



**NEONATAL PAIN: NURSES PERCEPTION OF MANAGEMENT IN ONE
REFERAL HOSPITAL IN RWANDA**

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Master of Science in Nursing (Neonatal Track)

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Kigali, June, 2017

DECLARATION

I do hereby declare that this proposal submitted in partial fulfillment of the requirement for the Masters Sciences degree in general nursing, track of Neonatology UR/CMHS, is my original work and has not previously been submitted elsewhere.

Signature Date

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Supervisors:

I confirm that the work in this thesis was carried out by the candidate under my supervision.

1. Signature..... Date.....

Mrs Bazirete Olive

DEDICATION

I am very thankful to almighty God for His protection I strongly dedicate this work. To my beloved son Ivan Mico. To my mother Janet Lukorera. To my niece Jane Asimwe and granddaughter Merissa. To my youth Pastor late Bishop Patrick and Mary Lee RIP. To my supervisors Professor Oluyinka Adejumo and Bizerte Olive who have given me endless support, guidance and encouragement throughout my study. To the staff and management of King Faisal Hospital for their endless support. To my brothers sisters and friends who stood with me throughout this study.

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ABSTRACT

Background

Pain is a foremost distress influencing all aspects of life. Pain is a common symptom of a possible disease process which forces patients to seek out medical care. A co-morbidity of untreated neonatal pain is neurological developmental issues which are sometimes irreversible. The aim of this study was to determine nurse's and midwives perception of neonatal pain management.

A quantitative descriptive study to examine nurses' perception of neonatal pain management with a sample (N= 92) of nurses and midwives. The validated questionnaire (Margolius) is a self-reported questionnaire was completed after informed consent was obtained. Data analysis utilized SPSS 21.0, the descriptive results was demonstrated utilizing tables. Chi Square and Fisher's Exact tests measured the association between nurses' and midwives perceptions about neonatal pain management and demographic factors.

Results

The majority of the participants were female 67.4% (n = 62), while 32.6% (n =30) were males. The mean age of the participants was 37 years of age (Standard Deviation=5.6). The majority of participants were diploma trained nurses at 70.7% (n=65) and experience ranging from 5 to 7 years was 41%. Knowledge of neonatal pain management among nurses in the neonatal care areas was statically significant high at 47.8% (n=44), good 31.5% (n=29), and poor 20.7% (n=19).

Nurses and midwives perceptions of neonatal pain management was found to be very good at 14.1% (n=13), good at 69.6% (n=64), and poor at 16.3% (n=15). Identified potential barriers of neonatal pain management among participants was found to be a lack of educational opportunities and training 31% (n=29), also barriers were a lack of leadership support (48.9%). Study results demonstrated a lack of relationship between demographic data and levels of knowledge or perception of nurses towards neonatal pain management.

Conclusions- Pain perception of neonatal pain management among nurses and midwives was found strong and positive. To further improve neonatal pain management among nurses in referral hospitals, there is a need for leadership support to increase nursing education for the improvement of the quality of life for neonates. This educational support may prevent complications found to be increased with insufficient pain management in neonates.

Key words: Pain, neonate, perception

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Obituary: Francine Margolius'

List of acronyms and abbreviation

AAP:	American Academy of Pediatrics
CMHS:	College of Medicine and Health Sciences
DHHS:	Department of Health and Human Services
KFC:	Kangaroo Father Care
IASP:	International Association for the study of Pain
ICU:	Intensive Care Unit
IRB:	Institutional Review Board
KMC:	Kangaroo Mother Care
NICU:	Neonatal Intensive Unit
SPSS:	Statistical Package for Social Sciences
USA:	United State of America
UR:	University of Rwanda
SD:	Standard Deviation
WHO:	World Health Organization

CHAPTER 1: INTRODUCTION

1.2 Background

The continued existence rate of premature newborns and high-risk infants has extensively improved due to the hurried improvement of therapeutic equipment and technologies coupled with managing newborns, and the serious care given at neonatal intensive care units (Jeong et al. 2014, p.1). Nevertheless, throughout treatment procedures these high-risk newborns are repetitively exposed to agonizing procedures that may possibly provoke different intensity of pain or suffering (Jeong et al. 2014,p.1).

Pain is a foremost distressing signal influencing all aspects in life. It is mainly the frequent symptom of disease, which forces patients to inquire medical advice. Repeated pain in neonates has a cost attached as it causes neurodevelopment troubles, disabilities, behavior, and long-term cognitive, social, and emotional tasks that sometimes are irreversible (Po et al. 2010,p.5 Grunau & Ph 2013p.2).

Pain is constantly a personal, subjective, unique , and multidimensional experience and is affected by the patient's gender , age, culture, previous pain experiences, and emotional factors, such as joy, grief, fear, excitement, and the patient's beliefs and attitudes toward pain (Vaajoki 2013, p.1). The American Academy of Pediatrics argues all health care professionals who work with neonates to make pain management as number one goal not because it's ethical but because of consequences that come with pain (Akuma & Jordan 2011, p. 2; Carbajal et al. 2008;p.66).

In 2006, the American Academy of Pediatrics and the Canadian Pediatric Society published a policy stating that each healthcare facility should create a neonatal pain control program aimed at routine assessment of pain, reduction in the number of painful procedures, and also reduction and prevention of acute pain from invasive procedures (Witt et al. 2016, p.2). All trained nurses know that pain assessment is the foundation of pain management and that the goal of pain management is to ensure the well being of the individual (Vaajoki 2013 p.2). It recommends the use of guideline that are evidence based that include assessment and step like management (Statement 2016, p.9) .Pain is always subjective but this explanation indicates the need to voice the

nociceptive incident to permit its detection which is irrelevant to a certain group of people e.g. newborns and infants(Rita de Cassie & Balda,Guinsburg 2016, p.2).

Professional nurses know how hospitalization affects patients' discomfort, social relationships, emotional and physical burdens of illness, and discomfort—not to mention the pain of all of that. Presently, it gives the impression that research and practical nursing do not cross paths (Vaajoki 2013, p.2).

The neonates' experience of pain has been examined widely above many decades, and confirms experiential evidence on their capability to recognize, process, react to and remember pain. Pain and injury in early life can cause permanent changes to developing somatosensory and pain systems. The immature nervous system in neonates is highly responsive to tactile and noxious stimulation. Neurophysiological recordings reveal strong spinal nociceptive reflex activity and different nociceptive cortical potentials in response to clinically required skin-breaking procedures in newborn human infants (Fitzgerald 2014, p.1). Maxwell et al., 2013) recognized that neonates perceive pain based on nociception developed in utero before the age of 24 weeks.

Neonates below 25 weeks' gestation present lack of ability to distinguish between touch and pain stimuli which researchers related this to closeness of the neonates' pain and touch receptors Grunau & Ph 2013, p.2) . Ribary and colleagues (2013) in their study to find out whether neonatal pain was associated with functional brain activity later in childhood ,they discovered that neonatal pain was associated with visual problem ,hearing and long term cardiovascular problems and learning disabilities activities (Grunau & Ph 2013 .p,5;Blencowe et al. 2013, p.403). Management of pain rests in the hands of nurses and indeed an issue of importance to neonatal nurses because of the consequences pain causes (Nimbalkar et al. 2014, p.1). Despite a multitude of studies about pain assessment and intervention, neonatal pain remains unrecognized and undertreated and there is still a misunderstanding regarding neonatal pain (Asadi-Noghabi et al. 2014;p.285).

1.2.1 Knowledge and perception of nurses towards neonatal pain management

For pain assessment to be accurate, it must detect the presence of pain, estimate its possible neurophysiologic impact, and determine the effectiveness of interventions by analyzing the magnitude of residual pain. In medical practice, careful measurement is vital for determining the presence of a problem, evaluating its seriousness, and guiding the treatment (Rita de Cassie & Balda, Guinsburg 2016, p.533). There are several tools that exist for assessment of neonatal pain. These include premature infant pain profile, neonatal pain, agitation, and sedation scale, newborn infant pain score astrid-lindgren children's hospital pain score zero and one for children below thirty seven gestational weeks for full-term infants up to one month of age. While these tools are useful, they should not be used alone (Witt et al. 2016; Cong et al., 2014, p. 391; Anand, Hall 2015, p.3; Statement 2016, p.1).

