14, pp. No page number

Wallace, H. and Jones, T. (2017). Managing procedural pain on the neonatal unit: do inconsistencies still exist in practice? *Journal of Neonatal Nursing*, 23, pp. 119–126.

Wang, H. and Tsai, Y. (2010). Nurses' knowledge and barriers regarding pain management in intensive care units. *Journal of Clinical Nursing* 19 (21-22), pp. 3106–3108.

Wang, Y.Y., Wan, Q.Q., Lin, F., Zhou, W.J. and Shang, S.M. (2018). Interventions to improve communication between nurses and physicians in the intensive care unit: An integrative literature review. *International Journal of Nursing Sciences* 5(1), pp. 81-88.

Warre, R., O'Brien, K. and Lee, S.K. (2014). Parents as the primary caregivers for their infant in the NICU: benefits and challenges. *Neonatal Reviews* 15(11), pp. e472-e477.

Watterberg, K.L., Cummings, J.J., Benitz, W.E., Eichenwald, E.C., Poindexter, B.B., Stewart, D.L., Aucott, S.W., Goldsmith, J.P., Puopolo, K.M., Wang, K.S. and Tobias, J.D. (2016). Prevention and management of procedural pain in the neonate: an update. *Pediatrics* 137(2), p.e20154271.

Weston, M.J. (2010). Strategies for enhancing autonomy and control over nursing practice. *OJIN: The Online Journal of Issues in Nursing* 15 (1). Manuscript, 2. Retrieved from http://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol152010/No1Jan2010/Enhancing-Autonomy-and-Control-and-Practice.aspx#Weston [Accessed on 28 March 2019].

Wieck, K.L., Dols, J. and Northam, S. (2009). What nurses want: The nurse incentives project. *Nursing Economics* 27(3), p. 169.

Wolf, Z. R. (2007). Ethnography: the method. In: Munhall, P.L. ed. *Nursing Research–A Qualitative Perspective*. 4th ed. Sudbury, MA: Jones & Bartlett.

Wooten, L. and Crane, P. (2003). Nurses as Implementers of Organizational Culture. *Nursing Economics* Nov–Dec 21(6), pp. 275–279, 259.

World Health Organisation (2000). *The world health report 2000: health systems: improving performance. World health 2. Health systems plans 3. Delivery of healthcare Health services administration 5. Financing, Health 6. Health services accessibility 7. Social justice 8. Healthcare evaluation mechanisms*. Available at http://www.who.int/whr/2000/en/whr00_en.pdf?ua=1.[Accessed on 18/12/17].

World Health Organisation (2010). *Country Co-operation Strategy for WHO and Oman 2010-2015* (on line). Geneva. WHO. Available at ttp://www.who.int/countryfocus/cooperation_strategy/ccs_omn_en.pdf.[accessed on 16 April 2013].

World Health Organisation (2017). *World health statistics 2017: monitoring health for the SDGs*. Available at http://www.who.int/gho/publications/world_health_statistics/2017/en/ [Accessed on 20/4/18 at 18;00hrs].

World Health Organisation and UNIFEF. (2009). *Nutrition- Baby-Friendly Hospital Initiative*. Available at URL http://www.who.int/nutrition/publications/infantfeeding/bfhi_trainingcourse/en/ [Accessed on 5/4/18 at 12:37].

World Health Organisation.(2006). *Health systems profile- Oman* (EMRO). Available at http://gis.emro.who.int/HealthSystemObservatory/PDF/Oman/Full%20Profile.pdf [accessed on 05 April 2013].

World Health Organization (2005). World Health Rep, pp. 1–243. Available at http://www.who.int/whr/2005/en/[Accessed on 18/4/18].

World Health Organization. (2006). *Neonatal and perinatal mortality: country, regional and global estimates. Geneva*. World Health Organization. Available at URL http://www.who.int/iris/handle/10665/43444 [accessed on 13.1.18].

World Health Organization. (2014*). Women's Health, every newborn an action plan to end preventable deaths*. Unicef. At URL http://www.who.int/maternal_child_adolescent/topics/newborn/enap_consultation/en/[accessed on 10/5/18 at 2:14pm].

Yi, M. and Jezewski, M. (2000). Korean nurses' adjustment to hospitals in the United States of America. *Journal of Advanced Nursing* 32 (3), 721–729.

Young, J., Barton, M., Richards-Dawson, M., Trotman, H. (2008). Knowledge, perception and practices of healthcare professionals at tertiary level hospitals in Kingston, Jamaica, regarding neonatal pain management. *The West Indian Medical Journal* 57 (1), pp. 28–32.

Zanelli, S. (2018). *Hypoxic-Ischemic Encephalopathy.* Available at URL https://emedicine.medscape.com/article/973501-overview [Accessed on 5.2.2018 at 11:10].

Zarrabi-Zadeh, H. (2007–2013). *Tanzil-Quran Navigator* (on line). Available at http://tanzil.netl#19.1[Accessed on 15.3.2013 at 12:00 am].

Appendix A

Criteria of admission in NICU

Maternal factors

- Diabetes
- Hypertension (high blood pressure)
- Bleeding with placenta praevia or placental abruption
- Cardiac cases (Tetralogy of Fallots, Arterial and Ventricular Defect, Patent Ductus Arteriosus)
- Thyrotoxicosis
- Multiple pregnancy
- Too little (Oligohydramnios) or too much amniotic fluid (Polyhydramnios)
- Premature rupture of membranes for more than 24 hours with no established labour

Delivery factors

- Perinatal asphyxia due to lack of oxygen reaching the main organs
- Breech delivery presentation (buttocks delivered first)
- Meconium Aspiration (the baby's first stool passed during pregnancy into the amniotic fluid and then inhaled by the baby at birth)
  Cord tightly around the baby's neck
- Forceps delivery with Cephalohaematoma (bleeding underneath the skin, in the periosteum of the infant's skull bone) or with Caput succedaneum (swelling or oedema of baby's scalp

Baby factors

- Baby born before 37 weeks gestational age (prematurity) or more than 40 weeks (post date)
- Baby born with weight less than 2.500 grams-low birth weight.
- Perinatal asphyxia
- Small for gestational age (SGA), a baby who is smaller than the usual amount for the number of weeks of pregnancy with birth weights below the 10th percentile for babies of the same gestational age.
- Neonatal Jaundice
- Infant of Diabetic Mother (IDM)
- Infant needed resuscitation in the delivery room
- Birth defects with syndromes
- Respiratory distress including rapid breathing, grunting, or apnoea (stopping breathing).
- Neonatal Seizures
- Hypoglycaemia (low blood sugar)
- Infection such as group B streptococcus, chlamydia
- Need for special treatment or procedures such as a blood transfusion

Appendix B

Table B1: Table showing how data collection methods relate to research questions

Research Question	Observation	Interview
How do NICU nurses' approach, handle, and interact with babies while providing care?	❖	
How do NICU nurses assess a baby's pain?		❖
What strategies and approaches do NICU nurses use to reduce and control the baby's pain and what are the influences that affect the use of these strategies? For example, do they use 'quiet hour', positioning devices, minimise light and noise, swaddle, or communicate with the babies when handling them?	❖	❖
How do nurses perceive babies and their experiences/ability to experience pain?		❖

