MOTHERS' PERCEPTIONS OF PARTNERS' INVOLVEMENT IN KANGAROO CARE IN NEONATOLOGY UNIT IN RWANDA

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Declaration

I Verene ABAGIRIMANA, I hereby declare that this research dissertation entitled, “Mothers’ perceptions of partners’ involvement in kangaroo care in the neonatology unit at Kibungo Referral Hospital” submitted in partial fulfillment of the requirements for the degree of Masters of Sciences in Nursing (Neonatology) to the University of Rwanda is my own work and has not presented elsewhere in higher institution have been acknowledged by references.

Signature

Verene ABAGIRIMANA

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Dedication

I sincere dedicate my work;

To my lovely daughter INEZA U. Oceanne and her sisters

To my family particularly my mother-in-law

To all brothers and sisters

To classmates for the moments shared mutually

Acknowledgements

I do acknowledge with sincere gratitude the greater support and guidance, patience and collaboration from my supervisors, Dr Pamela Meharry and Alice MUHAYIMANA, MS.
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May almighty God bless you much!

ABSTRACT

Introduction: An evidence-based strategy for lowering mortality and morbidity in preterm and low-birth-weight newborns is known as kangaroo mother care (KMC). Kangaroo care is usually initiated in the neonatology unit or neonatal intensive care unit (NICU) when a stable newborn is placed in the prone position on the mother's chest for skin-to-skin contact. Recent studies have also demonstrated the advantages of giving the mother's partner the chance to participate in kangaroo care (KC) of the newborn; however, little is known about how Rwandan mothers see their partners' participation.

Aim: This study explored the mothers' perceptions on value and barriers of their partners' involvement in Kangaroo Care of the newborn.

Methods: The moms' perspectives on having a newborn in the neonatology unit and KMC were investigated using a descriptive qualitative design. The setting was the neonatology unit at Kibungo Referral Hospital in Rwanda with a catchment area of 15 health centers and 310,955 inhabitants. The mothers' perception of the value and obstacles related to their partners' participation in KC were evaluated using an exploratory qualitative approach method. All parents (mothers) who had a preterm/LBW newborn hospitalized during the data collecting period made up the study population. Purposive sampling was used to access mothers who had newborns in the neonatology unit during the study period and choose study participants from among them. The sample was continued to increase in size until no new information about KC is provided by the participants, a situation called data saturation. To collect information from participants and allow them to share their thoughts and views about the KC while achieving the goals of the study, an interview guide was used. The data analysis was performed using NVivo 12 qualitative content analysis software, which included reading the data, entering and coding the data in NVivo, then formulating themes and subthemes. The themes were divided into value and barriers to KC in the neonatology unit.

Results: Thirteen participants (mothers) were interviewed. The mothers expressed their perceptions of the value of their partners' contribution to KC and myriad barriers that prevent KC involvement. Although their partners were less likely to be personally involved in KC and the mothers were considered as being crucial to delivering KMC, the participants highlighted many barriers that impede their partners from participating in KC practice: The barriers included

Lack of time and other obligations; Cultural beliefs, religion and Stigma attached to fathers' providing newborn care including KC; Lack of opportunity to KC practice due to facility environment, Fathers' low awareness of KC, and other Family members' contribution in KC.

Discussion: The partners (fathers) were challenged by a range of barriers to practice KC with their newborns. The mothers voiced that partners were less likely to be directly involved in KC but they play an indirectly important role in KMC, especially when their preterm and low-birth-weight newborns are hospitalized.

Keywords: Kangaroo care, fathers, partners, Kangaroo Mother Care, Newborns, neonatology, NICU, Africa

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LIST OF SYMBOLS AND ABBREVIATION

KMC: Kangaroo Mother Care

KC: Kangaroo Care

NICU: Neonatal Intensive Care Unit

LBW: Low Birth Weight

WHO: World Health Organization

SSA: Sub- Saharan Africa

LMICs: Low-and-Middle Income Countries

HICs: High-income countries

ISU: Idaho State University

IDC: Integrative Developmental Care

SSC: Skin to Skin Contact

IRB: Institutional Review Board

UR: University of Rwanda

CHAPTER 1: INTRODUCTION

1.1. Introduction

The background of the problem, the problem statement, the purpose of the research, the objectives and research questions, the significance of the research, the definition of concepts, the design of the study, and the chapter's conclusion are the main topics of this chapter.

1.2. Background

Skin-to-skin contact (SSC), also known as kangaroo mother care (KMC), is the practice of holding babies chest to chest and skin to skin in an upright position with their parents, usually their mother or their father [1]. In the Neonatal Intensive Care Unit (NICU), KMC is frequently utilized for premature and low birth weight newborns who are more susceptible to experience hypothermia. It has been demonstrated that KMC keeps babies warm and encourages early breastfeeding [20].

Prematurity, low birth weight (LBW), and sepsis are the three most important causes of neonatal mortality, according to the World Health Organization (WHO). [6] Around 20 million newborns worldwide are born preterm each year, and roughly one-third pass away within the first week of life [6]. Around the world, low birth weight newborns account for 60–80% of neonatal fatalities. [4] Furthermore, about 75% of LBW newborns require intervention to stabilize their blood oxygen levels and body temperature within the first few minutes after birth. [8]

KMC has been suggested as a workable natural intervention [24], with a 30–70% drop in newborn death and morbidity [10], in both developed and developing nations. In 2016 one systematic review revealed that KMC practice reduces 95% of morbidity and mortality in LBW neonates [6]. Another study demonstrated that using KMC, the preterm mortality rate decreased by 40%. [10] KMC has demonstrated increased bonding between parents and newborns, decrease infection rates and improved weight gain. [10] KMC is considered an effective intervention to save preterm newborns. [6] KMC was initially used in Bogota, Colombia, in 1978.The process was developed because of the challenges to keep neonates warm, overcrowding, and elevated infection rates in the neonatal units of limited-resource areas. [18]

Following the inception of KMC in Colombia, the WHO recommended it as standard care for preterm and LBW newborns in Sub- Saharan Africa (SSA). [25] KMC has also contributed to increased bonding and reduced anxiety with parents [3, 4]. A study performed in Sweden found that KMC is beneficial for preterm newborns, contributing to cardiovascular stabilization, fewer distress signs, and further organized the newborns' transition phase. [8] In a Bogota NICU, the newborns were kept in KMC 24 hours per day until the baby demonstrated behaviors consistent with the set discharge criteria, usually at around 37–38 weeks of gestational age. [13] Research done in Ethiopia shows that KMC provided by fathers, brothers, and grandmothers improved maternal and newborn health. [4] In Sweden, fathers provided KMC 53% of the time. [13] There are several reasons why parent-fathers in low- and middle-income countries (LMIC) do not choose to be engaged in KMC practice. Social and cultural factors as well as resource and experiential problems are the causes. [10]

Ninety-eight percent of all neonatal deaths happen in LMIC, with 75% occurring in SSA and South Asia, including Rwanda, where the KMC practice rates remain low. [21] In SSA, the source of neonatal mortality is associated with prematurity and low birth weight. [21] KMC provided by mothers has reduced the risk of death, increased weight, and increased breastfeeding rates. [4,6] According to the WHO, KMC provided by both parents is one of the strategies that is advised to enhance preterm birth outcomes in both developed and developing nations. [9] In Nicaragua in Central America, fathers may alternate with mothers to provide KMC for their newborns; this allows mothers to rest and other family activities. [19] International research conducted by the National Association of Neonatal Nurses in Idaho State University (ISU) in 2019 demonstrated that involving partners in KC encouraged participating in the care and bonding with their newborns. [17]

In both the developed and developing worlds, KMC has long been advocated for and utilized to support thermoregulation for preterm and low birth weight neonates. [18] In Zimbabwe, KMC practice reduced neonatal mortality by 40%. [21] KMC has been given top priority by the Malawian government as a significant way to lower newborn mortality. [15] In Bangladesh, a study demonstrated that if KMC has been performed, it could have alleviated 54% of all neonatal deaths. [15] In Rwanda, preterm birth is one of the three major

leading causes (30%) of neonatal deaths. [26] KMC was implemented at Muhima Hospital in Rwanda in 2007 as a part of ongoing initiatives to comprehensively intervene in maternal, infant, and child health to lower neonatal mortality rates. [23] Further research in Rwanda has revealed that KMC shortens hospital stays and lowers rates of infections, hypothermia, and serious sickness. [23] However, there is limited research to show the mothers' views about partner's involvement in KC in Rwanda.