Assessment of pain during the neonatal period is based on the neonate's responses to a nociceptive stimulus, ie, the model for evaluating pain in a preverbal infant is determined by modifications in organs, systems, and behaviors after a painful event. Recognition of this language on the part of the adult who cares for the infant is vital to estimate the nociceptive phenomenon adequately and implement effective treatment. Analysis of pain-modifying factors beyond evaluation of the sensory dimension of the pain constitutes an essential prerequisite for preparing effective programs of pain management in the neonatal population (Rita de Cassie & Balda, Guinsburg 2016 p.534) .Equipping nurses with knowledge in assessment and continuous use of different tools will instill confidence among neonatal nurses give pain killers.

Since the emerge of neonatal Intensive care Units in 1960, the survival rate of premature babies and high-risk newborns has extensively improved due to the fast increase of medical technologies .These vulnerable infants, often cared for in the neonatal intensive care unit are subjected to numerous invasive procedures as part of their care, experiencing a mean of 10 to 16 procedures that are painful per day (Blencowe et al., 2013 ;Deer et al., 2015;) . Neonates also have 30%-50% lower pain threshold than that of older children and adults because of undeveloped descending inhibition functions in complex levels of the nervous system (Carbajal et al. 2008,p.60; Cong et al., 2014; Gereau et al., 2014, Hagy, 2015).

The results from different studies demonstrate that early and repeated pain stimuli may over activate the immature neurons, which are susceptible to excitotoxic damage to the brain. In reaction towards pain stimulated stress, neonatal neurons can be altered by over activation and excess cortisol secretion from the hypothalamic pituitary adrenal axis, which affects neurobiological development of both stress and nociceptive systems from infancy, even months to years after NICU discharge (Grunau, 2013; Vinall and Grunau, 2014; Doesburg et al., 2013; Ranger and Grunau, 2014, Courtois et al., 2016).

Extreme and lengthened constant pain in the infant causes adverse biobehavioral outcomes in all major systems, including alteration to brain structure, with lasting neuro developmental sequelae, and can be life-threatening (Taylor et al., 2006; Walker, 2014, p. 40). It has been proposed that future behavioral changes could include altered pain sensitivity, increased anxiety, stress disorders, and attention deficit disorder leading to impaired social skills and self-destructive behavior (Witt et al., 2016, p. 9).

A study done in Jamaica by Young, Barton, Richards-Dawson and Trotman 2008 and another study done in Australia by Schultz, Loughran-Fowlds, & Spence proved that nurses and physicians lack knowledge about assessing the extent of pain and using effective pharmacologic and non-pharmacologic analgesia in neonates (Cong et al., 2014; Beatriz et al. 2014, p.39). Another study done in Finland by Polkki and others in 2010 established that nurses were not aware that premature infants are more susceptible to pain than full-term neonates (Cong et al. 2014).

Protecting neonates from pain would help a lot of complications that arise with poor pain management but this would be achieved by improving knowledge on effective use of non-pharmacological and pharmacological means to alleviate pain (Vaajoki 2013, p.2)

For safe neonatal care, it is better to use evidence based information for protecting neonates from injuries that could be treated or avoided (Nadin 2016, p.8). This study done in Jordan in eighteen neonatal intensive unit with one hundred eighty four nurses concluded that neonatal nurses had knowledge deficit in neonatal pain management (Nadin 2016, p.5).

A study conducted in Italy to assess the progress in neonatal pain management found out that only 21% and 17% assess pain during mechanical ventilation and after surgery regularly (Lago et al. 2012, p.150). A study done in Canada by Latimer and colleagues realized that even where there is adequate knowledge in pain management interventions are done by 10% (Jeong et al., 2014; Cong et al. 2014, p.835).

Over the years neonatal pain management has improved but pain assessment in critically ill neonates remains insufficient globally (Nadin 2016, p.4). Despite growing knowledge about pain assessment and intervention, neonatal pain remains unrecognized and undertreated.

Managing neonatal pain continues to be a challenge to neonatal care providers as these neonates cannot speak and advocate for themselves when they experience pain (Cong et al. 2014, p.2).

Self report is the gold standard of pain and in adult patients and yet there is no gold standard known for this vulnerable patient. Most respondents highlighted the significance of assessment tools for effective pain measurement and adoption of appropriate pain relief methods which facilitate the process of pain alleviation in neonates

There was a significant difference between the respondents' knowledge and the attitude scores viz., nurses with higher level of knowledge in neonates' pain relief showed more positive attitudes ($p < 0.05$). Although numerous studies have been done worldwide concerning nurses' perception of neonatal pain management, the researcher has not found any study conducted in Rwanda about nurses' perceptions and knowledge of neonatal pain management

The purpose of this study was to understand the nurses' perception of neonatal pain in a national referral hospital in Rwanda.

1.3. Problem Statement

Having "no gold standard" for managing neonatal pain continues to be a challenge to neonatal care providers and yet pain is taken as the fifth vital sign (Anand 2006, p.2). Pain in neonates is almost impossible to investigate because of having nothing to base on saying the neonate is in pain. Underutilization of non-pharmacological and pharmacological pain interventions possess a big gap among pain knowledge, evidence, and clinical practice worldwide (Vaajoki, 2013, p.

2;Carbajal,2006;p.). In developing countries nurses and physicians lack knowledge about assessing the extent of pain and using effective non- pharmacologic and pharmacologic analgesia in neonates (Nadin 2016, p.9).

The study can trigger an extensive national intervention on nurses knowledge and perceptions on neonatal pain management. Self report is the gold standard of pain and in adult patients and yet there is no gold standard known for these vulnerable patients. Though several studies have been conducted globally about nurses' perception of neonatal pain management, the researcher has not found any study conducted in Rwanda about nurses' perceptions and knowledge of neonatal pain management. The purpose of this study was to understand the nurses' perception of neonatal pain in a national referral hospital in Rwanda.

1.4 AIM OF THE STUDY

The aim of this study is to determine the nurses' knowledge and perceptions of neonatal pain management at King Faisal Hospital, Kigali

1.5 OBJECTIVES OF THE STUDY:

1.4.1 MAIN OBEJCTIVE

The aim of this study is to determine the nurses' knowledge and perceptions of neonatal pain management at King Faisal Hospital, Kigali.

1. 5 Specific Objectives

1. To determine nurses' and midwives knowledge of neonatal pain management in neonatal care units at King Faisal hospital Kigali.
2. To determine nurses' and midwives perception of neonatal pain management in neonatal care units at King Faisal hospital Kigali
3. To explore factors influencing neonatal pain management in neonatal care units at King Faisal hospital Kigali.
4. To identify barriers affecting neonatal pain management in neonatal care units at King Faisal hospital Kigali.

1.6 Research questions

1. What is the knowledge of nurses and midwives about neonatal pain management in neonatal care units at King Faisal hospital, Kigali?
2. What are the perception of nurses and midwives about neonatal pain management in neonatal care at King Faisal Hospital
3. What are the factors influencing neonatal pain management in neonatal care units at King Faisal hospital Kigali?
4. What are the barriers affecting neonatal pain management in neonatal care units at King Faisal hospital Kigali?

1.7 Significance of the study

The findings of this study will benefit the neonates considering pain management adds to improved quality of life. Also, if neonates feel better would they heal quicker and therefore leave the hospital sooner? The great demand for evidence based practice justifies the need for this study. Managers may use results to emphasize pain management by nurses to improve neonatal pain outcomes. The study may well offer information on nurses understanding on neonatal pain management and can be used to improve the body of education of nurses in neonatal pain management

1.1 Definition of Concepts

Pain: According to the International Association for the Study of Pain, pain is defined as “...an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage(Rita de Cassie & Balda, MD, Guinsburg 2016, p.533)

Perception

Is defined as an entity (unit) that contributes to linkage between person and nurse, person and environment and probably the person and health the way you think about something and your idea of what it is like. (Farlex Partner Medical Dictionary © Farlex 2012).

Assessment

Synthesis of clinical findings into a clear understanding of presenting conditions that informs treatment strategies (Medical Dictionary for the Health Professions and Nursing © Farlex, 2012)

Neonate The baby in the first 28 days of life (L et al., 2012).

Nurse

A nurse is a highly skilled health care professional who combines the art of caring with scientific knowledge and skills developed through their education and career

1.9 STRUCTURE/ORGANIZATION OF THE STUDY

The study is subdivided into six chapters: **Chapter 1:** Introduction, **Chapter 2:** Literature review, **Chapter 3:** Methodology, **Chapter 4:** Presentation of results, **Chapter 5:** Discussion of findings, **Chapter 6:** Conclusion and recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Chapter two presents the theoretical framework of the study, the related study done in other places, a conceptual framework that shows the relationship between variables and critical review.