Appendix C: Oman approval letter

Sultanate of Oman
Ministry of Health
Directorate General of Planning and Studies

سلطنة عمان
وزارة الصحة
المديرية العامة للتخطيط والدراسات

Ref. : MH/DGP/R&S/PROPOSAL_ APPROVED/29/2014 ..... الرقم :

Date. : 30.11.2014 ..... التاريخ :

..... الموافق :

Nasiha Marhoon Al-Braiki
Principal Investigator

Study Title: "Neonatal Pain and Its Management: Exploring the Experiences and Understanding of Neonatal Intensive Care Nurses In Oman"

After compliments

We are pleased to inform you that your research proposal "Neonatal Pain and Its Management: Exploring the Experiences and Understanding of Neonatal Intensive Care Nurses In Oman" has been approved by Research and Ethical Review and Approve Committee, Ministry of Health.

Regards,

Dr. Ahmed Mohamed Al Qasmi
Director General of Planning and Studies
Chairman, Research and Ethical Review and Approve Committee
Ministry of Health, Sultanate of Oman.

Cc
Day file

P.O. Box : 393, Postal Code : 100, Muscat, Tel.: 24601161, Fax: 24696633 ص.ب : ٣٩٣ ، الرمز البريدي : ١٠٠ ، مسقط ، هاتف : ٢٤٦٠١١٦١ ، فاكس : ٢٤٦٩٦٥٣٣

Appendix D: Permission to conduct the study

Date:

To: Director of Hope Hospital

CC: Principal Nursing Officer

RE: Permission to conduct research study

Dear Sir:

I am writing to request permission for conducting a research study at your institution. I am currently enrolled in the Doctorate in Nursing Philosophy (PhD) course at Cardiff University in Wales (UK), and I am in the process of writing my PhD thesis. The study is titled as 'Neonatal Pain and its Management: Exploring the Experiences and Understanding of NICU Nurses in Oman'. The primary aim of the study is to explore the experiences and understanding of neonatal pain and its management among the Neonatal Intensive Care Unit (NICU) nurses in the A Hospital (main tertiary hospital in Oman). The secondary aim is to create a caring culture for the management of neonatal pain and the benefit of the NICU babies to support the development of the EBP guidelines for neonatal pain management for use in NICU. The design of the study is that of a qualitative research, using fieldwork, including observation of the care in NICU followed by interviews. My supervisors who would guide me throughout the next three years are Prof. Billie Hunter and Dr. Katie Featherstone.

I hope that the hospital's administration would allow me to undertake an observation of the NICU for a period of 6 weeks and then to recruit a maximum of 20 nurses from the NICU of Hope hospital with whom I would conduct an interview. I would like to inform you that before conducting the study, posters would be put in the unit's bulletin board to ensure that all the staff are aware of the study and an information sheet would be given to all the parents in the unit. Staff and parents would then have the right to opt out if they do not wish to be a part of the observation. I would like to reassure you that, when the observation is undertaken, the nurses' work and the care that they give would not be disrupted. If dangerous practices are observed, then, as an experienced nurse in the same field, I must abide with the Nursing code of conduct rules and regulation. I would stop the data collection and approach the higher authority (the Head Nurse of the unit and the Nursing Officer of the Maternity unit and NICU) to sort out and control the matter.

Then, the interviews would be undertaken in a seminar room or any other quiet setting in your organisation. I hope to get your permission and co-operation to reserve a room for undertaking the interviews on Feb/March 2015. The interview process should take no longer than (30–60 minutes). The participants would be expected to undertake the interviews on their day off to avoid work interruption

and lack of commitment. No costs would have to be incurred either by your organisation or by the individual participants.

Your approval to conduct this study would be greatly appreciated. I would follow-up with a telephone call next week and would be happy to answer any questions or concerns that you might have at that time. You may contact me at my email address umsam5757@gmail.com or contact me in the following telephone number: 97120068. If you agree, kindly submit a signed letter of permission on your institution's letterhead, acknowledging your consent and permission for me to conduct this study at your institution.

Sincerely,

Name of researcher: Nasiha

Marhoon Al-Braiki

Signature:

Enclosures

Appendix E: Neonatal pain and its management: exploring the experiences and understanding of NICU nurses in Oman

Respondents' information sheet for nurses

We would like to invite you to take part in our study that has been designed to explore your experiences and understanding of neonatal pain and its management in the Neonatal Intensive Care Unit. I am a nurse tutor working in Oman Specialised nursing Institute (OSNI) currently enrolled in the Doctorate of Philosophy in Nursing (PhD) course at Cardiff University in Wales (UK). Before you decide whether to take part in our study, we would like you to spend five minutes reading this to understand why the research is being done and how it would involve you. Please contact Nasiha Al-Braiki 0(umsam5757@gmail.com) or me on 97120880 if anything is unclear.

What is the purpose of the study?

The primary purpose of the study is to explore the experiences and understanding of neonatal pain and its management among Neonatal Intensive Care Unit (NICU) nurses and parents in the XXX hospital. It would involve a general observation of how the nurses work in NICU, followed by interviews with the individual nurses.

Why have I been invited?

You have been invited because you are the right participants of the study, as you are the most experienced staff in the unit, which can help the researcher get the answers for the said study.

Do I have to take part?

While your contribution would be valuable, it is up to you to decide to join the study. If you do not wish to take part in the general observation, then you can inform the researcher to exclude you. If you agree to take part in the interview, we would then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason.

What will happen to me if I take part?

If you agree to be in this study, you would be contacted by Nasiha Al-Braiki to participate in the interview. Then, we would arrange a mutually convenient interview in July/August 2014.

What will I have to do?

We would like you to undertake a general observation of nursing work in NICU, which would take five weeks in your clinical setting. During the observation, daily practices would be observed without interrupting your work. If you do not wish to be observed, then please let the researcher know and you would not be included in the observation.

The interview would be held for around 30 to 60 minutes. The interview would be recorded and transcribed for the purposes of analysis. The result of the analysis might be used for publication in the future.

What are the possible disadvantages and risks of taking part?

The possibility of risk for all the participants is thought to be minimal. It is not anticipated that harm would arise. The observation phase of the study would not interrupt your work in any way.

What are the possible benefits of taking part?

Although there are no personal benefits, but there is a general benefit of increasing your knowledge and possibly improving the quality of NICU care. There are no known risks to participation in this study.

What if there is a problem?

If you have a concern about any aspect of this study, you should contact Dr Ahmed Al-Qasmi, the Chairperson of the Ethics Committee in Oman.

What will happen if I don't want to carry on with the study?

You may stop your participation in the observation and in an interview at any time or decline to participate in future meetings. If you wish us to destroy any previously collected interview material, please email us to this effect and we would do so.

Will my taking part in this study be kept confidential?