1.3. Problem statement

Each year, more than 50% of the LBW newborns born in LMICs do not survive, compared to their counterparts born in high-income countries (HICs) due to sepsis and hypothermia. [45] KMC in all global health settings has been identified as an alternative way and a critical public health strategy to prevent neonatal mortality and morbidity. [27] In order to reduce infant fatalities in LMICs to 12 neonatal deaths per 1000 live births, the WHO has emphasized the use of KMC by both parents as one option that will help achieve the SDG 3 [45].

In SSA, including Rwanda, KMC is usually provided by the mother, whereby the newborn is placed on her chest for an extended time (over 18 hours per day), but this may lead to exhaustion and a reduction in KMC effectiveness. [4] A study conducted in Rwanda in 2019 showed that 70.8% of mothers face obstacles in practicing KMC due to competing family responsibilities, and 12.5% of mothers had difficulty sleeping during KMC practice. [23] KMC may be physically and emotionally challenging for mothers and often requires support from family members. [1]

Partners could provide a vital contribution to Kangaroo Care (KC) of the newborn, and as a family member, an ideal alternative to maintain quality care to the newborn. [21] Partners' KC contribution allows mothers time to rest and partake in other family activities. [19] However, there is limited research on the mothers' perception of the partners' involvement in KC in Rwanda. One study revealed that 11.1% of Rwandan mothers report disagreement with their husbands' involvement [23]. Therefore, it is important to determine mothers' perceptions of partners' role in KC with their newborns to appreciate KC by both parent to minimize neonatal morbidity and mortality in Rwanda. The goal of this study is to investigate how mothers at Kibungo Referral Hospital feel about their partners' involvement in KC. A descriptive qualitative

study design was used to explore the partners' enablers and barriers in KC practice in a Rwandan NICU.

1.4. The aim of the study

The aim of the study is to explore the mothers' perceptions on value and barriers of their partners' involvement in kangaroo care in the neonatology unit at Kibungo Referral Hospital.

1.4.1. Objectives

1. To assess mothers' perceptions on the value of their partners' involvement in KC practice in the NICU.
2. To describe mothers' perceptions on the barriers related to their partners' involvement in KC in the NICU.

1.4.2. Research questions

1. What are mothers' perceptions on the value of partners' involvement in KC practice in the NICU?
2. What are mothers' perceptions on the barriers related to partners' involvement in KC in the NICU?

1.5. Significance of the study

The research will benefit the following areas.

Research: By utilizing techniques to encourage the uptake of KC by both parents with preterm/LBWIs, this study enabled the identification of strategies/recommendations to guide policy formulation and/or update and advise future research and practice.

This study will generate new evidence around fathers providing KC in Rwanda.

Heath facilities organization: An essential part of quality healthcare for newborns in the neonatal service is the provision of KMC. It will help Rwanda health facility to review KMC policy for involving fathers in KMC practice.

Education: This study will help guide education about KMC in Rwanda for the graduating nurses/midwives. It will help also guide education about KMC in Rwanda in the care of newborns.

Nursing care: This study will help nursing staff be cognizant of the importance of involving the partner in the KC process and identifying the best strategies for newborn care engagement.

Community: This study will help the families in the community realize that partners, as well as mothers, can provide KMC for newborns within the neonatal service, ultimately enhancing family cohesion.

1.7. Definition of concepts

Attachment: Bonding or developing an emotional bond with the newborn.

Low-birth-weight (LBW) newborns: LBW newborns weigh less than 2,500 grams, regardless of gestational age. The measurement is done within an hour after birth and before there has been a considerable postnatal weight reduction [14].

Preterm newborns: Newborns born before the completion of 36.6 weeks gestation. Preterm newborns are at risk for temperature regulation, weak immune function, and increased exposure to infection [21].

Perception: This is the way that someone thinks and feels about a topic.

Mother: Female parent of the newborn

Partner: Male parent (father) of the newborn

Kangaroo Care: is the practice to put the newborn in an upright prone posture on the partner's or another family member's chest for skin-to-skin contact (SSC) [1].

Kangaroo Mother Care (KMC): KMC involves placing the newborn in an upright prone posture on the mother's chest while performing SSC [1].

Partners' involvement: Contribution of the male parent in KC.

Neonatal Intensive Care Unit (NICU): The NICU is a specific hospital area where the newborns who are premature or LBW receive specialized care, including KMC.

1.8. Structure organization of the study

The study's outline is explained in Chapter One. It contains a succinct explanation of the study's background, problem statement, significance, research aim, research questions, and objectives. This chapter contains definitions of main terms.

Chapter Two constitutes the literature review and accordingly contains the application of models and theoretical frameworks deemed suitable for the study. Other authors' perspectives on the study topic and the research challenge have been logically provided.

The study's methodology will be the main topic of chapter three. It includes information on the study's design, setting, sample, instrument, data collecting and analysis, and ethical considerations.

Chapter four presents the research's findings displayed in tables and figures and aligned with the objectives.

Chapter five includes a discussion section, with an interpretation based on the findings and supporting and contrasting studies.

Chapter six will include the conclusion and recommendations deduced from the study.

1.9. Conclusion

Preterm and low birth weight-related neonatal mortality rates are still high in South Asian and SSA nations, including Rwanda. The newborn death rate in Rwanda is 16 per 1000 live births. Rwanda has committed to meet the Sustainable Development Goal by reducing preventable newborns deaths at least to as low as 12 deaths per 1,000 live births by 2030. In order to achieve this goal, the Rwandan Government has established effective interventions such as KMC to reduce newborn mortality substantially. Instituting KMC by mothers and fathers in Rwanda can minimize neonatal morbidity and mortality.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

The literature review will focus on the theory supporting KMC and KC, the empirical literature, a critical review of both, research gaps identified, and finally, the conceptual framework linking the KMC variables. The literature sources included electronic databases such as Cochrane Library, HINARI, PUBMED Central, Google Scholar, and the Rwanda Journal of Medicine and Health Sciences. Vancouver referencing style was used as the writing format.

2.2. THEORETICAL LITERATURE

Up to 15 million premature deliveries occur annually around the world, which presents a significant nursing challenge for newborns. [1] Preterm infants are taken away from their parents after birth and placed in a NICU due to their critical state of health. [10] The separation is a significant stressor for newborns and parents, resulting in fewer opportunities for shared affection and bonding between parents and their newborns. [1, 31] Through the Neonatal Integrative Developmental Care (IDC) Model, the theorist Altimier and Phillips assess how the parents could be integrated into care of hospitalized preterm newborns in NICU (family-centered care). [38] According to his conceptual model, KC with mother (or partner) is the most important healing environment for newborns because it gives parents a chance to work alongside families by allowing them to actively participate in the baby's care, promote parent-newborn attachment development, and reduce parent stress. [38] A systematic review conducted in 10 countries with high preterm birth rates, showed that KMC significantly reduced stress in parents and newborns, and increased parent-newborn bonding and parental confidence in caring for their newborns. [11]

KMC is a method that involves placing the newborn on the parent's naked chest and covered with cloths, allowing intense skin-to-skin contact (SSC) for possibly up to 18 hours a day. [10] Through bonding behaviors including touch, skin-to-skin contact, eye contact, and soothing, the KMC technique enhances parent-newborn intimacy. [8] The WHO recommends KMC as a fundamental intervention for stable preterm and LBW babies; it contributes to cardiorespiratory stabilization, fewer signs of stress, a more organized sleep-wake cycle and promotes breastfeeding. [8]

KMC has been found to be a helpful and effective technique for enhancing the physical outcomes of preterm newborns, such as weight gain and increased length and head circumference. [36] According to WHO, KMC is also an appropriate care method to use in the NICU to increase bonding, decrease the sepsis rate, reduce the risk of hypoglycemia and hypothermia and improve newborns' weight gain.[1,10] Additionally, KMC decreased mortality by 40%, sepsis by 65%, and hypothermia by 72% when compared to standard treatment. [36] In India, KMC has been standardized as routine care for LBW newborns, preventing up to 40% of all newborn deaths. [37] A study conducted in Ireland showed that KMC promotes exclusive breastfeeding and increases preterm/LBW newborns' weight gain in the hospital setting. [9]