2.2. Theoretical concept of the study

Around 460,000 neonates in United States need care in neonatal care areas every year. These neonates bare acute pain from prolonged or acute pain, invasive procedure, inflammation or surgery. Exposing neonates to pain is taken as an un ethical conduct and divulges the “do not harm” keeping in mind that there are drugs to treat pain that are usually available in neonatal care areas(Nadin,2016, p. 9). Neonatal assessment of pain is tricky to train, not timely and labor-intensive and frequently interpretation is biased, and a source of disagreement in neonatal care areas (Anand, Hall 2014, p.3).Because of the vulnerability due to neonatal lack of speech, it is important to know the nurses perceptions towards pain management.

2.2 Knowledge of nurses on neonatal pain management

The most important area of significance is the understanding of medical experts in the neonatal care areas certainly developed but there seems to be a disconnection between how this knowledge is made of the most use. For instance when examining nurses and doctors about giving pain killers that is knowledge of the outcome they have: they steadily well perform. In order to manage pain well, accurate assessment must be done with adequate tool to achieve best results (Rita de Cassie & Balda, Guinsburg 2016, p.2). A comparative study done in the South Africa , Sweden ,UK, between nurses knowledge on pain and pain management, it revealed special ranks of knowledge and helpful attitudes in pain management, well as Swedish nurses scored higher better than nurses of UK or South Africa(Asadi-noghabi et al. 2014, p.6;) . In Italy a study done in nine hospice hospitals among 66 nurses revealed low levels of knowledge in pain management and they went ahead to know the levels of knowledge and they discovered that nurses do not receive new information on management of pain. Depending on the results they

recommended updating nurses in educational programs with new updates, training of trainers for continuity of the programs(Bernardi et al. 2007, p.5).

How pain changes normal body function: Pain affects various body organs differently because neonates respond differently to pain. e.g. Pain being a stressor triggering the nervous system causing tachycardia sweating, peripheral vasoconstriction , increased production of catecholamine and others (Anand et al. 2006, p.6;Cong et al. 2014, p.9). Assessing pain is difficult for caregivers of this non-verbal population and requires adequate tools.

Cardiac changes: Constant pain causes persistent hypertension causing the immature brain to change from normal(Fitzgerald 2014, p.5). Early neonatal assessment pain looks to be the best solution to speechless patients that are at high risk due to poorly managed pain (Cong et al. 2014, p.12).

Respiratory alterations: The respiratory system as well experiences many alterations. Pain causes abstinence from movement; the structures develop risks for disease. It is evident that pain can affect the system and cause serious damage hence a need for early intervention (Cong et al. 2014, p.12).

Abnormal reaction due to pain: Infants can react to pain by pulling away their affected limbs. Often , expression of grief, frowning, or together come as a react to pain (Cong *et al.*, 2014, p. 3). Keen observation of nurses with skills in pain assessment can positively influence neonatal pain management.

Long-Term Effects of Unmanaged or Poorly Managed Pain: When a neonate experiences pain, the body reacts for a lengthy time. This type of pain can be noticed in different ways like change of character and other behaviors (Cong *et al.*, 2014, p. 840; Gyland 2012). Effective assessment and measurement of pain can help prevent the long term effects caused by pain.

Pain tools and professional mindset: Assessment of pain is crucial because it aims at recognizing the painful condition, appraise it and then plan the need for management(Walter-Nicolet et al. 2010, p.2) There are a number of tools e.g.; premature infant pain profile ,the

neonatal pain, agitation, and sedation scale the newborn infant pain score), Astrid Lindgren children's hospital pain score 0 for infants under 37 gestational age Astrid Lindgren for full-term infants up to one month of age, and cry, requires oxygen, increased vital signs, expression, sleeplessness .Of these pain assessment tools, very few actually are in use (Gyland 2012, p.47; Cong & Cusson 2013, p.5; Walter-Nicolet et al. 2010, p.355). An Australian study reported similar results, that only half of the respondents believed pain assessment tools to be reliable and valid (Schultz et al.,2010; Cong, Xiaome Sophia & Regina 2013; Anand, Hall 2014).

While these tools are useful, they should not be used alone. Including parent involvement in neonatal pain guidelines would be of great importance given the fact that KMC/KFC has been proved to relieve pain in preterm and they are parent origin. The most commonly used non pharmacological pain management sucrose solution, swaddling, breastfeeding, containment, and skin-to-skin contact. Dodd's and his colleges with Huang, Tung, Kuo, and Chang said in their study that success is often attained with medicinal and medicinal ways Codipietro, et al., (2010). Nambalkar did a study and declared that 52.5% neonatal pain scales were important but merely 40% used the pain scales to assess pain (Nimbalkar et al. 2014 p.23).Managing pain is core responsibility of nursing and other medical professional .If pain is to be managed well it's better to use the right tools and ensure that it corresponds to the age for better outcomes because the assessment as mentioned about will help the nurse identify, quantity and then predict the need for intervention.

2.3 Perceptions of nurses/midwives regarding neonatal pain management

In the past, pain continued to go unattended to in neonatal patients since it was allegedly known that neonates had immature nervous systems therefore, not capable of feeling pain. In addition, it was thought pain drugs were insecure causing complications. Years of experience were found to relate to good pain management well-as working few years in the job was still bargaining whether neonates feel pain(Po et al. 2010, p.9). In another study done in India it was realized that high level of knowledge was linked with good attitude towards pain management (Nilsson et al. 2016, p.11) .Despite the previous study done in the above mentioned country about knowledge and skills on (Czarnecki et al. 2011, p.74). This inconsistency was also confirmed by in a study on nurse's knowledge and attitudes in neonatal pain management Nimbalkar, et al (2012). A

study by Tylor;2006 p.76) in his 72hour quality project done in10 hospitals revealed that nurses assessed and documented pain in 88% well as physicians assessed pain 9% showed that the probability neonates to get pain killers during post surgery had a huge discrepancy, meaning those babies that were assessed by doctors stood better chances for managing their pain than those that were not (BonnieTaylorJ. et al. 2006 p.13). A study done in Northern Florida also correlates with one of Taylor that Physicians are not engaged in neonatal pain management (Gyland, 2012, p. 48) The previous study was supported that lack of Drs prescriptions on pain was also a barrier and a cause of neonatal pain (Czarnecki et al. 2011, p.162).

There was an overall perception by the nurses that neonatal pain management in NICUs is inadequate, as suggested in previous studies.

Another study came with a good recommendation saying that despite the zeal to treat pain there is need of support of the institution, colleagues and family(Nimbalkar et al. 2014, p.161) .The Canadian study also observed in their study that family presence in NICU reduced the number of procedures per day which correlates well with Nambalkars study of support (Johnston et al. 2011, p.7).A study done in china and US also realized that integration of family into care would yield an evidence of pain management in neonates(Cong et al. 2014, p.48).

NICU quicker than neonates that didn't get contact(Witt et al. 2016 p.1) In Finland a study done realized that nurses had a positive attitude but had a gap in assessment of premature infants, they also suggested that training programmers should plan for training and do evaluation for effectiveness (Bonnie,TaylorJ. et al. 2006 p.14).

There seems to be a gap between pain management and knowledge among health professional and their perception towards neonatal pain management. As it's shown in different studies there is need to know the gap that is seen in different studies if it will correlates with this study.

2.4. Barriers To Potential Pain Management

A study done in the USA in one pediatric hospital intended to identify barriers to pain management and they realized optimal pain management lies in the hands of nurses (Czarnecki et al. 2011, p.1) In a study among American nurses (90 %) and Chinese (84.9%) about the main

barriers of pain management, though they had a difference but resistance to change was foremost obstacle. Chinese nurses acknowledged shortage of nursing staff as major barrier (Cong et al. 2014, p.9). Further studies established other barriers with issues affecting pain practice that included resistance to change, problem of pain tools, insufficient education, be short of evidence-based education ,lack of collaboration of clinicians, and other nursing responsibilities and workloads (Cong et al. 2014 p.12). A study done by Fariba and his colleagues also found out that lack of knowledge and negative attitude as major barriers to pain assessment of neonatal pain (Asadi-noghabi et al. 2014 p.16) . Most often nurses report physicians a barrier as they don't have any principal used to evaluate pain(Czarnecki et al. 2011, p.158 Lake 2013, p.47).