The identity of your organisation would be anonymised in our thesis, in any presentation and publication. In addition, your identity would be protected. However, if dangerous practice is observed, then, as an experienced nurse in the same field, I must abide with the Omani Nursing code of conduct rules and regulation and the Unit's policies on different types of unsafe practice. I would also be advised by the UK NMC code of conduct. I would stop the data collection. So, during the conduction of research, if immediate harm to the babies is suspected or observed, I would intervene immediately to save the babies' lives. However, if there is no immediate danger, I would report the incident in writing to the head nurse of the unit or whoever has the overall responsibility to deal with the incident. We would follow ethical and legal practice and all information about you would be handled in confidence. Audio files would be retained on an external drive that would be kept in a locked cupboard in a locked room and retained for 15 years. Anonymous transcribed data would be securely stored in a file by using a

coded identification number. This would be held on a secure drive that would be accessible only to the named researcher. If you wish to get a copy of the transcription, please let us know.

What will happen to the results of the research study?

The findings would be made available for future development and may be published in relevant journals.

Who is organising and funding the research?

This study is funded by the Ministry of Higher Education in Oman.

Who has reviewed the study?

The study has been reviewed by the School of Healthcare Sciences Research Review and Ethics Committee in Cardiff University (Wales) and the Ministry of Health Research and Ethical Review & Approve Committee in Oman.

Appendix F: Neonatal pain and its management—exploring the experiences and understanding of NICU nurses in Oman.

Information sheet for all staff

We would like to inform you that a research study would take place to explore the nurses' experiences and understanding of neonatal pain and its management in the Neonatal Intensive Care Unit. I am a nurse tutor, working in Oman Specialised Nursing Institute (OSNI), currently enrolled in the Doctorate of Philosophy in Nursing (PhD) course at the Cardiff University in Wales (UK). Before you decide whether you want yourself and your child to be a part of the general observation, we would like you to spend five minutes reading this to understand why the research is being conducted and how it would involve you. Please contact Nasiha Al-Braiki (umsam5757@gmail.com) if anything is unclear.

What is the purpose of the study?

The primary purpose of the study is to explore the experiences and understanding of neonatal pain and its management among the Neonatal Intensive Care Unit (NICU) nurses in the XXX Hospital. It would involve a general observation of how nurses work in NICU, followed by interviews with individual nurses.

Why have I been invited?

If you agree to be involved in the observation, your anonymity would be protected, and your daily practices would not be interrupted. The focus of the study is on the nurses; however, as I would be observing the day-to-day work of the NICU nurses and general practices of the unit, observation of how the nurses interact with babies and parents would also be involved.

Do I have to take part?

It is up to you to decide to join the study. If you do not wish to take part in the general observation, then you can inform the researcher to exclude you.

What will happen to me if I take part?

If you agree to be involved in the observation, your anonymity would be protected, and your daily care would not be interrupted.

What will I have to do?

We would like you to undertake a general observation of nursing work in NICU, which would take 4–6 weeks in your clinical setting. During the observation, daily practices would be observed without interrupting your work. If you do not wish to be observed, then please let the researcher know and you would not be included in the observation.

What are the possible disadvantages and risks of taking part?

The possibility of risk for all the participants is thought to be minimal. It is not anticipated that harm would arise. The observation phase of the study would not interrupt your work in anyway.

What are the possible benefits of taking part?

Although there are no personal benefits, but there is a general benefit of increasing your knowledge and possibly improving the quality of NICU care. There are no known risks to participation in this study.

What if there is a problem?

If you have a concern about any aspect of this study, you should contact Dr. Ahmed Al-Qasmi, the Chairperson of the Ethics Committee in Oman.

What will happen if I don't want to carry on with the study?

You might stop your participation in the observation at any time or decline to participate in future observations. If you wish us to destroy any previously collected material, please email us to this effect and we would do so.

Will my taking part in this study be kept confidential?

The identity of your organisation would be anonymised in my thesis, in any presentation and publication. In addition, your identity would be protected. However, if dangerous practices are observed, then, as an experienced nurse in the same field, I must abide with the Omani Nursing code of conduct rules and regulation and the Unit's policies on different types of unsafe practice. I would also be advised by the UK NMC code of conduct. I would stop the data collection. Therefore, during the conduction of research, if immediate harm to the babies is suspected or observed. I would intervene immediately to save the babies' lives. However, if there is no immediate danger, I would report the incident in writing to the head nurse of the unit or whoever has the overall responsibility to deal with the incident. We would follow ethical and legal practices and all information about you would be handled in confidence. Audio files would be retained on an external drive that would be kept in a locked cupboard in a locked room and retained for 15 years. Anonymous transcribed data would be securely stored in a file by using a coded identification number. This would be held on a secure drive that would be accessible only to the named researcher. If you wish to attain a copy of the transcription, please let us know.

What will happen to the results of the research study?

The findings would be made available for the future development and may be published in relevant journals.

Who is organising and funding the research?

This study is funded by the Ministry of Higher Education in Oman.

Who has reviewed the study?

The study has been reviewed by the School of Healthcare Sciences Research Review and Ethics Committee in Cardiff (Wales), and the Ministry of Health Research and Ethical Approve Committee in Oman.

Appendix G: Neonatal pain and its management—exploring the experiences and understanding of NICU nurses in Oman.

Respondents' information sheet for parents

We would like to inform you that a research study would be conducted to explore the nurses' experiences and understanding of neonatal pain and its management in the Neonatal Intensive Care Unit. I am a nurse tutor, working in Oman Specialised Nursing Institute (OSNI), currently enrolled in the Doctorate of Philosophy in Nursing (PhD) course at Cardiff University in Wales (UK). Before you decide whether you want to be part of the general observation, we would like you to spend five minutes reading this to understand why this research is being conducted and how it would involve you. Please contact Nasiha Al-Braiki (umsam5757@gmail.com) if there anything is unclear.

What is the purpose of the study?

The primary purpose of the study is to explore the experiences and understanding of neonatal pain and its management among the Neonatal Intensive Care Unit (NICU) nurses in the XXX hospital.

Why have I been invited?

The focus of the study is on the nurses; however, as I would be observing the day-to-day work of the NICU nurses, observation of how the nurses interact with the babies and parents would be involved. You have been invited because your baby is being cared for in the NICU and the study focusses on how nurses interact and care for the babies in NICU

Do I have to take part?

It is up to you to decide whether you want your child to be part of the observation. If you do not wish your baby to be a part of the observation, you are free to withdraw at any time, but, please inform the researcher to exclude your baby. This would not disadvantage your baby's care in any way.

What will happen to me if I take part?

If you agree to involve your baby in the observation, your baby's anonymity would be protected and your baby's care would not be interrupted.

What will I have to do?

We would like to undertake a general observation of nursing work in NICU, which would take 4–6 weeks in the NICU's clinical setting. During the observation, daily nurses' practice would be observed without interrupting your baby's care. The result of the observation would be used for the purposes of analysis and might be used for publication in the future.