The WHO advises beginning the KMC practice in the healthcare facility to promote early hospital discharge and continuing for several weeks following discharge. [11] However, active parental involvement is vital for the continuation of KMC at home. [8] Parents who have other children in need of care as well as employment commitments may find it difficult to practice KMC for extended periods of time. [39] During hospitalization, KMC requires family members' partnership to continue other maternal tasks and obligations. [34] Several studies showed that parents working together with KMC of the newborn allows for better sharing of the benefits such as improved relaxation and better sleep. [1, 8] The WHO released recommended KMC for advanced preterm and low birth weight newborn outcomes in developed and developing countries, provided by both parents (mother and father). [9]A study showed that KMC practice is understood, acceptable and enjoyed by mothers. [19]

Involving the parents, otherwise known as family-centered care, as soon as possible, helps in the development of the parental role. [11] The fathers' participation in KC improves their paternal role and helps them transition to equal parenthood. [8] Increased father-child engagement, as measured by the five elements of sensory stimulation, physical care, warmth, development, and role of "fathering," leads to more positive parenting behavior. [1] The study conducted in Ghana and South Africa revealed that KC provided by family members, such as father and grandmother, improve mothers' emotional response during hospitalization. [11]

KMC has aimed to allow the parents by regularly transferring the skills and accountability by being the main caregiver and engaging in their newborns' emotional and physical needs. [6] Moreover, the father's newborn care participation enhances the mothers' emotional and physical recovery after giving birth. [34] The KMC practice was developed to allow parents to participate in their newborns' care and stimulate the attachment process. [10] Partner involved in KC catalyzes feelings of affinity and protectiveness and closer emotional ties with their newborns. [1] Several studies identified early father-newborn contact increases paternal attachments, helps develop the relationship and facilitates high-quality family-centered care. [11, 35] Partners' KC fosters strong sentiments of paternity for the newborn, boosts the environment's inspirational power, offers vital emotional support, and motivates them to take an active role in neonatal caring obligations. [1]

2.3. EMPIRICAL LITERATURE

2.3.1. Value of partners' involvement in KC practice in NICU.

Globally, the majority of male parents need a lot of support to engage in their newborns' various NICU activities. [16] In SAA, the birth of a preterm newborn challenges the partners' newborn care-giving ability due to the lack of psychological, physical and emotional support. [46] The National Neonatal Care Protocol recommended supporting, encouraging and educating partners to assist mothers in KMC. [47] However in NICU, in KMC practice, the role of the partners is equal to that of the mother. Partners are often at the mothers' side to support newborn care such as touch, massage, change diapers and bathing. [33] In South Africa (SA), KMC provides increase of mothers' responsibilities that amplify an opportunity for partners to contribute actively in the care of their preterm newborns, which is significant for the partners' accomplishment and helpful to the family unit. [46]

Similarly, in high-resource countries, both parents providing KMC enhances the newborns' stability and decreases hospitalization time. [29] In Sweden, both parents are involved in newborn care throughout the time of hospitalization in the NICU. [8] Partners' involvement in KMC facilitates the newborn transitional role, creates parent self-awareness, and raises intimate contact between fathers and their newborns. [11] A study showed that partners could also

facilitate the mothers' sense of intimacy, self-awareness and enhances relationships within the entire family, when helping with KMC. [5] Another study demonstrated that mothers involved were supported by the presence of partners during KMC practice. [10]

In Brazil, mothers valued the assistance of partners, grandmothers, and sisters during KMC who could take care of the chores and assist the newborn. [22]Similarly, in Ethiopia, KC practiced by fathers and grandmothers or other relatives improved the mothers and newborns' outcome. [4] Another study showed that newborns that received KC with fathers maintained normal skin temperature and had improved state behavior responses. [30] In Nicaragua, research showed that when partners provide KC to the newborn, they develop an emotional bond, and mothers can rest, shower, and take care of other needs. [19] A partners' presence in the NICU forms a foundation of security and confidence for the mother during KMC practice, allowing for adequate breast milk production. [33]

Studies conducted in Asia had varying results. In China, partners reported emotion in manage and easiness when they were more concerned in caring for their newborns in NICU. [30] Partners consider themselves an essential part in the course of caring for their newborns through KMC practice. [30] In Taiwan, 92.7% of partners were in close contact with their newborns and regularly participated in newborn care during the postnatal-mothers period. [32] The research revealed that 43% of partners involved in KMC had more confidence and were more likely to bathe their newborns. [5] Meanwhile, research conducted in a regional teaching hospital and maternity clinic in northern Taiwan showed that partners assume their preterm newborns' care, such as bathing and KC, while postnatal mothers rest after cesarean births. [35] In other studies, such as in Denmark, partners see themselves as less important than mothers and assume a secondary role, although they give care to the newborn with maternal absence. [32, 35] The study done In Rwanda revealed 11.1% of mothers reported disagreements with their husbands during KMC practice. [23]

2.3.2. Barriers associated with partners' involvement in KMC practice in NICU.

The WHO has recommended KMC practice as a new guideline for improving the outcome of preterm births. [23] A study done in Iran found that parents experience a high level of stress and anxiety when their newborns are born prematurely. [31] In addition, both parents must participate in KMC as it reduces their stress, increases a family bond, and permits each parent to take necessary breaks and provide better support to each other and their newborn. [19, 32] A systematic review conducted in the Netherlands in 2015 reported that due to differences in family responsibilities, job, and privacy, partners in KC practice encountered more obstacles than mothers did. [10]Another study revealed that lack of assistance and information related to KMC practice reduced the partners' involvement. [34]

In low-resource countries, fathers are less involved in KMC practice due to the discomfort of providing KC. [34] African fathers refused to participate in KC because of socio-cultural issues; they believed specific types of newborn care should not be performed by men, such as bathing and changing diapers. [33] Similarly, in Zimbabwe, partners expressed unease about performing KC because of societal norms that newborn care should be the mother's role. [22] Partners believed that they should not be included directly with KC, but could provide financial support indirectly. [33] A systematic review conducted in Africa revealed that partners should participate in all activities except breastfeeding. [33] Due to the obligations of their other children, fathers may find the time required for KMC to be a barrier. [22].

In LMICs, the first five top-ranked barriers for KC by partners was due to lack of opportunity to practice (20%), issues related to gender role (11%), require of help with KC practice and other obligations (7%), fear and anxiety of hurting the newborn (5%), and pain and fatigue (4%). [11] A study conducted in Iran revealed that religious, cultural, and inadequate health facility issues are obstacles to providing KC by partners. [23] In Malawi, the privacy and gender role were considered KC practice barriers, whereby some partners reported feeling uncomfortable practicing KC in public and the mix of mothers and fathers. [4] A large study done in Bangladesh reported a higher level of neonatal mortality associated with KMC practice barriers. [35] Similarly, in Rwanda in 2019, the results of a study revealed that 19.5% of a twin's death was due to barriers to KMC practice. [23] In contrast, Scandinavian countries have relatively equal gender roles, and therefore partners face fewer barriers to performing KC. [22]

2.4. Critical review and research gap identification

After reviewing the literature of value and barriers of partners in KC with preterm and LBW newborns admitted to the NICU, there is a lack of opportunity for partners to involve in KC, particularly in LMICs. A plethora of research is related to mothers' experience with KMC, but few studies address the partners with KC. [11, 30]

There appears to be no studies that focus on the enablers or barriers to partners' involvement in KC in Rwanda. One study demonstrated 11.1% of husbands do not accept to practice KMC. [23] Therefore we need more researches to identify why Rwandan fathers are limited to participate in KMC practice in order to enhance the outcome of premature and low birth weight newborns.

2.5. Conceptual framework

The Neonatal Integrative Developmental Care (IDC) Model, created in 2016 by Altimier and Phillips, will be used in the study [38]. IDC, which stands for International Development Center, is a paradigm that directs clinical practice in NICUs and uses a holistic approach to describe seven neuro-protective core criteria that improve family-centered developmental care for premature newborns. [38]

The framework of this study uses the IDC model to examine how the parents' involvement in KC in NICU care interacts. The independent and dependent variables include:

- Independent variables (**value and barriers of partners' participation in KC practice** in the NICU)
- Dependent variables (parents and newborns outcomes).