Another study results were revealed about levels of education and years of experience had no coloration in pain management and capacity to fight barriers. The barriers that were important in Wisconsin study were medical doctors never took pain management as apriority as there were no prescription for pain and nurses spent more time on phone (Czarnecki et al. 2011, p.159). Subhashni did a study in India which was somehow in agreement with Fariba where the researcher found out 62.3% respondents believed that non-pharmacological use is better than drugs (Asadi-noghabi et al. 2014, p.289).Mathew et al., did a study and unveiled that there is lack of knowledge in neonatal care areas stuff as they mentioned that neonates feel pain less than adults do (Asadi-Noghabi et al. 2014, p.289).

The most important factor which was mentioned by 82.2% was the missing education in pharmacological and non pharmacological training in neonatal pain management both in nursing schools and continuous nursing education (CNEs) at the place of work (Asadi-noghabi et al. 2014, p.290). Great attention is needed to save neonates from pain through updating nurses on better options of pain management in neonatal care area.

2.5. Factors That Influence Pain Management

Regarding pain management research has consistently revealed that health care providers are not lacking understanding of pain measurement or of suitable intervention. Usually inappropriateness goes with the knowledge to manage appropriately. It is very important that this gap in knowledge and deed be bridged. However the following resolutions were suggested to

solve the dilemma. Execution of various pain tools with pain assessment and involvement of protocols in neonatal care areas is essential. Just 58% of nurses with 29% of doctors that were examined knew if neonatal care areas had a pain instrument and even very few could tell the name of the tool. Pain management guidelines with leadership support have proved to raise pain management efficiency in neonatal care areas. Health care workers suggested development of pain policies, pain tools, more education about recent research on pain, staff training, support in empowering nurses to be advocates of infants, update treatments like PRN sucrose for neonates, teaching on how to give power to the parents, and modify personnel thoughts to analgesia utilization (Nadin ,2016;Akuma & Jordan 2011).

The call for more education appears to be a steady idea almost in all studies. With Anands' study of 2007, a broad knowledge foundation with awareness and modern studies allied to pain management are principal to assist health professionals caring for neonates in neonatal care areas; periodic workshops with most current research in view to pain care in the neonatal care areas would particularly be useful in harmonizing the culture. Nambalkar, (2012) in their study about knowledge of nurses claimed that education in schools was of great use though 52.5% nurses only used assessment tools to assess pain.

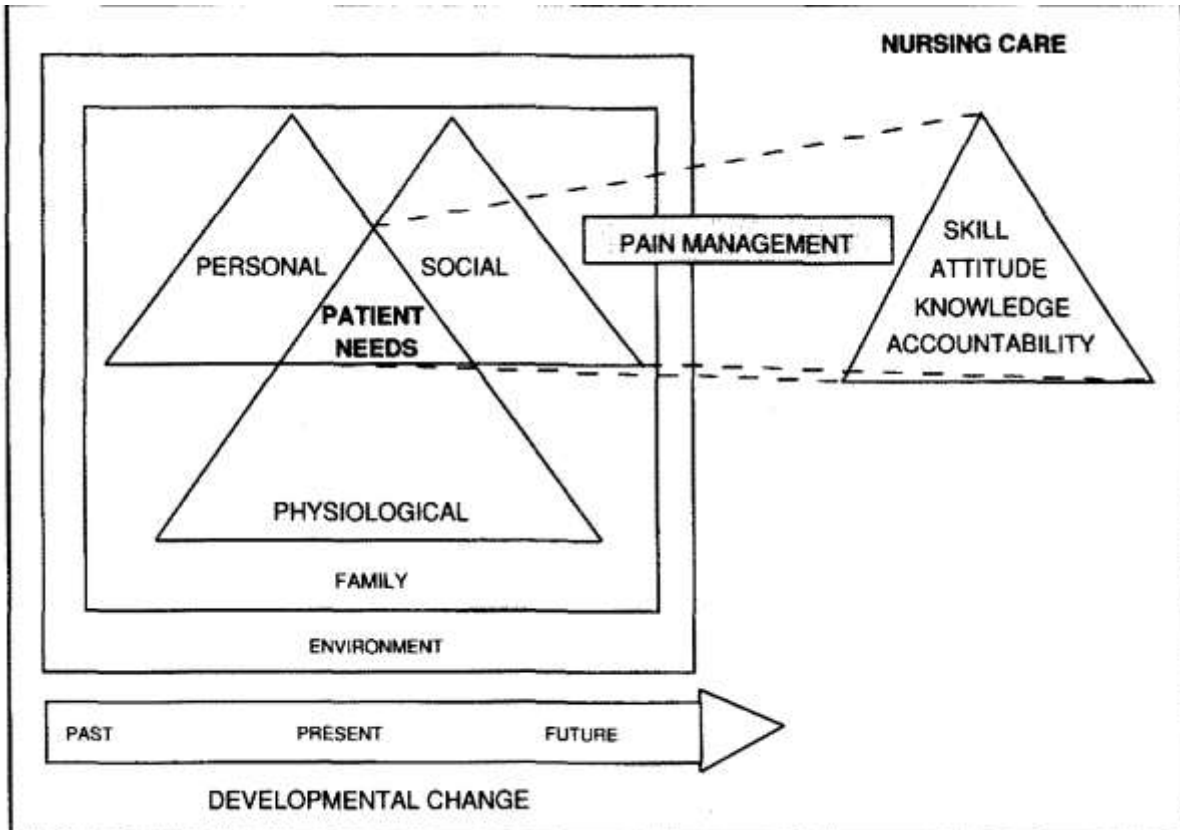
Clinicians reported no formal training during school time though of these none participated in the formation or auditing of the same guidelines (Akuma & Jordan 2011, p.7). Among other things suggested involving nurses into policy making and give power to nurses as advocates of patients to participate actively in pain management (Akuma & Jordan 2011, p.7) .Neonatal pain management is a global problem and if it's not well managed, neonates get long-term problems not forgetting that these problems may go up to adulthood or adolescent life. Facilitation of pain management through education as highlighted in many studies would benefit nurses in neonatal care areas as well as improving the quality of life in these vulnerable patients.

2.6 Conceptual Framework

For a comprehensive exploration of nurse's perception towards neonatal pain assessment this study used a conceptual framework done by Conrad. He used five fields that include: patient, health, environment and transitions nursing issues. The framework uses three system theories i.e.: system in change, the developmental life cycle and basic needs putting the patient as a central focus. The framework includes many features of nursing aspects e.g. knowledge, attitudes, accountability and skill pertaining pain management. In this model the nurse to manage pain she needs specialized knowledge of pain with positive attitudes in order to manage pain. These features play a big role in nursing care. The patient needs a supportive environment like a silent room especially in NICU and family as parents to help in decision in case of neonates

According to this framework the nurse must be accountable for her deeds .As professionals accountability is what makes a nurse a professional and for her safety and safety of the patient. Appreciating the patient as a whole and the contribution of the environment the family the nurse also appreciates her contribution and the contribution of other professionals in case of anything given in pain management. There are many factors that influence pain management .For pain to be managed one to consider the past history of pain ,what one went through to manage or to manage pain, The present effects of pain being a stressor triggering the nervous system causing tachycardia sweating, peripheral vasoconstriction , increased production of catecholamine and others (Anand et al. 2006, p.6;Cong et al. 2014, p.9).Long term effects of pain of pain can be noticed in different ways like change of character and other behaviors (Cong *et al.*, 2014, p. 840; Gyland 2012). Conrad framework helped me in explain pain management by nurses.