What are the possible disadvantages and risks of taking part?

The possibility of risk for all the participants is thought to be minimal. It is not anticipated that harm would arise. The observation phase of the study would not interrupt care in any way.

What are the possible benefits of taking part?

Although there are no personal benefits, but there is a general benefit of increasing your knowledge and possibly improving the quality of NICU care. There are no known risks to participation in this study.

What if there is a problem?

if you have a concern about any aspect of this study, you should speak to Dr. Ahmed Al-Qasmi, the Chairperson of the Ethics Committee in Oman (MOH). Tel Number.

What will happen if I don't want to carry on with the study?

You may stop your participation in the observation at any time or decline to participate in future observations. If you wish us to destroy any previously collected material, please email us to this effect and we would do so.

Will my taking part in this study be kept confidential?

The identity of your organisation would be anonymised in my thesis, in any presentation and publication. In addition, your identity would be protected. However, if dangerous practices are observed, then, as an experienced nurse in the same field, I must abide with the Omani Nursing code of conduct rules and regulation and the Unit's policies on different types of unsafe practices. I would also be advised by the UK NMC code of conduct. I would stop the data collection. Therefore, during the conduction of research, if immediate harm to the babies is suspected or observed. I would intervene immediately to save the babies' lives. However, if there is no immediate danger, I would report the incident in writing to the head nurse of the unit or whoever has the overall responsibility to deal with the incident. We would follow ethical and legal practices and all information about you would be handled in confidence. Audio files would be retained on an external drive that would be kept in a locked cupboard in a locked room and retained for 15 years. Anonymous transcribed data would be securely stored in a file by using a coded identification number. This would be held on a secure drive that would be accessible only to the named researcher. If you wish to attain a copy of the transcription, please let us know.

What will happen to the results of the research study?

The findings would be made available for the future development and might be published in relevant journals, including parents' magazines. A copy of the findings would be sent to you on request.

Who is organising and funding the research?

This study is funded by the Ministry of Higher Education in Oman.

Who has reviewed the study?

The study has been reviewed by the School of Healthcare Sciences Research Review and Ethics Review Committee in Cardiff (Wales) and by the Ministry of Health Research Ethical Committee in Oman.

Appendix H: Poster

Neonatal Pain and its Management: Exploring the Experiences and Understanding of NICU Nurse in Oman.

We would like to inform you that a research study will take place, to explore nurses' experiences and understanding of neonatal pain and its management in Neonatal Intensive Care Unit. This study is funded by Ministry of Higher education in Oman. It has been reviewed by the School of Health Sciences Research Screening and Ethical Review Committee in Cardiff (Wales), and the Ministry of Health Research Ethical Committee in Oman.

Aim:

The primary purpose of the study is to explore the experiences and understanding of neonatal pain and its management among Neonatal Intensive Care Unit (NICU) Nurses in the Royal Hospital (Main Tertiary hospital in Oman). It will involve a general observation of how nurses work in NICU, followed by interviews with individual nurses.

What the study will entail:

We would like you to undertake a general observation of nursing work in NICU which will take 4-6 weeks in your clinical setting. During the observation daily practice will be observed without interrupting your work. If you do not wish to be observed then please let the researcher know and you will not be included in the observation.

What are the possible benefits of taking part?

There are no personal benefits but there is a general benefit to increasing knowledge and possibly improving the quality of NICU care. There are no known risks to participation in this study.

What will happen if I don't want to carry on with the study?

You may stop your participation in the observation at any time or decline to participate in future observations. If you wish us to destroy any previous material collected, please email us on umsam5757@gmail.com or Tel. number 97120880 to this effect and we will do so.

Will my taking part in this study be kept confidential?

Your identity and your organisational identity will be anonymised in my thesis, in any presentation and publication. However, if dangerous practice is observed, then, as an experienced nurse in the same field, I must abide with the Nursing code of conduct rules and regulation. The data collection would be stopped and approach the higher authority (the Head Nurse of the unit and the Nursing Officer of Maternity and NICU) to sort out and control the matter. We will follow ethical and legal practice and all information about you will be handled in confidence. Anonymous observation field notes will be securely stored in a file using a coded identification number. This will be held on a secure drive accessible only to the named researcher.

Name Researcher: Nasiha AL-Braiki

Appendix I: Arabic parents' information sheet

آلام أطفال الخدج وحديثي الولادة وكيفية إداراتها: استطلاع تجارب وخبرات

عمرضات وحدة العنايه المركزه لأطفال الخدج وحديثي الولادة في مدينة

ورقة بيانات المستجيب)للآباء

نود أن نعلمكم بأنهسيتم إجراء دراسة بحثيه استطلاع تجارب المرضات و فهمهم لآلام حديثي الولادة كيفية التعامل معها في وحدة العنايه المركزه لحديثي الولادة. أنا ممرضة وأعمل في معهد عمان للتمريض التخصصي (OSNI) وادرس في جامعة كارديف بويلز وحالياً أجري دراسة الدكتوراه في فلسفة التمريضفي المملكة المتحده، وأعمل تحت إشراف على كتابة رسالة الدكتوراة الخاصة بي. قبل أن تقرر إن كنت تريد أن تكون جزءًا من الملاحظات العامة نطلب منك أن تقضي خمسة دقائق في قراءة هذه الورقة لتتعرف على السبب من إجراء هذا البحث وما الذي سيشير إليه ذلك . ويرجى الاتصال بـ (نصيحه البريكي) في حالة رأيت الاستفسار عن أي شيء غير واضح. umsam5757@gmail.com

ما الهدف من اجراء هذه الدراسه؟

دهو الغرض الأساسي من هذا الدراسه هو استطلاع خبرات و فهم آلام الأطفال الخدج وحديثي الولادة كيفية التعامل معهامن خلال الممرضات في وحدة العنايه المركزة للأطفال الخدج وحديثي الولادة في المستشفى السلطاني (المستشفى الرئيسي في عمان)

.

لماذا دعيت للاشتراك في هذه الدراسه؟

لتركز هذه الدراسة بشكل رئيسي على الممرضات ، إلا أنه سوف ما أنني سألاحظ العمل اليومي للممرضات في وحدة العنايه المركزه لأطفال الخدج وحديثي الولادة وستتضمن الدراسه أيضًا الملاحظات حول كيفية تفاعل الممرضات مع الأطفال الخدج وحديثي الولادة.وقد تمت دعوتك للاشتراك لأن طفلك يتلقى الرعاية في وحدة العنايه المركزه للأطفال الخدج وحديثي الولادة والدراسه تركز على كيفية تفاعل الممرضات ورعايتهم الأطفال في وحدة العنايه المركزه لأطفال الخدج وحديثي الولادة.

هل يجب علي الاشتراك في الدراسه؟

لا الأمر يرجع لك في اتخاذ القرار حول ما إذا كنت تريد لطفلك أن يكون جزءًا من عملية الملاحظات، فإن انتهت تريد لطفلك ان يكون جزءًا من عملية الملاحظات فلك مطلق الحرية في الانسحاب في أي وقت ولكن كما يرجى إبلاغ الباحثة بذلك حتى يتم استبعاد طفلكم، ولن يؤثر هذا على الرعايه التي يتلقاها طفلك بأي حال من الأحوال.