The KC practice is regarded by the IDC model as the cornerstone of newborn care in the NICU, the newborn's natural environment, and the ideal setting for family-centered care. [38]The partner practicing KC can improve the newborn's outcomes by providing newborn care, maintaining skin temperature, increased sleeping, weight gain, bonding, and earlier discharge from the NICU. [38]

The IDC program aimed to train, integrate and support all individuals who care for premature newborns in NICU, including their parents as primary and most essential caregivers, to develop and promote bonding. It also encourages parents as they increase self-confidence in their abilities to provide care for their newborns. Similarly, in this study, when partners are involved in KC,

touching, massaging, bathing, clothing, and changing diapers, they develop an emotional bond, increase paternal-newborn attachment, self-awareness and intimacy, feel more confident, mothers' rest and breast milk production. However, parents needed attention and assistance from the staff to overcome their barriers in giving care to their newborns. [10] In this study, partners need the support and guidance in KC from nurses to reduce barriers, such as the opportunity to practice, lack of assistance and privacy, cultural beliefs, gender role issues, and fear and anxiety.

CONCEPTUAL FRAMEWORK

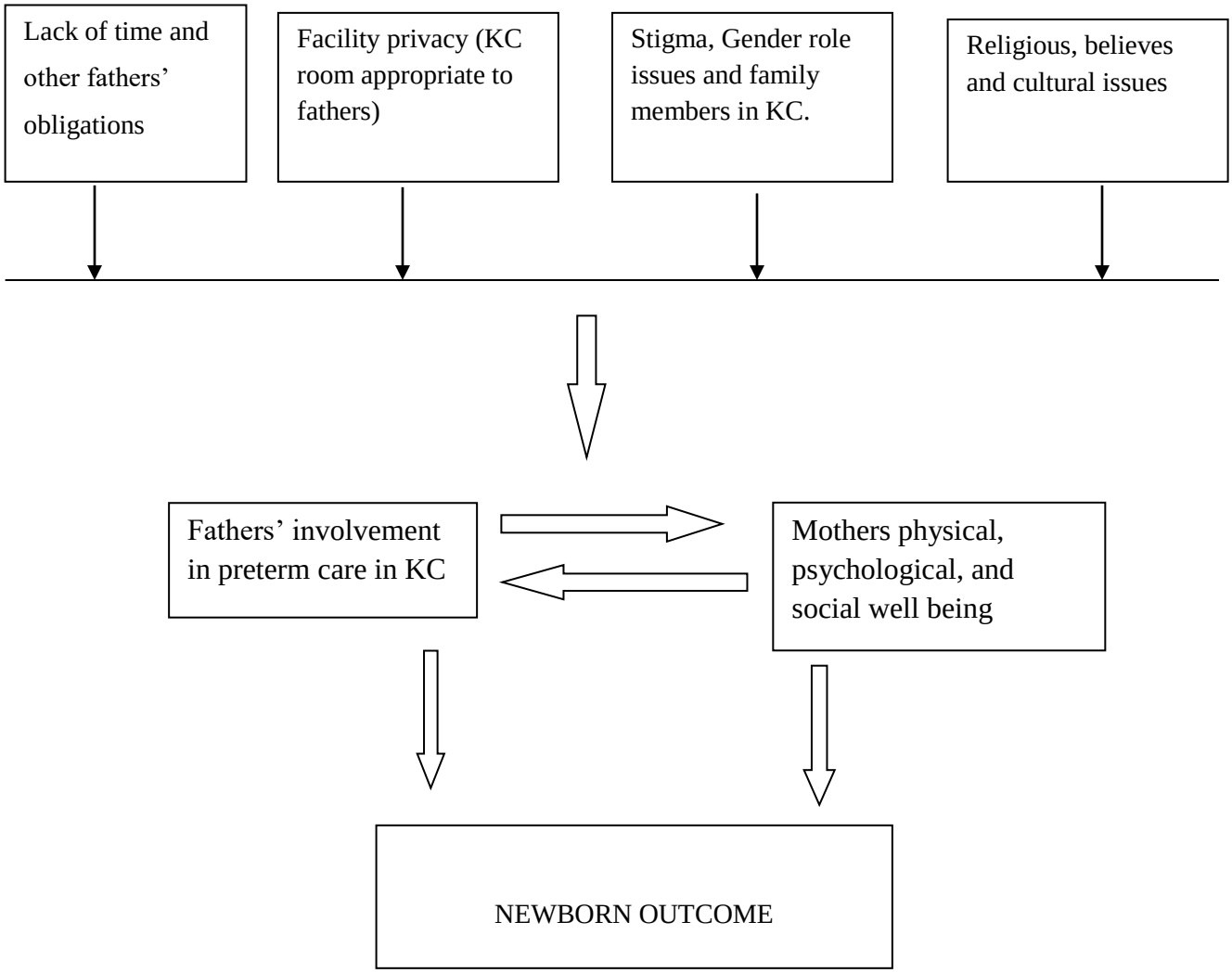

Figure 1: Conceptual Framework of value, Barriers and Outcomes of KC in the NICU for Partners. (Adapted from Altimier and Phillips, 2016). [38]

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

Research methodology addresses the research methods used in the study process in order to meet the study objectives. It involves the research design, research approach, research setting, population, sampling strategies, the inclusion and exclusion criteria, sample size, data collection procedures, trustworthiness, data analysis, ethical considerations, data management, data dissemination, and conclusion of the chapter.

3.2. Study design

The study used a descriptive qualitative design, which is a qualitative approach. The descriptive qualitative design was in use to investigate the mothers' voices. who have lived through the experience of the phenomenon, [40] in this study, the mothers' perceptions of their partners' involvement in KC in the neonatology unit.

3.3. Research approach

The research issues for this study were addressed using a descriptive qualitative approach.

3.4. Research setting

The Kibungo Referral Hospital served as the sole location for the research. About 100 kilometers from Kigali, this hospital is situated in Rwanda's Eastern Province, Ngoma District, Kibungo Sector, and Karenge Cell. The hospital has a catchment area of 15 health centers and 310,955 inhabitants. The hospital has a NICU with 10 beds available for KMC/KC use. This study area was chosen because the researcher noted that mothers are more interested with KMC and that partners do not participate in newborn care much, including KC when their newborns are admitted to the NICU.

3.5. Population

The population is the entire group of individuals who share a particular trait identified by the sampling criteria used by the researcher. [41] All mothers who had a preterm/LBW newborn hospitalized in the NICU during the data collecting period made up the study population.

3.6. Sampling

3.6.1. Sampling size

In qualitative studies focus on a relatively small sample who can describe their experiences related to the phenomenon. [41]

In this study, the researcher was considered parent-mothers who had preterm/LBW newborns admitted to NICU of Kibungo Referral Hospital in Eastern province for KC practice. The sample size was continued to increase until the participants do not provide any new information about the phenomenon, commonly referred to as data saturation. The data is considered saturated when redundancies of information from previous participants and when further coding is no longer feasible. [44]

3.6.2. Sampling strategy

Purposive sampling is a process used in qualitative study to recognize and choose participants who have a lived experience of the phenomenon of interest. [40]

In this study, a purposive sampling strategy has been used to access the mothers who had newborns in NICU during the study period. The parents who fit the study's inclusion criteria were chosen for the research.

Inclusion criteria: Parents who were 18 years or older, have a premature/LBW newborn in the NICU at Kibungo Referral Hospital during the period of gathering information, and consent to discuss KMC/KC with the researcher.

Exclusion criteria: The research was excluded mothers who have not premature/ LBW newborns in NICU and parents who were unwilling to share their KC perceptions or had the mental ability to share their experiences at data collection time.

3.7. Data collection eliciting

3.7.1 Interview Guide

The researcher serves as the instrument in qualitative research and uses an interview guide to generate data from participants. The interview guide was guided the face-to-face interviews, enabling the participants to express their feelings and believes about the phenomenon while meeting the study's objectives. The interview guide was developed from the literature that addressed the study objectives. And The four dimension criteria (credibility, dependability,

confirmability, and transferability) set by Guba serve to determine the study's trustworthiness (1981) to ensure the rigor of research findings. The instrument was including the following questions:

1. Demographic information of participants was consisted of several questions, including the mothers' age, marital status, educational level, residence, occupation, and religion. Other questions related to the newborn include age and other brothers or sisters (siblings).
2. Questions addressing mothers' perceptions on value of partners' involvement in KC practice in NICU
3. Information addressing mothers' perceptions on barriers associated with partners' involvement in KC in NICU.