Figure1: 2.7 Conceptual Framework for pain management

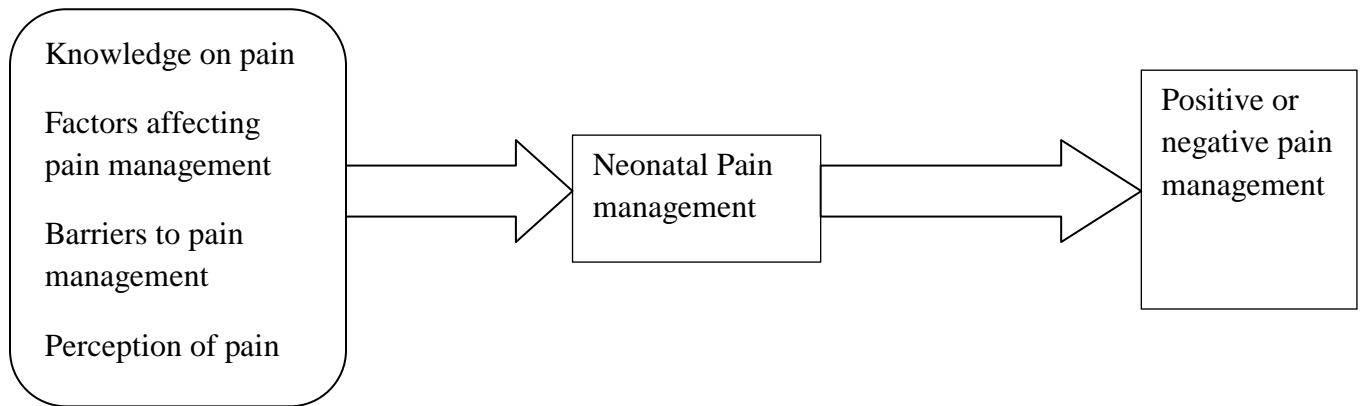


Conceptual framework of the study

Independent

Dependent

outcome



CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research methodology that was used in this study and it includes research design, research approach, research setting , population , sampling , sampling strategy, sample size, data collection instrument, data collection procedure, data analysis, ethical considerations , data management, data dissemination, limitations and challenges.

3.2 Research setting

This study was conducted at King Faisal Hospital, Kigali (KFH-K). King Faisal hospital started in 1992 with the aim of providing specialized health care. This hospital is among national referral hospitals and it is located in the capital of Rwanda -Kigali. The hospital provides 34 services including executive services with 160 bed capacity. This institution offers a variety of services through different departments which include; Internal Medicine, Surgical, Paediatric, and ICU, as well as other specialized departments. The neonates' intensive care unit (NICU) of this has 7 beds; receiving the newborn patients aged less than a month presenting with life-threatening symptoms that need close monitoring. The hospital has no catchment area because it caters for patients transferred from the whole country that can't be managed elsewhere. The hospital also receives patient from neighboring countries that is Congo, Burundi and southern Uganda.

The hospital has a mandate to do specialized health care and to reduce patients that are transferred outside the country. The hospital has top quality medical personnel in the country in order to achieve the designated mandate. This hospital has expanded its services including open heart surgery, kidney transplant, plastic surgery and brain surgery. The hospital has acquired accreditation for three times repeatedly that is 2010, 2013 and 2016 by COHSASA (The Council for Health Service Accreditation of Southern Africa). The hospital has 40 doctors and 216 nurses including midwives: 192 nurses and 23 midwives. Its Vision is to be a center of excellence in health service provision, clinical education and research. Rwanda has an ambition to become a regional medical hub that's why the government of Rwanda sold the hospital to Oshen Group, an international health services company that was given the vision of the hospital to transform it

into a regional a science hub thus turning the hospital into a multi-specialty from regional to international standards.

3.3 RESEARCH DESIGN

This study used a quantitative descriptive cross sections design.

3.4 RESEARCH APPROACH

In this study researcher used quantitative non experimental approach

3.5 Study population

The study population was nurses and midwives working in neonatal care areas. Those areas include the following: NICU, Paediatric ward, Maternity, ICU, Accident and Emergency and Maternity which had eighty nurses and seventeen midwives totalling to ninety nine.

3.6 Sampling

3.6.1 Sampling strategy

The purposive sampling technique was used meaning that the entire population of nurses and midwives that worked in NICU,ICU, Paediatric ward Maternity and Accident and Emergency and who met study inclusion criteria were eligible for the study.

3.6.2 Inclusion criteria

All nurses and midwives that worked in NICU, ICU, pediatric ward, maternity, and Accident and Emergency who agreed to consent and were available to participate in this study were included in the study.

3.6.3 Exclusion criteria

The study excluded the Nurses and midwives who were on leave during data collection period, nurses who don't work in neonatal care areas and those who didn't agree to participate in the study .Exclusion also was to the new nurses in the department that were not so sure of what happens in neonatal pain management and other nurses on orientation program.

3.6.4 Sample size

92 nurses were a sample size for this study. The researcher took 19 nurses from ICU, 18 nurses from NICU, 15 nurse from Pediatric ward, 17 nurses from A&E and 16 midwives from Maternity who met study inclusion criteria.

Table 11: Sample size from each department

Neonatal area	Sampling frame
ICU	19
NICU	18
Pediatric ward	17
Maternity	17
Accident & Emergency	19
Total	92

3.7 Data collection

3.7.1 Data collection instrument

The instrument, titled Children and Pain Survey developed by Margolius was used; the researcher adopted the tool to suite to study objectives. This scale which was developed based upon the DHHS Guidelines for Pediatric Pain Management. The questionnaire was found free on internet. Respondents were asked to quantify their agreement or disagreement with each of the items using a Likert Scale. Higher scores indicate stronger agreement with the statement. The first part with demographic characteristics of the respondents had four items namely age; gender, education and years of experience in the department. Three levels of nursing education were recognized for this study; Diploma, BSN, MSN .The second part had 9 questions that were

asking about nurses and midwives knowledge on neonatal pain management, the third part looked at factors that influence neonatal pain management, the fourth looked at barriers towards neonatal pain management and the last part looked at perceptions of nurses and midwives to neonatal pain management.

Instrument validity and reliability

This scale which was developed by Margolius was based upon the DHHS guidelines for Acute Pain Management of Infants, Children and Adolescents (1992). Construct validity from the Margolius 's study was established through a review of the item pool by ten health professional experts including a pediatrician, a pharmacist, a pediatric nurse practitioner and nursing faculty members who had worked for at least 3-5 years in pediatric settings. The clarity of the items was reviewed by the professionals. Internal reliability for the original study was demonstrated by a Cronbach's alpha = 0 .70 for Beliefs Alignment Scale (10 items) and Cronbach's Alpha = 0.83 for Perceptions Awareness Scale (7 items). Reliability was tested in subsequent studies, and was further tested by this study through Face to face validity where the colleagues and supervisors had a review of the questionnaire to examine whether the studied concept is being measured. Pilot study of seven nurses Cronbach's Alpha of the questionnaire was 0.779.

Reliability Statistics	
Cronbach's Alpha	Number of Items
.779	33

3.7.2 Data collection procedure

After obtaining ethical clearance and permission from the CMHS research committee and the hospital research committee, the researcher approached the nurse managers with a letter as was requested by the Ethics and research committee of the study area and explained to them the purpose of the study. Thereafter, the researcher requested for time with nurses in care areas to proceed with data collection. The researcher approached nursing staff according to their shifts of work (day or night shifts). Those who agreed to participate in the study signed a consent form

which was attached to the questionnaire, and they were informed to use code numbers instead of participants' name. The questionnaires were in English since this is the language of education and working as far as care given to patients was concerned. The respondents completed the questionnaire in their free time such that it did not interrupt with their work. Each study participant read and responded each question in the questionnaire and a researcher was available to answer any question from respondents.

3.8 Data analysis

Data collected was analyzed using descriptive statistics such as the frequency distributions and percentages. Inferential statistics such as Chi-square and fisher's exact test was used to test the association between variables and was presented in terms of graphs and tables. The collected data was transferred and stored into a secured computer. All the data forms were kept in archives. The Statistical Package for the Social Sciences (SPSS) version 20 was used for data analysis.

3.9 Ethical consideration

After getting research clearance from the CMHS research ethics committee, the researcher submitted an application letter to director general of the hospital to perform the study. Nurses were asked to participate in the study through an introductory letter sent to managers of the selected units. Nurses included in the study were employees in the neonatal care areas. The researcher approached nursing staff and explained to them the purpose of the study as well as procedure to be followed.

Participation in the study was voluntary and that all responses kept anonymous and treated with confidentiality where questionnaire were kept in a locked cupboard and no any other person will have access to the data other than research team. All participants were allowed to ask questions if not clear. The participants were also explained that they may refuse to answer any particular question as well as to discontinue participation in the study at any time without any penalty

3.10 Data management

All data in all departments were collected by the researcher using questionnaire. The questionnaire coded was gathered by a researcher and was kept in a secure place. Questionnaires were then entered in statistical software for analysis.

3.11. Dissemination of results

After analysis, a researcher will present findings in the respective hospital in organized workshops. In addition, a researcher will prepare a manuscript for publication finally the findings will be presented in local and international conferences depending on the convenience.