ماذا سيحدث لي إن اشتركت؟

إن وافقت على اشتراك طفلك في الفحص لن يتم الكشف عن هوية طفلك ولن تتوقف الرعايه التي يتلقاها الطفل.

ما الذي سيجب علي فعله؟

نرغب في اجراء ملاحظات عامة حول أعمال التمريض في وحدة العنايه المركزه للأطفال الخدج وحديثي الولاده، ستستغرق الملاحظات من 4 الى 6 ساعات بعد الولاده. حيث ستتم ملاحظة الممارسات اليوميه للممرضات بدون مقاطعة الرعاية التي يتلقاها الطفل. وسوف تستخدم الملاحظات لأغراض التحليل وقد تنشر في المستقبل.

ما هي المساوىء والمخاطر المحتملة للاشتراك في الدراسه؟

يعتقد أن احتمالية التعرض للمخاطر ضئيلة لجميع المشاركين، ولا يتوقع أن يحدث أي ضرر. لن تؤثر فترة الملاحظه على الرعاية المقدمة بأي حال من الأحوال.

ما المنافع المتوقعة من الاشتراك في الدراسه؟

ليس هناك أي منافع شخصيه ولكن هناك منفعة عامه لزيادة المعلومات واحتمالية تطوير جودة الرعاية في وحدة العنايه المركزة للأطفال الخدج وحديثي الولاده كما لا توجد اي مخاطر معروفة عند اشتراك في الدراسه.

ماذا لو حدثت أي مشكلة؟

إذا كانت لديك أي مخاوف حول أي شيء يخص هذه الدراسة، يرجى التواصل مع د. أحمد القاسمي رئيس لجنة الأخلاق في عمان.

ما الذي سيحدث إن أرت عدم الاستمرار في الدراسه؟

يحق لك التوقف عن المشاركه في أي وقت أو الامتناع عن الاشتراك في الملاحظات التي ستتم مستقبلاً. في حالة رغبت في أن نتصل من أي مواد تم جمعها، يرجى مراسلتنا عبر البريد الالكتروني وسنتخذ اللازم.

هل سيظل اشتراكي في هذه الدراسه سرياً؟

نا يتم الافصاح عن هويةللمشتركين في الدراسة التي ستجرى فيه الرسالة الدكتوراة وفي أي عروض تقديميه أو أثناء النشر. كما سيتم الحفاظ على هوية طفلك في سرية تامه. ولكن إذا تمت ملاحظة أي ممارسات خطره ففي هذه الحاله وبعد فتي ممرضة خبيرة في هذا المجال يجب علي الالتزام بميثاق التمريض لقواعد السلوك، وسأوقف عملية جمع البيانات وأتواصل مع السلطات العليا (رئيسة ممرضات وحدة العنايه المركزه ومسؤولة التمريض في وحدة العناية المركزه الأطفال الخدج وحديثي الولادة ومشرفة الأمومه) للتعامل مع الحاله. سنلتزم بالممارسات القانونية والأخلاقية وسيتم التعامل مع جميع بياناتك بسرية تامه. سيتم حفظ الملاحظات التي تتضمن الكشف عن هوية طفلك بأمان في ملف باستخدام رقم تعريف سري وفي مكان آمن لا يسمح بدخوله إلا للباحثة المختصه.

ماذا سيحدث لنتائج الدراسة البحثيه؟

ستتاح النتائج لاستخدامها في عمليات التطوير مستقبلاً، وقد تنشر في الجرائد المختصة بما في ذلكستجلة الآباء، كما سترسل لك نسخة من النتائج عند الطلب.

ما الجهة التي تمول الدراسة؟

وزارة التعليم العالي في عمان.

من تولى مراجعة الدراسة؟

تمت مراجعة الدراسة بواسطة كليةطبي لا بحاث العلمية طبية ولجنة مراجعة الأخلاقيات في كارديف ويلز ولجنة أخلاقيات البحث بوزارة الصحه بعمان.

Appendix J: Checklist for observation

Content	Remarks
Space: The physical setting: • Layout • Who is in the group/ scene/activity who is taking part? • Objects: Artefacts and the physical things that are there. • How many people are there, their identities and their characteristics? • What resources are observed in the scene? **Is the environment** • Welcoming • Noisy • Stressful • Crowded? **What is taking place?** • Daily routines • Common procedures • Common pharmacological interventions • Nonpharmacological strategies **Unit Policy:** • Are there any policies, particularly for pain and pain management? • Are they followed? • Are they updated/not updated? Why? • Does the unit have a philosophy of care? Why? • Does the unit have a Model of Care? Why? • How is change sustained? **Interaction:** **Doctors' round:** • Who has control over the unit/practise (doctors/nurses)? • Who is making decision for whom? • What is being said, and by whom? • What is being discussed frequently/infrequently (pain management)? • What appears to be significant?	

• Are nurses empowered in terms of decision making in the doctors' round? • Are nurses advocating for infants and parents? **Nurses practice:** **Nurses' round:** • Is it one-to-one? • Where/when does it take place? • How do the different participants behave towards each other? • Has pain been mentioned at all? **Hands-on care:** Nurses' interaction with babies: 1. Approaches used 2. Are they mechanistic/task-oriented/soft in their approaches (e.g. talking with the baby, do they cuddle the baby, use of soothing voice when interacting, involving parents). 3. Common nonpharmacological strategies used to control pain (e.g. use of cushion and kangaroo care, parents' participation, use of positioning devices, minimising noise and light, use of quiet hour). • What rules govern the social organisation of pain and behaviour in the event? • Why is this event occurring and occurring in the way that it is?	

Some of the ideas have been adapted from Lecompte M. and Pressissle, J. (1993). *Ethnography and qualitative in educational research*. 2nd edition. London: Academic Press Ltd.

Appendix K: Field notes and note-taking

The researcher's field notes guide has been derived from the Research Consortium on Educational Outcomes and Poverty (2013) – RECOUP.

Steps to be followed for taking field notes are as follows:

- Any interesting/significant informal conversations. Where, with whom, about what?
- Any significant observations (about nonverbal aspects of research context). Where, about whom, about what?
- Anything surprising or interesting that came up during the day. Was there anything that went against my expectations?
- Things that people said or did that reflected their taken-for-granted understandings.
- New issues that have been coming up repeatedly that have not been covered in the interview schedules.
- Issues that should be developed and explored in subsequent interviews or further observations.
- Issues that should be taken into account during data analysis.

For day-to-day recording in the field sites are as follows:

- Use of a diary for daily recording.
- To write in detail on the same day (to avoid confusions and memory lapses).