The tool has been piloted on two participants to ensure that it captures the study's objectives and feasibility.

3.7.2 Data collection procedure

After obtaining permission from the IRB and Kibungo Referral Hospital, the study was discussed with the NICU in-charge and staff and the best method and time to access potential participants. After ethical clearance, the researcher was identified family caregivers who provide day-to-day KMC to their newborns. The researcher was explained to participants the purpose of the study. The researcher was discussed confidentiality and voluntary participation, the risks, and benefits of participation and voluntary withdraw. The consent form was signed by individuals who agreed to take part in the study (verbal and signed).The researcher was arranging with the participants a date for the interview.

The management of the NICU was provided a private room in order to retain the privacy of participants. During the interview, the interviewer was neutrally posing the questions, and the researcher was prompt the questions to allow for clarification. An interview was being audio-taped with the permission of the participants. During the interview, the researcher was adapted based on the mothers' state and responses during data collection. The field notes and observation of none verbal communication were considered within data collection. The language used was depending on the participant language between Kinyarwanda, English, or French.

3.8 Trustworthness of the research

The four-dimension criteria were developed by Guba (1981) to ensure the rigour of the findings in qualitative research. [42] Using this criterion of Trustworthiness in qualitative research is similar to the providing the supporting details of validity and reliability in quantitative research.

Table 1. The Four-dimension criteria identified by Guba (1981).

RIGOR DIMENSION and PURPOSE	STRATEGY USED TO ACHIEVE RIGOR CRITERIA
Credibility To create the confidence that the participants' perspective is accurate, trustworthy, and believable **(truth value).**	The researcher is an experienced midwife and became immersed in the participants' world by encouraging them to share their experiences of the phenomenon of KC and carefully listened to their stories. This approach created a sense of co-operation and a greater understanding of their culture and context in order to obtain accurate information of their lived experiences of KC in NICU. The researcher prepared for the interview by becoming well-read on the topic of KC in order to collect data appropriately and respond to any question participants may have had about the topic. The researcher combined the interviews and observations (triangulation) to crosscheck the integrity of participants' responses (findings), reduce bias, and ensured that a full and accurate understanding of the experience was obtained. The research supervisor and co-supervisor reviewed and examined the research process and verified that the data was collected and analyzed appropriately and systematically.
Dependability To ensure the findings of this qualitative inquiry are repeatable if the inquiry occurred within a similar group	The researcher shared the participant's data with her and explained how it contributed to the overall findings to check for accuracy and harmonization with the KC experience. The researcher recorded each participant interview with the date and time, and an interview code. The researcher immediately listened promptly to the audio recording following each interview

of participants in same context **(stability).**	and made field notes to supplement the recording. The researcher was coded the same data twice within different periods (code-recoding). The findings from the two codes are compared to conclude if the findings are the similar or different. The researcher showed the details of the data collection process, how the data were collected, recorded, and analyzed.
Confirmability The degree to which other researchers' confirmation or verification of the results would increase their level of confidence **(neutrality).**	The investigator documented the procedures for checking and rechecking the data throughout the study. Several triangulation techniques (data collection methods, investigators, and theoretical information) were used. A reflexive journal was used to document procedures as they happened in the field and personal reflections related to the study. Frequent communication with supervisors allowed verification of findings throughout the process.
Transferability The extent to which the results or findings applied to other contexts or settings **(applicability).**	The purposive sample consisting of parents with a preterm or LBW neonate in the NICU has the particular characteristics to answer the research question. Details of the data collection process and analysis increased the possibility of transferability to other contexts. Furthermore, the participants' quotes present thick descriptions of data to enhance replication of the study using similar conditions in other settings. Data collection continued until saturation.

3.9 Data analysis

The NVivo 12 qualitative software and content analysis method were first used to analyze the data in order to provide knowledge and understanding of the phenomenon being studied. This method involves the subjective interpretation of the content of text data through a systematic classification process of coding and identifying themes. [43]

1. The data were audio-recorded and transcribed verbatim in Kinyarwanda, and then translated to English for analysis.
2. The 13 individual transcripts were read and reread in order to fully understand the content of the data.
3. The 13 transcripts were then entered into NVivo individually, which became 13 files.
4. Each file was read again, and significant statements related to the phenomenon were highlighted.
5. The first highlighted significant statement became a new code.
6. Subsequent highlighted significant statements were added to the first code, or a second code was created.
7. This was continued until all significant statements had been highlighted and coded.
8. All the codes became themes and supporting content in the codes / themes became subthemes.
9. Quotations from the mothers were identified to support the themes and subthemes and presented in the results section.

3.10. Ethical considerations

Permission to collect data was approved by The College of Medicine and Health Sciences at the University of Rwanda (UR) Institutional Review Board (IRB) and the Kibungo Referral Hospital research committee. All potential participants were advised that involvement was intentional, they could withdraw at any time, and there was no penalty for refusal to participate. A code was placed on the data forms instead of a name in order to maintain anonymity. All the audio-taped information and written notes are secured by password, and the information is only accessible to the researcher and the supervisor. The research had minimal harm to the participants and did not impact client services.

3.11. Data management

The data collection tool was not have personal identifying information and instead be coded and reserved in a safe cupboard to make sure confidentiality. The data has been entered into the computer securely by protecting the data stored in it with a personal computer password.

3.12 Dissemination of data

Following the research presentation at UR, the study site will get the feedback. The UR Library will have a copy of this research project available for review. Additionally, this work will be published by the researcher in a peer-reviewed journal. The findings will be presented in the scientific conference.

3.13. Conclusion

Research methodology explains the approach that the investigator was used to accomplish the research. t displays the research strategy, sample collection methods, and data collection and analysis processes. It also shows how ethical considerations were respected for the period of study and after study.

CHAPTER 4: FINDINGS

4.1. Introduction

In this chapter, the data collected from participants on their perceptions of partners' involvement in KC in the neonatology unit were described. The researcher conducted face-to-face interviews in the local language, Kinyarwanda using an interview guide. The interviews were recorded with permission, and data were transcribed verbatim. The transcripts were translated from Kinyarwanda to English. In order to support the findings, quotes from participants were used to develop the themes and subthemes that arose.The demographic characteristics (Table 2) and themes (Table 3) are presented, followed by more details and quotations from the participants.

4.2. Demographic characteristics of participants

The study used 13 female participants, and all were mothers to newborns. Their ages ranged from 20 to 42 years. Twelve reported that they were married legally, and one said she was single. Regarding religious affiliation, three were catholicism, three Protestantism, one Islam, one restoration church, three ADEPR, one seventh-day Adventist, and one without religion. In terms of education, four people had only completed their primary education, seven had finished it, one had only completed their secondary school, and one had only completed their university education. Regarding the participants' occupation, eight were farmers, one a trader, one a businesswoman, one educator, one tailor, and one with no occupation. Regarding their residence, the participants came from the Ngoma district, and all health centers were represented. Four participants were from Nyange HC, two from Rukumberi HC, and one from the following HCs: Jarama, Rukira, Zaza, Rukoma sake, Gituku, Remera, and Mutendeli.

Regarding the newborns, the gestational age ranged from 32 to 38 weeks, and eight were female, and five were male. The number of other children in the family ranged from zero to seven; there were six first-time mothers, one had another child, three had two children, one had three children, one had six children, and one had seven other children.