3.12. Limitation of the study

Confounding variables were uncontrollable, lack of generalization

CHAPTER 4: RESULTS AND DATA ANALYSIS

This chapter presents results of the study from the questionnaire which was addressed to the nurses working in neonatal care areas at King Faisal Hospital, Kigali. The primary purpose of the study was to determine nurses' perception related to pain management in neonates. The study was conducted in one referral hospital in Rwanda. Data was collected from thirteenth of March to thirteenth April 2017. The potential participants were nurses and midwives that worked in the units at the time of data collection as listed below: NICU, Pediatric ward, Maternity .ICU and Accident and emergency. 92 questionnaires were filled and collected by the researcher at the time agreed upon by the researcher and the participant. The presentation of the research findings is structured according to five sections of data collection tool namely: Social demographic characteristics, knowledge on neonatal pain management, perception of neonatal pain management, factors influencing pain, barriers and perception of nurses on neonatal pain management.

4.1. Description socio-demographic characteristics of respondents

According to the results social demographic characteristics is presented in Table 1. The majority of the participants were female 67.4%, n = 65 while 32%, n =32 were males. The mean age of the participants was 37 (SD=5.6), the age range of was 25-65. Regarding the level of education in this study the majority of participants were Diploma trained nurses (70.7, n=65), followed by degree holders (23, n=23.9)

Table 2 : Social demographic characteristics of the participants

Characteristics		Frequency	Percent
Age	Young adult(18-30)	13	14.1
	Middle age (31-40)	60	65.2
	Old age (41- above)	19	20.7
Sex	Male	30	32.6
	Female	62	67.4
Education	Diploma	65	70.7
	Bachelor	22	23.9
	Masters	5	5.4
Experience	1-2 years	11	12.0
	2-4 years	7	7.6
	5-7 years	38	41.3
	8-10 years	18	19.6
	11-15 years	15	16.3
	+16 years	3	3.3

4.2 Knowledge Level of nurses and midwives on neonatal pain Management

The structured questionnaire used 9 questions that assessed knowledge levels of participants. In the 92 questionnaires distributed 44(47.8%) had very good knowledge, 29(31.5%) had good knowledge, 19(20.7%) and poor knowledge. The overall knowledge of participants scores in the findings show the minimum knowledge at 17 and 45 as Maximum. Out of 92 participants, a great part of 73(79.3%) had sufficient knowledge on neonatal pain.

Table 3 Nurses Knowledge on Neonatal Pain

Item	Strongly disagree	Disagree	unsure	Strongly agree	Agree
Neonatal nurses accurately assess the intensity of pain	1%	11%	11%	31%	46%
Neonatal nurses adequately prepare neonates for painful procedures?	3%	9%	16%	23%	49%
Neonatal nurses adequately prepare parents when their neonate is having a painful	2%	8%	12%	35%	44%
Neonatal nurses use a consistent approach in assessing pain?	3%	10%	14%	30%	43%
Neonatal nurses choose a pain management tool according to a neonate's age and development?	7%	14%	17%	25%	37%
In assessing pain in neonates, crying is the only way to know if they are experiencing pain	3%	12%	20%	29%	35%
Because of their immature nervous system, neonates do not need analgesics as often as adults do?	3%	8%	26%	27%	36%
Most likely a neonate is pain-free if he/she is able to sleep after a painful experience?	12%	15%	15%	19%	39%
Neonates differ widely in their response to painful procedure	5%	10%	14%	27%	44%

Knowledge Level	Frequency	Percent	Out of 92 participants, a great part of 73(79.3%) had sufficient knowledge on neonatal pain
Poor	19	20.7	
Good	29	31.5	
Very Good	44	47.8	
Total	92	100.0	

Summary of table 2 of Knowledge levels on neonatal pain management

4.3 Perception Level on neonatal plain Management

The perception of nurses towards neonatal pain management was graded according to the participants' scores in the findings as shown in the table 3. The 64(69.6%) perception level was graded as good, 15(16.3%) as poor perception and 13(14.1%) as very good using likert scale. A large proportion of 77 (83.7%) had positive perception on neonatal pain management of which protocols and guideline 90(97.9), teamwork 90(97.9) respectively scored the highest followed by assessment as essential to alleviate pain 85(92.4).

Table 4 Assessment of nurses and midwives perceptions of neonatal pain management.

Items	Frequencies (%)				
	Strong disagree	Disagree	Unsure	Agree	strongly agree
As a neonatal nurse, do you consider pain assessment as the essential first step to alleviate pain in a neonate?	0	3 (3.3)	4(4.30)	39(42.4)	46(50)
Do you think that a protocols and guidelines would be helpful with pain management in neonate?	0	2(2.2)	0	42(45.7)	48(52.2)
Do you think that collaboration and teamwork would be helpful with pain management in neonate?	0	2(2.2)	0	42(45.7)	48(52.2)
Do you think that more leadership would be helpful with pain management in neonate?	2(2.2)	13(2.2)	11(12)	41(44.6)	2(2.2)
Do you think would be helpful if physicians would prescribe pain management medication more often for neonates?	1(1.1)	12(13.2)	14(14.2)	47(51.1)	18(19.6)
Do you think it would be more helpful if there was a Specific tool to assess pain in neonate?	1(1.1)	2(2.2)	1(1.1)	37(40.2)	51(55.4)

Perception Level on neonatal pain Management			
Perception	Frequency	Percent	A large proportion of 77 (83.7%) had positive perception on neonatal pain management. Of which protocols and guideline, teamwork scored the highest followed by assessment as essential to alleviate pain.
Poor	15	16.3	
Good	64	69.6	
Very Good	13	14.1	
Total	92	100.0	

Summary of Table 3 on levels of nurses' and midwives perception of neonatal pain

4.4 Factors Influencing Pain Management among Nurses

These parts of assessing factors that influence pain management among participants, nine questions were used. Most of the participants agreed on most of the factors but, the good number emphasized on how nurses can make a difference at 82.6% and in-service training at 80.5%. Prescriptions made by physicians was also among important factors and positive perceptions of nurses would make a difference at 62(67.3).

Table 5 Factors influencing pain management among nurses

Items	Strong disagree	Disagree	Unsure	Agree	Strong agree	
Neonate nurses document effectiveness of non- pharmacological pain given?	5(5.4)	6(6.5)	10(10.9)	28(30.4)	43(46.7)	
Accurate documentation of pain assessment leads to more effective pain management?	4(4.3)	3(3.3)	11(12.0)	37(40.2)	37(40.2)	
A neonatal perception of pain can be influenced by how a neonatal nurse approaches the neonate.	7(7.6)	5(5.4)	8(8.7)	26(28.3)	46(50.1)	Most of the Participants agreed on the studied factors but the good number emphasized on how nurses can make a difference 82.6%and in-service training at 80.5%
Neonatal nurses can make a difference in how neonates cope with painful events.	3(3.3)	2(2.2)	10(10.9)	27(28.3)	50(54.3)	
Has in service education had an influence on your nursing interventions to control pain in neonates?	3(3.3)	10(10.9)	4(4.3)	41(44.6)	33(35.9)	
Has the availability of pain tools had an influence on your nursing interventions to control pain in neonates?	3(3.3)	11(12.0)	8(8.7)	31(33.7)	39(42.4)	
Has the leadership had an influence on your nursing intervention to control pain in neonates?	5(5.4)	15(16.3)	13(14.6)	18(19.6)	41(44.7)	
Has the policy had an influence on your nursing interventions to control pain in neonates?	4(4.3)	11(12.0)	15(16.3)	19(20.7)	43(46.6)	
Has a pain prescription from a physician have an influence on your nursing interventions to control pain in neonates?	3(3.3)	11(12.0)	7(3.3)	20(21.7)	51(55.4)	

4.6 Potential Barriers to Neonatal Pain Management

According to this study five issues were raised in the questionnaire and according to the results there was no barrier identified but a significant number 23.9% and 21.9% report leadership support and lack of in-service training as barriers.