For out-of-the field sites are as follows:

- Schedule time to expand the notes, preferably within 24 hours from the time field notes are made. If notes cannot be expanded on the same day as data collection, try to do so first thing in the next morning to avoid forgetting what an abbreviation stands for or avoiding the trouble of remembering what you meant. In addition, the sooner the notes are reviewed, the greater would be the chance of remembering other things that had not been written down. Good note-taking often triggers the memory, but with the passage of time, this opportunity is lost.

- Expand brief into sentences so that anyone can read and understand the notes. A separate page in the field notebook. Depending on circumstances, the notes can be typed into a computer file at the same time.

- A good technique for expanding notes is to write a narrative describing what happened and what has been learned about the study population and setting. This narrative might be the actual document that would be produced as your expanded notes by creating separate, clearly labelled sections to report the objective observations versus the interpretations and personal comments.

- Identifying the questions for follow-up. Write down questions about the participants' responses that need further consideration or follow-up, issues to be pursued, new information, etc. This continual adjustment of the research questions and techniques is part of the iterative nature of qualitative research.

- Reviewing the expanded notes and adding any final comments. If the expanded notes are not typed directly into a computer file, and to add any additional comments on the same page or on a separate page. If additional pages are used, ensure clearly cross-referencing the new notes with the original pages in case another staff member types the notes.

- Reflect on the content of the notes (as part of the preliminary analysis). This might include the research progress and achievements, common or different themes that are emerging and the collation and comparison of findings. Then, to feed these reflections into the next stage or round of data collection to build on, improve and contextualise the research.

Note-taking during interviews and fieldwork involve the following:

- A tape recorder and note taking would be used to avoid any unexpected events.
- Use of notes would help me record the nonverbal aspects of an interview that a tape-recorder might not pick up. For instance, a participant's body language.
- Extra batteries would be kept ready if the batteries run down to avoid any problems.
- Transcribing is a very long and tedious process. Notes would be used to help and remind the researcher what is in the interview and where to find the really important material.

How will note-taking be used on interviews, observations or casual conversations:

- 'Head notes' would be used in short key phrases to remind the researcher what was said, in what order and are to be taken down (preferably) immediately.
- For 'head notes', the researcher should use the language of the interviewee, if possible.
- 'Field notes' are an attempt to reproduce as clearly as possible what is said.

- Writing field notes would take place within 24 hours, and preferably within 6 hours, as after that, the quality deteriorates very fast. For recorded interviews, listen to the recording and check that it is clear all the way through. If so, field notes for the interview may not need to be so detailed (RECOUP, 2013). Adopted from RECOUP and modified based on the need of the research – http://manual.recoup.eduC.ac.uk

Appendix L: Respondents' identification number

CONSENT FORM

Title of Project:

Neonatal Pain and its Management: Exploring the Experiences and Understanding of NICU Nurses in Oman

Name of Researcher: Nasiha Al-Braiki

I confirm that I have read and understand the information sheet dated 20th July 2013 ☐

I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time ☐ without giving any reason

I agree to take part in the above study ☐

I agree to be part in the observation ☐

I agree to the interview being recorded ☐

I agree to the future use of anonymised interview material ☐

By Nasiha Al-Braiki in the context of a PhD study

Name of respondent…….

Date …….

Signature …….

Name of person taking consent……

Date ……...

Signature ……...

When completed, 1 copy for participant and 1 for researcher's file

Appendix M: Interview schedules for nurses

General introductory questions were as follows:

a. How long have you been qualified?

b. How long have you worked in the NICU?

c. Have you had any training in NICU nursing?

d. Have you chosen to work here? Why?

e. Do you think that the NICU environment has an impact on your practice and daily interaction with babies?

Specific questions about pain were as follows:

a. Have you had any training in neonatal pain in your general nursing training or when you joined the NICU?

b. Based on your experience, do you believe that babies feel pain?

c. How do you know this – please give some examples

Points to discuss

a. What indicators of pain do the babies show?

b. Does your unit have evidence-based guidelines and pain assessment tools?

c. Based on your exposure, do you think that the availability of a pain assessment tool would help you to recognise pain? Why?

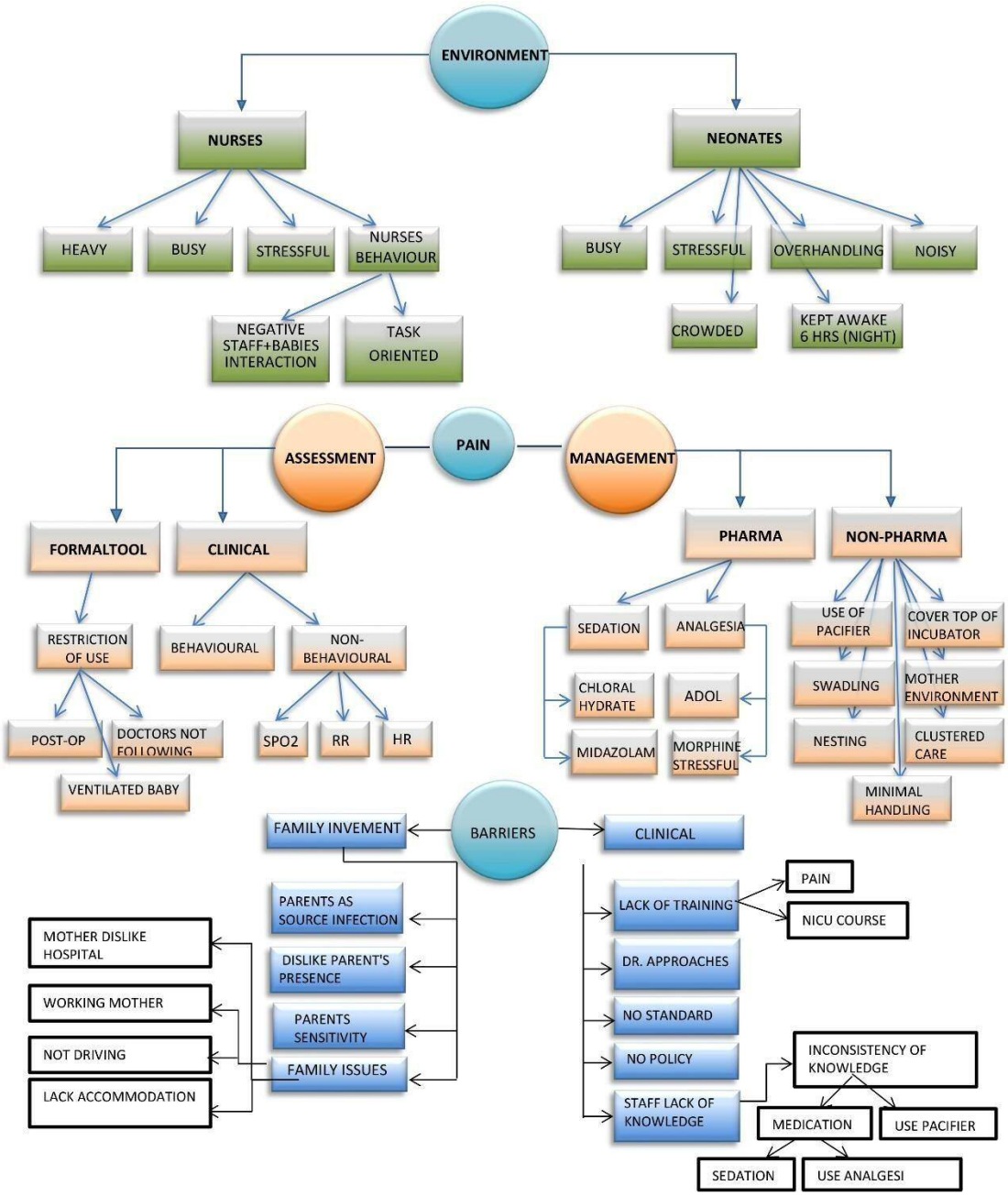
d. What are the strategies that are commonly used to reduce pain in the unit (pharmacological/nonpharmacological)?

e. When would these be used?