Table 2. Characteristics of the participating mothers (n=13)

Code	Age	Religion	NB Gender	Other children	Marital status	Education	Occupation	Resident District/ Health Center
01	23	ADEPER	Female	(1)	Married	Primary incomplete	Farmer	Ngoma/ Nyange
02	30	Protestant	Female	(0)	Married	University incomplete	Educator	Ngoma/ Jarama
03	20	Catholic	Male	(0)	Single	Primary complete	Trader	Ngoma/ Rukoma sake
04	34	Restoration church	Female	(3)	Married	Primary incomplete	Farmer	Ngoma/ Rukumberi
05	25	Islam	Female	(0)	Married	Primary complete	Farmer	Ngoma/ Nyange
06	33	Catholic	Female	(2)	Married	Primary incomplete	Farmer	Ngoma/ Rukira
07	21	ADEPER	Male	(0)	Married	Primary incomplete	Farmer	Ngoma/ Mutenderi
08	31	Adventist	Female	(2)	Married	Primary complete	Tailor	Ngoma/Zaza
09	30	Protestant	Male	(2)	Married	Primary complete	None	Ngoma/ Nyange
10	29	Catholic	Female	(0)	Married	Primary complete	Farmer	Ngoma/ Nyange
11	22	Protestant	Male	(0)	Married	Secondary incomplete	Business woman	Ngoma/ Rukumberi
12	36	ADEPER	Male	(6)	Married	Primary complete	Farmer	Ngoma/ Remera
13	42	None	Female	(7)	Married	Primary complete	Farmer	Ngoma/ Gituku

4.3. Emerging themes

This research aimed to investigate the mothers' perceptions on value and barriers of their partners' involvement in kangaroo care in the neonatology unit at Kibungo Referral Hospital.

After analysis, the emerging themes and subthemes which emerged are summarized which emerged are summarized below:

Themes and subthemes

Table 3. Themes and Subthemes of partners' involvement in KC in the NICU

Themes	Subthemes
Barriers of partners' involvement in KC	- Mothers' ability to practice KMC alone - Lack of time and other obligations - Cultural beliefs, Religion , Gender role and Stigma attached to fathers inability to provide newborn care - Lack of opportunity to practice KC linked to facility environment issue. - Fathers' low awareness and unaware of KC - Family members' contribution to KC
Value of partners' involvement in KC	- Fathers' contribution to KC - Parents' partnership in KC

Theme 1. Mothers' perceptions of the barriers related to their partners' involvement in KC in the NICU.

Mothers' ability to practice KMC alone.

One of the most important barriers that prevent the partners' involvement in KC in the NICU included the ability of mothers to do KMC alone, as reported by just about all mothers interviewed. From their point of view, they described how it is feasible to provide KMC themselves even it is not easy. Two mothers described their experiences:

For now, I have five weeks in this room of neonatology for providing KMC to my newborn, and not once has my husband helped. What I have heard is that most fathers consider KC as one of

the mothers' responsibilities, and they always consider mothers as capable people. (C.05) I can do KMC myself, and I'm happy for that because she's my newborn; I do that because no one else can assist me. In the beginning, I thought it was impossible, but just now, I have found that it is feasible because I have nothing else to do. (C.01)

Lack of time and fathers' other obligations

A lack of time and the fathers' other obligations prevented them from participating in KC. Instead, most fathers concentrated on other family responsibilities, including their permanent jobs, money searching, and food supply. At the same time, mothers stay at the hospital as well as respond to their other children's needs. Two participants explained their situation:

The fathers spend a long time in their activities, and then they spend a short time giving KC support with mothers, and it is forbidden for fathers to quit their job because of KC. When they get the time, they visit and pay for the medicine. (C. 04) I have heard that majority of fathers do not have the time to practice KC. But they are well concentrated on their work instead of taking care of the KC while their newborns are hospitalized in NICU. (C. 01)

Partners were a significant link between the home and health facility:

The first priority for the partners was their job, and then the KC contribution came after. What I have observed is that when mothers are working with KMC, the fathers are left at home to take care of other children and domestic animals. (07) What I have noticed is that when newborns have been admitted to KC, the majority of fathers focus on searching for money to solve financial issues (e.g., Pay of medicines and medical care) instead of focusing on KC practice. (C.02)

Cultural Beliefs, Religion, Gender role and Stigma attached to fathers' inability to provide newborn care

Several participants revealed that Cultural beliefs, religion and stigma are the top barriers impeding fathers' participation in KC practice. Almost all society believes that KC is a practice only women should provide. For that reason, the fathers' involvement in KC is considered malpractice in society. Numerous mothers described their perceptions in the following words:

Cultural and religious beliefs

The challenges that perhaps I have thought about that partners may have with Kangaroo Care is related to the culture. For example, my mother-in-law told my husband that the man who provides KC would have lost his value in society. (C. 05) I would share with you that the fathers believe that a man involved in KC is under the rule of his wife, and again they would have lost his value in society. But on the other side, sometimes the fathers are challenged by the religious' beliefs where their doctrines don't allow them to participate in any childcare before mothers leave postpartum. (C. 07) My partner told me that "if I did KC with you, other men would laugh at me because caring for a newborn is a shameful job for men in the community". (C.03) What I heard is that if the fathers did KC, they would have jeopardized the Rwandan social culture. (C. 06)

Gender roles

Participants highlighted that gender roles play an important part in KMC. Mothers believed that as women, it was their responsibility to provide KMC and participate to their newborns' everyday needs. Additionally, some mothers highlighted that their partners consider the KMC practice as mothers' responsibility. Two mothers explained their perceptions in this way:

What I have observed is that most fathers consider KC as one of the mothers' responsibilities. (C. 0 5) Fathers think that KC should be practiced by only mothers as well as other newborn care. (C. 08)

Stigma and anxiety

Most participants emphasized the problem related to the stigma and anxiety for the fathers when they have preterm delivery and when their newborns are admitted to NICU for KC practice. Three participants described their perceptions of partners' involvement in KC, they have said in the following words:

Always, fathers are ashamed and afraid of being ridiculed by other men in society because of having a preterm newborn. If a father commits to practicing KC, he would be considered a crazy in the community. (C. 07) Sometimes my partner joins me for a few hours at night because he is ashamed that someone will see him in KC practice within day hours. (C.11) I have observed that most fathers are challenged by high anxiety when their newborns are hospitalized in the NICU,

and most fathers are usually afraid of touching the small newborns. They are also challenged by the rumors from other men that no man carries a baby; the man who did the KC is not again called the family leader. (C. 09)

Lack of opportunity to practice KC linked to facility environment issue

The participants voiced concern that their partners don't have a chance to practice related to NICU working organization that limits the fathers to be present in KC room in order to respect the mothers' privacy. Nearly all expressed the perception that there is a lack of opportunity for KC practice, which negatively impacted the partners' involvement in KC. Two (mothers) participants described the situation:

Partners are less likely to participate in KC because they don't get the chance to be free in the NICU room and have someone encourage them to do KC (C.10). This is my fourth week here in the neonatology unit. I have observed that the partnership of mothers and fathers in providing KC seems impossible because the partners are not frequently authorized to enter the KMC room. (C.12)

<u>Lack of privacy</u>

The hospital's organizational layout was considered one of the barriers for fathers' participation in KC by not having a suitable room for the fathers to be involved in KC. It means the institution has set one KMC ward for parent-mothers only. It had a negative impact on fathers' involvement in KC as they were humiliated to expose their bodies in the public eye. And they enhance to dispose of the appropriate room of fathers with KC as the participants expressed:

One major challenge that perhaps I have observed that partners may have with Kangaroo Care is that fathers don't like to expose their bodies in the mothers' public eye. (C.04) The first common challenge that I have observed to them, there is no particular place for fathers with KC. (C. 13) I am very sorry that my partner is not helping me because there is no unique place for fathers with KC here. I sincerely ask that you speak to us and find a fathers' room to work in KC, she said. (C.10)

Fathers' low awareness and unaware of KC

Participants reported what they called "Fathers' low awareness and unaware of KC" that linked with lack of information (knowledge and practice) about KC. And this was associated with the most only mothers had enough information from health care providers while their partners (fathers) were absent. Three mothers explained their perceptions in this way:

My partner is not informed about the meaning and importance of KC. Really, if he has some information regarding its benefits, he would assist me to do KC. (C.01) Probably, my partner doesn't know the KC benefits because no one explained or demonstrated the KC practice to him. And he was last here before I started doing KMC. (C. 07) "No information at all about KC because I only explained before starting KMC while my partner was outside of KC room because sometimes they are not allowed to come into KMC room even when they come in the visit they released immediately from the room". (C. 12)

Family members' contribution to KC

Some fathers have been challenged by having someone from their family members to support their wives while they are admitted to neonatology for KMC practice. The family members' attendance permits various partners to think there are others to fill their absence in KC, as one participant recalled:

Sometimes grandmothers or aunts do KC, but they often do it when the mothers gave birth by cesarean section. (C.05) I am a new mother of three premature newborns. I have about two months here in the neonatology unit. I gave birth by cesarean related to pre-eclampsia. Today is my last day of hospitalization; not one time did my husband help me to do KC. After giving birth, my mother sent my little sister to me, and my mother-in-law also sent two sisters to help me. That made my partner less willing to participate in KC due to other family members' contributions. (C. 04)

Theme 2. Mothers' perceptions on the value of partners' involvement in KC in NICU.