Barriers to Neonatal Pain Management	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
There is no pain management policy in place	29(31)	33(35.9)	13(14.1)	13(14.1)	4(4.3)
Lack of pain tool	25(27.2)	33(35.9)	10(10.9)	20(16.3)	4(4.3)
Little or no leadership support	25(27.2)	33(35.9)	9(9.8)	20(21.7)	25(2.2)
Physicians do not prescribe pain medications	26(28.3)	38(41.3)	10(10.9)	15(16.3)	1(1.1)
Lack of in-service training	18(19.6)	33(35.9)	11(12.0)	11(12.3)	18(19.6)

Table 6 Potential Barriers to Neonatal Pain Management

CHAPTE5: DISCUSSIONS

5.0 Introduction

This chapter is discussing the study findings as related to available literature and pain context. It presents the summary of the study findings followed by the conclusion. Lastly, the chapter presents recommendations formulated to researchers, policy makers, nursing community and other partners in health.

5.1 Demographic factors

Ninety two nurses and midwives participated in the current study. Most of the participants were middle aged representing 65.2% .Most of the participants had a diploma in nursing or midwifery and this represented 70.7%. A big number of participants had five to seven years of working experience representing 41%. These results also reflect the Rwandan level of nursing and midwifery education which of recent past shifted from training enrolled nurses to diploma and degree levels. The institution where the study took place has a mandate to recruit diploma nurses as a requirement for accreditation. The study shows diploma nurses and midwives are high in numbers at 70.7%.

5.2 Nurses knowledge on neonatal pain

In the current study big number 73(79.3%)had sufficient knowledge on neonatal pain management .Similar studies in Uk, Sweden and South Africa revealed special ranks knowledge to pain management(Nimbalkar, et al.,2012; Asadi-noghabi et al. (2014).In controversy to study done in Italy low levels of knowledge in pain management was reported . Bernardi et al. 2007, p.5.

In this study very good knowledge ranges from 25-30% though some scored below average in poor level of knowledge in neonatal pain management. In this study good ranged from 19-24, poor below 18.Some of the questions that were scored well were: neonatal nurses use a consistent approach to assess pain (70.6%) about documentation participants reported that nurse's document effectiveness of pharmacological or non-pharmacological pain given (46.7%). The current study revealed that the age between 30 to 40years had good knowledge level of neonatal pain management 68.2%.and these were the middle aged group.

To assess neonatal knowledge participants were asked to rank a practical question ‘in assessing pain in neonates’ is crying is the only way to know if they are experiencing pain n=37(40.3%) scored that they agree which show a gap in practice, another question also asked was ‘because of their immature nervous system, neonates do not need analgesics as often as adults do? This scored agree at a rate of n=28(30.4%).A big number 73(79.3%)had sufficient knowledge on neonatal pain management .Similar studies in Uk, Sweden and South Africa revealed special ranks knowledge to pain management(Nimbalkar, et al.,2012; Asadi-noghabi et al. (2014).In controversy to study done in Italy low levels of knowledge in pain management was reported . Bernardi et al. 2007, p.5.

This current study show a gap between knowledge and practice as it was also brought out by a study done in Finland where results of curriculum evaluations and knowledge studies revealed that pain education was limited and unsystematic (Vaajoki 2013, p.2).

A study is consistent with a study done in UK in Swansea University where they found out that clinicians were knowledgeable about neonatal pain, but gaps between knowledge and practice remain (Akuma & Jordan 2011, p.1) The same results were also got by Rita de Cassie, (2010) who found out that nurses and doctors have knowledge but there seems to be a disconnection between knowledge and what is in practice as (Rita de Cassie & Balda, MD, Guinsburg 2016, p.534) The researcher believes that the gap could be bridged by providing research evidence for the effectiveness of guidelines and in-service training to equip nurses with current evidence on neonatal pain

5.3 Perceptions of nurses on neonatal pain management

A positive perception of nurses to neonatal pain management have been seen where by protocols and guideline, teamwork scored the highest followed by assessment as essential to alleviate pain. On ranking perceptions the respondents put protocols and guidelines among top priorities put it at number on 90(98.4%),the second priority was tools for assessing neonatal pain at 95(95.6%) and the third top priority was collaboration and team work at 90(97.9). These top factors mentioned by respondents are very critical in facilitating pain in neonates. Rita de Cassie,(2016) in her study she revealed the same results that validated pain tools should be used to minimize the different perceptions of neonatal pain among health professionals. Tylor; (2006

p.76) reported that the better the assessment the best the neonatal pain management outcome. In this same study they pointed out that making decisions regarding the need or the intensity of analgesia as objective as possible. Although several neonatal pain scales are available in the literature, most are validated for acute neonatal pain; very few are designed to evaluate repetitive acute pain or non acute pain status, which are the most common and difficult situations when dealing with critically ill newborns(Rita de Cassie & Balda,Guinsburg 2016, p.537)

The study done by Po et al (2010) where years of experience were found to relate to good pain management but in the current study there were no relationship between years of experience and nurses perception or improved knowledge current study lent support to the part of few years in the job was related to poor knowledge as the professional nurses is still bargaining weather neonates feel pain(Po et al. 2010, p.9). The current study picked items that were put on the questionnaire of factors that influence pain management but most of the participants scored highly Nambalkar, (2012) in their study about knowledge of nurses claimed that education in schools was of great use though 52.5% nurses only used assessment tools to assess pain.

Clinicians reported no formal training during school time though of these none participated in the formation or auditing of the same guidelines (Akuma & Jordan 2011, p.7). The current study supports the study done by Cong et al which revealed problem of pain tools, insufficient education, be short of evidence-based education ,lack of collaboration of clinicians, and other nursing responsibilities and workloads (cong et al. 2014).In the current study it was revealed that respondents contradicted that they have a big role to play on managing neonatal pain when they were asked if “neonatal nurses can make a difference in how neonates cope with painful events” they responded positively at 72(78.4%). Another question was neonatal nurses can make a difference in how neonates cope with painful events the response 29(31.9%) was positive meaning. This study was inconsistent with a study of done in India that found out that nurses had a negative attitude that hindered pain management among neonates (Nimbalkar et al. 2014, p.1).

5.4 Factors affecting neonatal pain management among nurses

Factors associated with neonatal pain were found to be as a priority effectiveness of pain killers, 46.7%, accurate documentation at 40.2% and last nurses approach to neonates. Just 58% of nurses examined knew if neonatal care areas had a pain instrument and even very few could tell the name of the tool. Most of the Participants agreed on the studied factors but the good number emphasized on how nurses can make a difference 82.6% and in-service training at 80.5% Pain management guidelines with leadership support have proved to raise pain management efficiency in neonatal care areas. Health care workers suggested development of pain policies, pain tools, more education about recent research on pain, staff training, support in empowering nurses to be advocates of infants, update treatments like PRN sucrose for neonates, teaching on how to give power to the parents, and modify personnel thoughts to analgesia utilization (Nadin ,2016;Akuma & Jordan 2011).

The call for more education appears to be a steady idea almost in all studies. With Anands' study of 2007, a broad knowledge foundation with awareness and modern studies allied to pain management are principal to assist health professionals caring for neonates in neonatal care areas; periodic workshops with most current research in view to pain care in the neonatal care areas would particularly be useful in harmonizing the culture. Nambalkar, (2012) in their study about knowledge of nurses claimed that education in schools was of great use though 52.5% nurses only used assessment tools to assess pain. Clinicians reported no formal training during school time though of these none participated in the formation or auditing of the same guidelines (Akuma & Jordan 2011, p.7)

5.6. Barriers to neonatal pain management

There was no barrier identified as results revealed 63.6% however a significant 23.9% & 21.9% report leadership support and lack of in-service training as a barrier In this study, factors influence neonatal pain management while barriers are a stumbling block to neonatal pain management .Among barriers that were identifies as most voiced out was lack of in-service training n=29(31.9%) and another on little or no leadership support at n=45(22.9%). About physician not prescribing pain medication the current study found respondents ranked it at n 16= 17%. In the current study the researcher see these barriers as a big problem in hindering the quality of life in neonates .This is evident that not prescribing or not getting support from

leadership is both accountability to professionals because it hinders quality of life of neonates brought about by holding pain medications in neonates.

A study by Nambakar pointed out that not only nurses hold pain medication but also physicians don't prescribe pain medication (Nimbalkar et al. 2014 p,1).The current study reveals the strong relationship with that of Shallon Lakes about barriers to pain in preterm and critically ill neonates nurses reported that physician practice was the primary obstacle to providing effective pain management (Lake 2013 p.4). In the same study additional concerns included knowledge deficits of nurses and physicians, lack of communication and teamwork, nurses reported biases in managing pain and were less likely to invest time and energy treating the pain of infants.