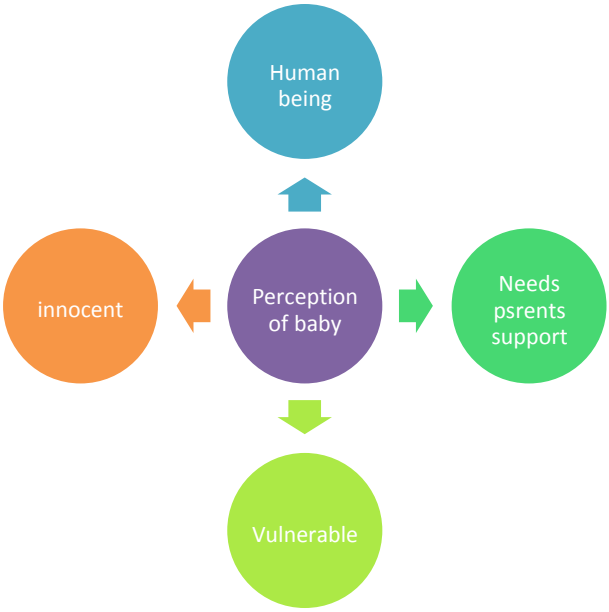
f. What influences are you implementing these strategies?

g. Are there any strategies you feel that you would like to use but are not allowed to use? Why?

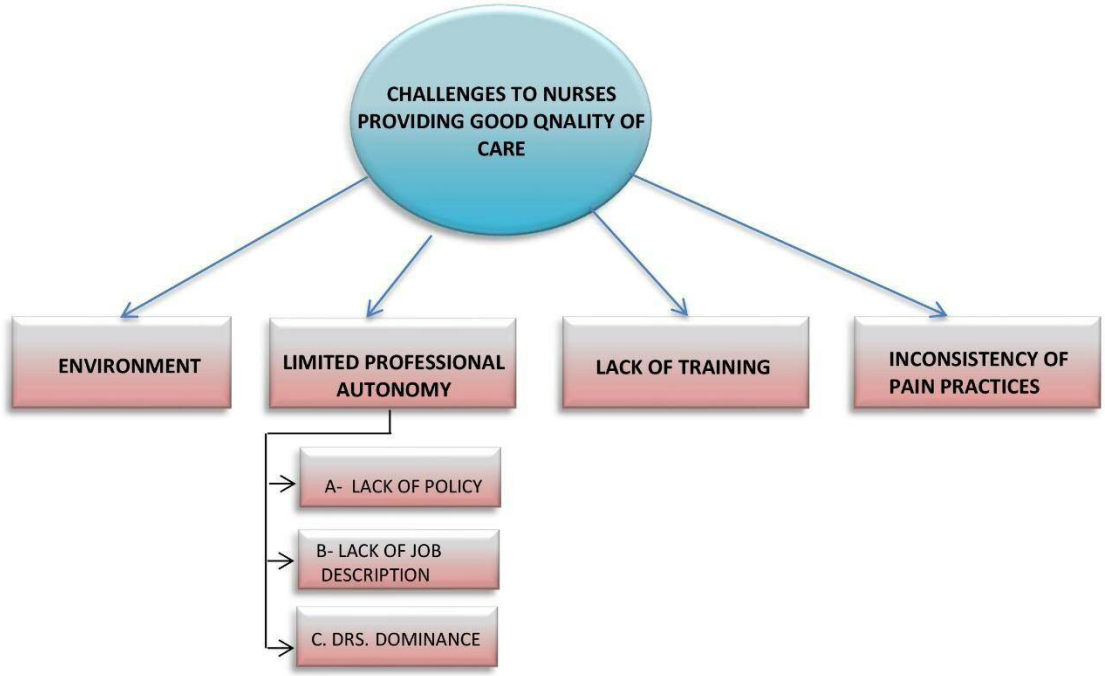
Appendix N: Thematic map—Stage one



Continued Thematic Map-continued Stage one



Stage Two


CHALLENGES TO NURSES PROVIDING GOOD QNALITY OF CARE
ENVIRONMENT
LIMITED PROFESSIONAL AUTONOMY
LACK OF TRAINING
INCONSISTENCY OF PAIN PRACTICES
A- LACK OF POLICY
B- LACK OF JOB DESCRIPTION
C. DRS. DOMINANCE

Stage Three


Nursing Culture
Complexity of Organisational Culture
Challenges to Nurses providing Good Quality of care
Inconsistency of Pain Practice
Environment

Appendix O: Cardiff University Ethical Approval

School of Health Care Sciences
Head of School and Dean Professor Sheila Hunt

Ysgol Gwyddorau Gofal Iechyd
Pennaeth yr Ysgol a Deen Yr Athrawes Sheila Hunt

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

Our Ref:

19 April 2018

Katie Featherstone
Director of Postgraduate Studies (Research)
School of Health Care Sciences
College of Biomedical and Life Sciences
Cardiff University
Room 417, Eastgate House
Newport Road, Cardiff
CF24 0AB

To: Laila Al-Zadjali, The Directorate General of Education and Training

This is to inform you that Nasiha Al-Braiki is returning home for data collection for four months from June 2014 to September 2014. On her arrival Nasiha is also expected to obtain her ethics approval from MOH in Oman, this will then allow her to obtain approval from the Cardiff University Ethics Committee.