Parents' partnership & Fathers' contribution in KC

Participants reported that whilst mothers were seen essential to provide KMC care, their partners were less likely to be directly involved in KC. But they still played an essential role in various activities needed by mothers and newborns during the hospitalization. All of the mothers expressed the role of their partners in the following words:

Fathers are less likely to participate in the KC, but they like to participate by observing, singing, and touching the newborn when they find an opportunity. (C. 04) Fathers don't like to do KMC, but occasionally they are with the mothers when mothers are doing KMC, for the newborns bathing and clothing; especially when they have twins. (C.03)

Once a week, my partner comes here at night for a visit, but when I'm with him in KC, I feel happy, safe, supported, and encouraged. (C. 11) I can do KMC myself due to the lack of another choice, but it is not easy. Being with a father would help me a lot to be relaxed and happy and allow me to do other newborn care like breastmilk expression. If we were together, he would also help me do KC, pay for medicines, and even meet my other needs. (C.O8) The use of Kangaroo Care by both parents means an equal parental role to the newborn, prolonging the baby's sleep. (C. 10) Doing KC alone is exhausting the body and brain. So, being with a partner would help me take a break. (C. 13)

Kangaroo Care by both parents means equal parents' responsibility and equal parental love to their newborn. It also makes a connection between them (parents and newborns). (C.07) Kangaroo Care practiced by both parents permits each parent the chance of rest and makes permanent assistance to each other. It would also make the baby grow faster and shorten the hospital stay. (C.05) KC provided by both parent means they provide complementary care to the newborn. It makes the newborn happy and also maintains the newborns' temperature. (C.06)

The use of Kangaroo Care by both parents means something important to the newborn; it helps with newborn development, he needs to hear the voice of his mother and father. (C.09) What I have noticed is that when newborns have been admitted to KC, the focal point of most fathers is linked to the resolution of financial issues. (For example: payment of medicines and medical care for the newborn). (C.02)

CHAPTER 5: DISCUSSION

5.1. Introduction

The presentation of the study's results was contrasted in this chapter with previously conducted research on mothers' perceptions of their partners' engagement in KC. The discussion section will specifically address how the findings from this study are similar or different from findings from other studies. This study intended to discover the mothers' perceptions of their partners' involvement in KC in the neonatology unit at Kibungo Referral Hospital. The themes and subthemes from the Results section were divided into the value and barriers to partners' involvement in KC practice.

Demographic characteristics

The study involved 13 female participants aged 20-42 years, and all were mothers to newborns (Table 2). Twelve were married, and one was single. Most women were of Catholicism and Protestantism affiliation. Most women had completed primary education and were farmers. All attended health centers in the Ngoma District. The newborns ranged in gestational age from 32 to 38 weeks. From 13 newborns, eight were female, and five were male. The number of other children in the family ranged from zero to seven. A summary of each participant is provided (Table 3).

5.2. Mothers' perceptions of partners' involvement in KC

Mothers' perceptions of partners' involvement in KC were presented in two main themes: value and barriers of partners' involvement and eight subthemes: Mothers' ability to practice KMC alone, lack of time, and other obligations. Stigma attached to fathers' providing newborn care, Cultural beliefs and Religion, Lack of opportunity to practice KC linked to facility environment issue, and Fathers' low awareness of KC.

The themes will be discussed separately according to the study objectives.

The objectives of the study were:

1. To assess mothers' perceptions on the value of their partners' involvement in KC practice in the NICU.

2. To describe mothers' perceptions on the barriers related to their partners' involvement in KC in the NICU.

The trustworthiness of the data is presented in Table 1 in the methodology section.

5.2.1. Mothers' perceptions on the value of partners' involvement in KC

The study's findings showed that mothers were viewed as playing a key role in giving care during KMC, whereas their partners were less likely to be actively participating in KC. These findings are in contrast to a study conducted in South Africa (SA) that reported KMC to increase the mothers' responsibilities that appear to amplify the opportunity for partners to contribute actively in the care for their preterm newborn, which is significant for partner's accomplishment and helpful to the family unit [46]. In Nicaragua, research showed that when partners provide KC to the newborn, they develop an emotional bond, mothers can rest, shower, and take care of other needs. [19]

Similar to other studies, a study [11] reported that partners' involvement in KMC facilitates the newborns' transitional role, creates parent self–awareness, and raises intimate contact between fathers and their newborns, said mothers in the study. (C.08) expressed that doing KMC alone without the presence of her partner was a lack of choice. She added that being with her husband would help mothers a lot to relax and be happy and allow them to do other newborn care like breastmilk expression. One mother (C.13) stated that doing KMC alone is exhausting on the body and brain. Another added (C.05) that kangaroo care practiced by both parents permits each parent the chance of rest and makes permanent assistance and make newborn will have the love from his mother and love from his father. These findings are similar to a study conducted in Ethiopia [30], where KC practiced by fathers improved the mothers' and newborn outcomes. Also, another study [4] showed that newborns who received KC with fathers maintained normal skin temperatures and had improved state behavior response, as expressed by (C. 06) that KC provided by both parents makes the newborn happy and also maintains the newborns' temperature.

5.2.2. Mothers' perceptions on the Barriers of partners' involvement in KC

Despite the significant role and expected newborn outcomes when fathers participate in KC with their partners, mothers in this study reported many barriers that impede their partners from participating in KC. The mother (C.05) said that fathers consider KC one of the mothers' responsibilities. The fathers' work and low regulation labor in Rwanda do not allow fathers to leave work to help mothers care for preterm newborns in KC. These reports align with a systematic review [33] conducted in Africa revealed that partners should participate in all activities except breastfeeding. These are also supported by another study [22] that reported the time required for KC is a potential barrier for fathers due to jobs and other childcare responsibilities other than the newborn.

Similarly, the study conducted in Iran revealed that religion, culture, and inadequate health facility issues are obstacles to providing KC by partners [11]. The present study also mothers reported cultural beliefs and religious barriers. One mother (C.07) stated that her partner told that if he provided KC to his newborn, other men would laugh at him because it is not usual for fathers to care for a newborn in Rwandan society. Another mother (C.05) stated that her mother-in-law said to her partner that the man who provides KC would have lost his value in society, and some doctrines do not allow fathers to care for newborns while mothers are still in the postpartum period. These findings may be associated with the partners' low awareness and lack of information about his direct benefits to his newborn. One mother (C.01) stated that her partner probably does not know the KC benefits because no one explained or demonstrated the KC practice to him. Another mother (C.12) revealed that she was given information about KMC; however, her partner did not hear the explanation because the neonatology staff would not allow him in the KMC room. Another study [34] revealed that lack of assistance and information given to partners about the KC practice.

Mothers also reported a lack of privacy for the fathers to be involved in KC with their newborns. There was no particular room for the fathers to do KC, and they did not like to expose their bodies. One mother asked sincerely for a father's room to assist with KC care in comfort (C.10). Similarly, a study conducted in Malawi [23] reported that privacy and gender roles were

considered barriers to KC practice. Some partners reported feeling uncomfortable practicing KC in public and the combination of mothers and fathers [23].

According to one mother, families in Rwanda were ashamed of their small newborns because of having a preterm newborn is usually stigmatized (C. 07)."Always, fathers are ashamed and afraid of being ridiculed by other men in society because of having a preterm newborn". Though, in LMICs, the first five top-ranked barriers for KC by partners was due to lack of opportunity to practice (20%), issues related to gender role (11%),lack of help with KC practice, and other obligations (7%), fear and anxiety of hurting the newborn (5%), and pain and fatigue (4%).[11] In contrast, Scandinavian countries have relatively equal gender roles, and therefore partners face fewer barriers to performing KC. [22]

Research has emphasized that KMC requires family members' partnership to continue other maternal tasks and obligations. [34] The current study revealed that allowing other caregivers to support the new mother with KC, such as sisters and grandmothers, reduces her feeling of aloneness but also stops fathers from directly participating in KC. *(C. 04)*

Limitations

This qualitative study was conducted at one NICU in Rwanda. However, it may meet the transferability criteria to other similar settings **(**applicability) in Rwanda, as the methodology section provided the full details. The viewpoints are only related to a small portion of the preterm and LBW mothers from 15 health centers allocated in Kibungo Referral Hospital. As expected, many mothers were tired and did not talk for long and only provided brief responses to questions. Another limitation is the mothers' compliance to share their thoughts and understandings of KC with their partners, the father of the baby, which may have contributed to their myriad reasons for lack of KC involvement.