Similarities and differences were encountered by number of authors, in US, china and India where many barriers were identified like lack of tools, insufficient education, short of evidence-based , collaboration of clinicians, and other nursing responsibilities and workloads (Cong et al. 2014; Asadi-noghabi et al. 2014, Czarnecki et al. 2011, p.158 Lake 2013, p.47). Lack of prescription was ranked at 17% which was confirm that physicians are among obstacles to neonatal pain management (Shallon Lakes, 2013; Nambakars, 2014).

5.7 Connection with the conceptual framework

The Conrad framework used five fields that include: patient, health, environment and transitions nursing issues. The framework uses three system theories .The framework includes many features of nursing aspects e.g. knowledge, attitudes, accountability and skill pertaining pain management. In this model the nurse to manage pain she /he needs specialized knowledge of pain with positive attitudes in order to manage pain. These features play a big role in nursing care and more especially linked with environment of both are found in. The patient needs a supportive environment like a silent room especially in NICU and family as parents to help in decision in case of neonates.

In the conceptual framework the nurses' knowledge and perceptions about neonatal pain may help to assess the left behind symptoms in neonates and keenness to not look only on the physical response to pain as neonates posses their own language in responding to a painful stimuli. Neonatal pain management will be influenced by knowledge ,factors that influence pain

management like guidelines and protocols, barriers to pain management like have no little or no leadership support or continuous nursing education would help a lot to facilitate neonatal pain management.

5.8 Application to Practice

Assessment of the neonatal pain is crucial as a nursing function the goal of which is to relieve pain hence improve the quality of life in neonates .What is noted in this study is the use of knowledge into practice. Literatures say that despite the knowledge nurses do not always bring the theory into practice. Nurses and midwives in neonatal care setting need to update themselves with new information about neonatal pain (Rita de Cassie & Balda, MD, Guinsburg 2016 p,1) .

All nurses and midwives regardless of education levels need to be active in research on neonatal pain thus to be good advocates for these speechless people. To do this, encouragement of continuous nursing education thus building awareness of neonatal pain guidelines. Formulate or update guidelines as per new evidence. There a need to start champions of pain these care areas. A multi-displinary approach should be used including nurses, midwives, pain nurses, social workers and other professionals. The team should help in advocacy and teaching about neonatal pain. With the concept of family centered care, parents should be involved in neonatal care evidence shows family presence during neonatal care reduces the number f procedures done in the hospital.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

This study has shown that nurses working at King Faisal Hospital Kigali have sufficient levels of knowledge and positive perception towards neonatal pain management however, leadership support and in services training were highlighted as need in order to further improve neonatal pain management .

6.2 RECOMMENDATION

Provide trainings related to neonatal pain management within the hospital.

Make and implement policies/guidelines related neonatal pain management

Avail system support required for neonatal pain management.

Nursing Council to organize CPD on neonatal pain management

Review education culculunm in order to include neonatal pain management if it's included

Further research with similar objectives is recommended involving referral hospitals to reflect the context of Rwanda.

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APPENDICE

NEONATAL PAIN SURVEY

This survey is designed to assess the nurses' perception of pain in the neonate. It is comprised of four objectives. It is only used for research purposes and therefore your name is not attached to the survey.

Demographic information

Sex: Female

Male

Age

1. What is your highest level of Nursing Education?

Diploma Degree

Bachelor's degree

Master's degree

2. How many years have you worked in this department?

1-2 years

8-10years

3-4 years

11-15 years

5- 7 years

>16years

Objective 1: To describe nurses' knowledge about neonatal pain management in neonatal care areas

Please tick (✓) the best answer to the following questions:

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Neonatal nurses accurately assess the intensity of pain?					
2. Neonatal nurses adequately prepare neonates for painful procedures?					
3. Neonatal nurses adequately prepare parents when their neonate is having a painful procedure?					
4. Neonatal nurses use a consistent approach in assessing pain?					

5. Neonatal nurses choose a pain management tool according to a neonate's age and development?					
6. In assessing pain in neonates, crying is the only way to know if they're experiencing pain?					
7. Because of their immature nervous system, neonates do not need analgesics as often as adults do?					
8. Most likely a neonate is pain-free if he/she is able to sleep after a painful experience?					
9. Neonates differ widely in their response to painful procedure?					

Objective 2: To explore factors that influence pain management among nurses

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Neonatal nurses document effectiveness of pharmacological or non-pharmacological pain given					
2. Accurate documentation of pain assessment leads to more effective pain management					
3. A neonatal perception of pain can be influenced by how a neonatal nurse approaches the neonate					
4. Neonatal nurses can make a difference in how neonates cope with painful events					
5. Has in-service education had an influence on your nursing interventions to control pain in neonates?					
6. Has the availability of pain tools had an influence on your nursing interventions to control pain in neonates?					
7. Has the leadership had an influence on your nursing interventions to control pain in neonates?					
8. Has the policy had an influence on your nursing interventions to control pain in neonates?					
9. Has a pain prescription from a physician an influence on your nursing interventions to control pain in neonates?					

Please tick (✓) the best answer to the following questions:

Objective 3: To identify potential barriers to pain management in neonatal care areas

Please tick (✓) the best answer to the following questions:

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Neonatal nurses can have a powerful influence on the management of neonates in pain					
2. There is no pain management policy in place					
3. Lack of pain tools					
4. Little or no leadership support					
5. Physicians do not prescribe pain medications					
6. Lack of in-service training					

Objective 4: To assess nurses' perception of pain management in neonatal area

Please tick (✓) the best answer to the following questions:

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. As a neonate nurse, do you consider Pain assessment as the essential first step to alleviate pain in a neonate?					
2. Do you think that a protocol and guidelines would be helpful with pain management in neonate?					
3. Do you think that collaboration and teamwork would be helpful with pain management in neonate?					
4. Do you think that more leadership would be helpful with					

pain management in neonate?					
5. Do you think it would be helpful if physicians would prescribe pain management more often for the neonate?					
6. Do you think it would be more helpful if there was a specific tool to assess pain in the neonate?					

7. Do you have a tool to measure pain in the neonates?

Yes No

8. If yes, what is the name of the tool, or describe please it if you do not remember the name:

- I. Thank you Premature infant pain profile (PIPP),
- II. Neonatal Pain, Agitation Sedation Scale (N-PASS),
- III. Newborn Infant Pain Score (NIPS)
- IV. Astrid Lindgren Children's Hospital Pain Score

**INFORMED CONSENT FOR THE PARTICIPATION IN THE
RESEARCH STUDY**

Dear Madam, Miss, Sir,

I, **LUNKUSE Edith** , candidate in Master of sciences in Nursing program, Neonatal track at the University of Rwanda, College of Medicine and Health Science, kindly request for your participation in this study titled “Neonatal Pain :Nurses’ Perception of Management in a Selected Referral Hospital In Rwanda” with the aim of improving the management of neonatal pain.

If you would take a few minutes out of your busy schedule and fill out this attached questionnaire it would be of a tremendous help to me. There are no right or wrong answers, just choose the response which you feel reflects your perceptions.

The total confidentiality of your voluntary participation in this study is guaranteed and the information you provide will be kept anonymous. Your participation in this study is highly appreciated and is for invaluable contribution in the improvement of the quality of care in regard to neonatal pain management. These questionnaires will be used only by myself for my research and will be destroyed following tabulation. No attempt will be made to link you with the answers. For any information or clarifications you can contact: Chairperson of the CMHS IRB 0788 490 522 and of the Deputy Chairperson 0783 340 040. I thank you very much for taking part in this study.

If you are interested in the results of this research or have any other questions, feel free to contact me on +250788521664 or +250786342289

Signature of the Participant: _____

Signature of the Researcher:_____

Thank you

LUNKUSE Edith JK

LUNKUSE Edith JK
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Tel: +250788521664/+250786342289

March 14th, 2017

To: The Manager
King Faisal Hospital, Kigali-Rwanda

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR DEPARTMENT/UNIT

Dear Manager,

I am currently doing my thesis work for the degree of MSN at The University of Rwanda Collage of Medicine and Health Science. I need your help and the help of your staff for data collection. I am determining nurse's perceptions regarding neonates in pain. The enclosed questionnaire, when filled out, will provide me with that data. Attached is consent form to be filled for ethical reasons

Please have your staff and yourself fill out the enclosed questionnaire suid place in the enclosed envelope. I can pick up the finished questionnaires at a later date. Any questions please call me 0788521664 or +250786342289.

Thank you.

Yours faithfully

LUNKUSE Edith JK