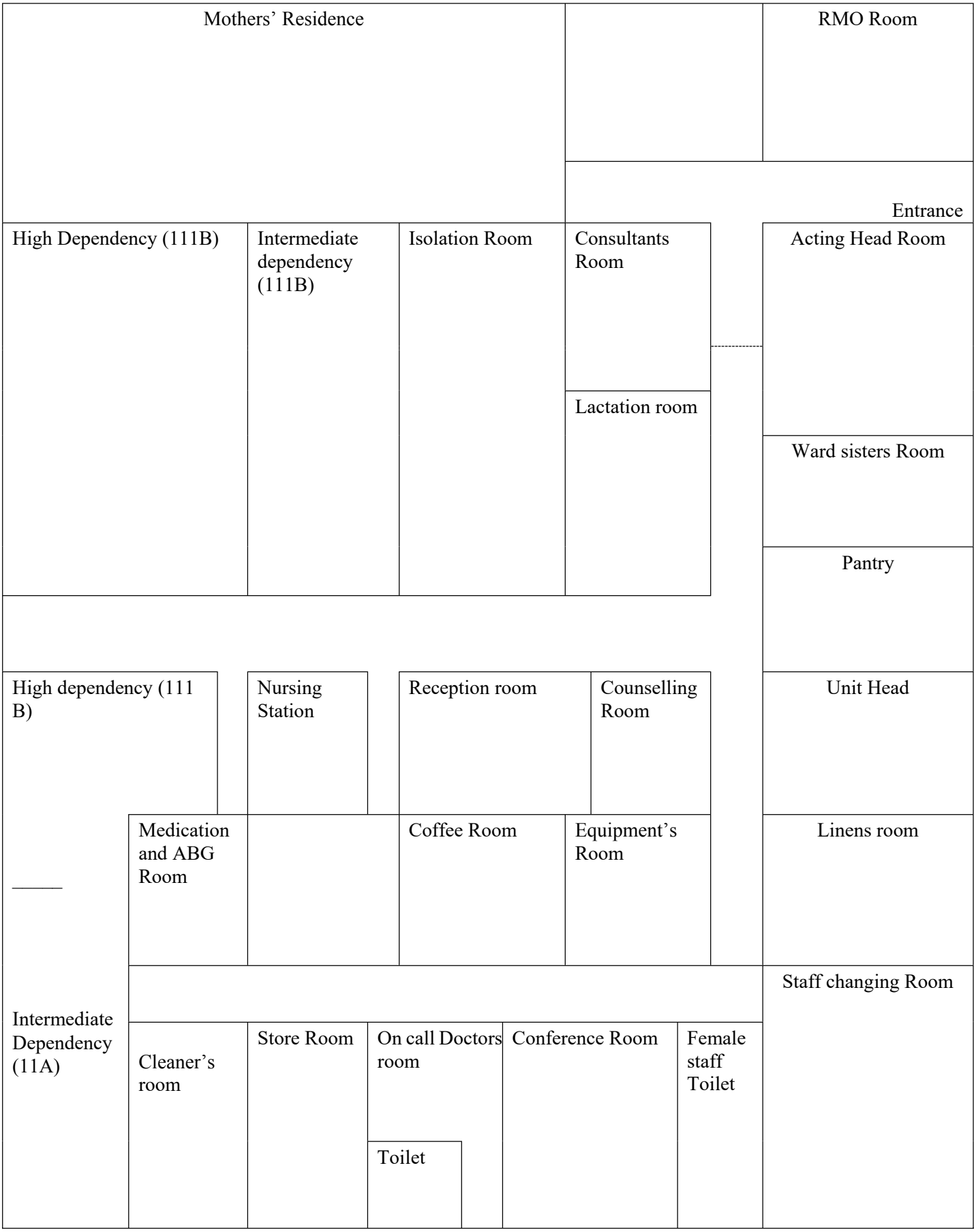
Kind regards

Dr Katie Featherstone
Director of Postgraduate Studies (Research)

Appendix P: Unit procedures

Procedures	**Action**
Intravenous cannulation	No local anaesthesia is used.
Pacifier	Its use is contradictory among all the nursing staff and doctors.
Endotracheal intubation	Before intubation, all the babies have to be given injection morphine bolus to sedate the baby and start preparing the morphine infusion to continually sedate and reduce the baby's pain. However, in emergency intubation is done without giving bolus morphine.
Umbilical arterial and venous catheterisation (UAC, UVC)	Those procedures are conducted when the baby is ventilated and under morphine infusion and freshly born. Therefore, no extra dose of injection morphine is given.
Chest drain	No local anaesthesia is given. Most of the cases who develop haemothorax or pneumothorax are under-ventilation with morphine infusion. However, no local anaesthesia is used before inserting the torchers (a plastic abject with a metal tip inserted in the chest of pneumothorax in the baby's chest to draw air and relieve lung tension.
Nasogastric and oro-gastric tube insertion	No local anaesthesia is given.
Lumber puncture	Chloral hydrate is given to calm the baby but no analgesia is given.
Echocardiogram	Chloral hydrate (sedation) is given to sedate the baby to calm him down but it has no analgesia effect to reduce the pain.
Long line	This procedure is also performed commonly when the baby is under-ventilation with morphine infusion.
Circumcision in maternity ward	Only eye drops are locally instilled to reduce the pain. One of the doctors said that it is just performed for less period of time and another thinks that it is a painful procedure because of the use of the speculum, which may injure and stretch the eye of the baby, and cause bleeding and swelling in most of the cases for several days after the procedure.
Arterial line	No local anaesthesia is used. The baby will be lucky if he or she is under-ventilation and with morphine infusion.
Cryopethcy or laser for ROP (the most painful procedure)	Only eye drops are locally instilled to reduce the pain. One of the doctors said that it is just performed for less period of time and another thinks that it is a painful procedure because of the use of the speculum, which may injure and stretch the eye of the baby, and cause bleeding and swelling in most of the cases.

Appendix Q: Unit map



Appendix R: NICU philosophy

[redacted]

9/03/08

Neonatal ICU / Special Care Baby Unit

ABOUT US

[redacted] NICU/SCBU i[redacted] Sultanate of Oman. It is a Level III unit with [redacted] critically ill, Surgical and cardiac babies requiring intensive specialised treatment and subspecialty care services. Our expertise includes neonatal medicine, which is required for managing complications that may arise in neonates born prematurely.

OUR VISION

We aim to foster collaboration with our professional colleagues in a multidisciplinary approach by being the catalyst that initiates and ensures that patients care is delivered according to the evidence based practice.

Be recognized by the community for the provision of highest quality nursing care, thus ranking high in parent's satisfaction.

OUR MISSION

In support to our Hospital Mission, the NICU/SCBU medical and nursing services are committed to offer advanced care for sick neonates in an intensive care unit that is staffed and equipped to treat the most severe and complex neonatal disorders. We are dedicated to provide care with dignity, respect and professionalism that aspire us to serve and care for, as we would want ourselves or our family to be served and cared for.

.Our quality outcomes are ensured by strong commitment to practice through integration with education in an environment that encourages excellence of practice and teaching of medical and nursing students and to the professional development of nurses.

OUR VALUES

We adhere to principles of courtesy, attitude, respect and caring for those we are privileged to serve and among all of us who serve.

OUR PHILOSOPHY

WE BELIEVE THAT :

- We are the leaders who are progressively addressing the changes in the neonatal health care circumstances for the future in Oman.
- The goal of the neonatal nurse is to promote health through health education, provide care with comfort and dignity in time of illness and death.
- We have a shared commitment to do what is right and work collaboratively as an integrated team to improve patient care and performance.
- Nursing care delivered must be of high quality and cost –effective.
- Our staff deserves the opportunity for continued professional development and be accountable for self-directed learning.

[redacted]