5.3. Conclusion

This study expected to explore the value and barriers of fathers' involvement in KC while their newborns were admitted to the neonatology unit at a hospital in Rwanda. The findings provided insight into the importance of partners in KC and the different barriers they face while caring for hospitalized preterm and LBW newborns. Even though the partners' were valued for their contribution to KC, the subthemes revealed that partners experienced many barriers mainly related to other obligations. The benefits of the partners' involvement in KC should be widely shared with families in Rwanda so the stigma is reduced and more newborns flourish from day one.

CHAPITER 6: CONCLUSION AND RECOMMENDATION

6.1. Introduction

The study's conclusion is reported in this chapter. The chapter also discusses the main suggestions for community health, nursing practice, nursing education, and future research.

6.2. Conclusion

The study assessed the mothers' perceptions on the important of their partners' involvement in KC practice in the NICU and its barriers.

The partners are less likely to be direct involved in KC but they play important role through different activities that needed by mothers and newborns during all stay of hospitalization for KC. Mothers reported that KC by both parents means: Equal parents' responsibility and equal parental-love to their newborn. It makes also the connection between them /parents - newborn (bonding).

Kangaroo Care practiced by both parents permits each parent the chance of rest and makes permanent assistance to each other. It would make also the baby grow faster and shorten hospital stay. They added also that being with a father would help them a lot to be relaxed and happy. The present study also showed the different partners' interference that they meet when their newborn admitted in KC. Among barriers reported by mothers the most are related to the culture, believes and stigma issues, law awareness of partners linked to lack of information about KC and the lack of privacy room.

6.3. Recommendation

Basing on the findings of the study, the researcher recommends:

6.3.1. Heath facilities organization

It is recommended to build a quality healthcare to every client who will need services, by emphasizing to avail the suitable room for the privacy to each family for providing KC safely.

6.3.2. Future research

Future researchers can make use of the areas that this study's findings identified. For examples, the themes and subthemes that emerged from the study can be further explored to gain more understanding on the importance of fathers in KC. Future researches can even concentrate on use of KC by both parents.

6.3.3. Nursing education

Reviewing the curriculum and course material for neonatology is advised, as well as identifying any sections that need to be updated to keep up with current KMC-KC related trends.

6.3.4. Nursing practice

It is recommended that healthcare providers work together with associates to assist and involve partners in daily newborns care. Nurses are recommended to offer enough information through the health education about the benefits of KC provided by both parents with preterm/LBWIs. Nurse should also demonstrate the KC practice to create fathers' self confidence and enhance coping skills of them.

6.3.5. Community

It is recommended to realize that partners, as well as mothers, can provide KMC for newborns within the neonatal service, ultimately enhancing family cohesion.

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APPENDIX 1.

LETTER REQUESTING TO COLLECT THE DATA AT KRH

ABAGIRIMANA Verene
University of Rwanda/CMHS/SoNM
Email: abagiraverene@gmail.com
Phone Number: 0783630184
May, 13rd 2021

To: The Director of Kibungo Referral Hospital

RE: REQUEST TO COLLECT DATA

Dear Sir

I hereby request the permission to collect research data in Kibungo Referral Hospital ender your responsibilities. In facts I would like to conduct a research as it is a requirement in Masters of Science in Nursing at University of Rwanda/ CMHS/SoNM and I hereby requesting to review my attached study protocol, so that I can be allowed to collect data on the mothers who have the newborns admitted in kangaroo care in the neonatology unit.

The aim of the study is to explore the mothers' perceptions of their partners' involvement in kangaroo care in the neonatology unit at Kibungo Referral Hospital.

My research will contribute to help Rwanda health facility to review KMC policy for involving fathers in KMC practice. The tools to use in data collection and ethical standards to be followed have been accepted. The study population will consist of all mothers who have a preterm/LBW newborn hospitalized in the NICU during the data collection period. As participants will be selected purposively the researcher will interview the participants until the data saturation. The participants' response will be kept confidential and anonymous.

Yours Sincerely

Verene ABAGIRIMANA

APPENDIX 2

CONSENT FORM

Dear new Mother,

I amVerene ABAGIRIMANA, a student in the Master's Program at the University of Rwanda. I am conducting a study on the **mother's perceptions of the partners' (father) involvement in Kangaroo Care to the newborn in the Neonatology Unit at Kibungo Referral Hospital.**

I am requesting you to participate in this study.This study may improve the quality of care given to premature and small newborns in the future with Kangaroo Care practice, though it might not benefit you at this time. If you participate, there are no obvious emotional or physical risks involved. I am most interested in asking the two questions: What helps partners do Kangaroo Care with their newborn? What are the barriers to Kangaroo Care?

Your participation is voluntary, and you can withdraw from the study at any time without penalty. The care provided to your newborn in the NICU will not be affected in any way. Your name will not be included on the study form, and therefore it will be anonymous. You are free to ask any questions, and all information will be kept confidential.

For queries or questions, please contact me at theUniversity of Rwanda, College of Medicine and Health Sciences (cell phone - 0783 630 184), my research supervisor (0784 337 742), or the Research Chairperson at the Institutional Review Board (0788 490 522).
If you are willing to participate in the study, please sign read the statement below.

Participant's Statement:
The study described above has been explained to me to my full understanding and I voluntarily consent to participate in this study.

Participant's Code No. _____ Signature: _____ Date: __/__/2021

Investigator's Name _____Signature: _____Date: __/__/2021

APPENDIX 3

INTERVIEW GUIDE (English version)

SECTION 1. Demographic information: (Tick the box that most applies to participant)

1. Mother's age: ____ years

2. Educational level

No schooling	Primary incomplete	Primary Complete	Secondary incomplete	Secondary complete	University incomplete	University complete

3. Marital status

Married	Single	Separated	Divorced	Widow	Other

4. Occupation

Agriculture	Educator	Nurse	Merchant/Trader	Tailor	Other

5. Religion

Catholicism	Protestantism	Seventh-day Adventist	Islam	ADEPR	Other

6. Residence

Kibungo	Remera	Nyange	Rukira	Sangaza	Zaza

Jarama	Rukoma-Sake	Mutendeli	Gasetsa	Rubona	Gashanda

Gituku	Rukumbeli	Kirwa	Other

7. Age of newborn _____ days / weeks (circle one)

8. Newborn's Gender

Female	Male

9. Number of other children _____

SECTION 2: Interview with mothers

The aim of this study is to explore mothers' perceptions of partners' involvement in KC with preterm and LBW newborns in the Neonatology Care Unit at Kibungo Referral Hospital.

All questions that we are discussing today are related to the mothers and partners with newborns in the NICU. (Ask the mother, if you should call the father of the baby (father or partner? (Circle one when mother gives her reply).

Questions related to enablers and barriers to partners involvement in KC practice in NICU.

Q1. Tell me about KMC, can you handle it alone? Being with fathers in KMC in the NICU/ or does it help to have?

Q2. Can you explain to me what it means to use Kangaroo Care by both parents?

Q3. Does your husband know about benefits of KMC?

Q4. Does husband/father or someone else practice KMC?

Q5. Tell me about any opportunities you have had to do Kangaroo Care with partners.

Q6. Tell me about how you feel when you are providing Kangaroo Care to your newborn in partnership with the baby's father.

Q7. Please tell me how partners balance their KC contribution and other activities.

Q8. Do strange looks from you or others prevent partners from KC?

Q9. Tell me about the challenges that perhaps you have observed/heard (or thought about) that partners may have with Kangaroo Care.

Conclusion to interview

Is there anything else you would like to share with me about your perceptions onpartners' contribution in KC in the NICU?

Thank you for your contribution to this study!