



**INCREASING PARENTAL KNOWLEDGE ON THE CARE OF THEIR PRETERM
NEONATE IN THE NEONATAL INTENSIVE CARE UNIT THROUGH AN
EDUCATIONAL TRAINING PROGRAM AT A SELECTED DISTRICT HOSPITAL
IN KIGALI, RWANDA**

By

M. Rose MUKARUBAYIZA

Reg. No: 216342503

A dissertation submitted in Partial Fulfillment of the Requirements for the degree of

MASTER OF SCIENCES IN NURSING

Neonatal Track

In the College of Medicine and Health Sciences

Supervisor: Olive Bazirete, MSc, RM

Co- Supervisor: Marcella Gowan, EdD, MPH, CNM

June 2017

DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION

Surname and First Name of the Student

M.Rose MUKARUBAYIZA

Title of the project

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PRETERMNEONATE IN THE NEONATAL INTENSIVE CARE UNIT THROUGH AN
EDUCATIONAL TRAINING PROGRAM AT A SELECTED DISTRICT HOSPITAL IN
KIGALI, RWANDA**

Declaration by the Student

I do hereby declare that this **dissertation** submitted in partial fulfilment of the requirements for the degree of **MASTERS OF SCIENCE** in **NURSING**, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Date and Signature of the Student

12th June 2017

b. *Authority to Submit the dissertation*

Surname and First Name of the Supervisor

Dr. Marcella Gowan.

In my capacity as a Supervisor, I do hereby authorize the student to submit his/her **dissertation**.

Date and Signature of the Supervisor/Co-Supervisor

 12th June 2017

DEDICATION

To: My heavenly Father - Almighty Lord, my creator, my protector,

My beloved husband MUTIGANDA O nesphore

My children (TRESOR, CHRIS, CLEVER)

My brothers and sisters

My Relatives, Lectures

All my friends and colleagues

ACKNOWLEDGEMENT

Firstly, special thanks are raised to the Almighty God for his guidance and protection during my studies and preparation of this work.

Grateful thanks are directed to my family for the financial, material and moral assistance for the achievement of this work.

My deep sense of gratitude goes to UR/ Nyarugenge Campus for providing favourable environment during my studies and also Sister MUKABARANGA Epiphanie Principal of Rwamagana school of Nursing and Midwifery and all academic staff for their help and encouragement during my studies.

I wish to express my gratitude to Dr Marcella Gowan for her incomparable commitment to supervise this study.

I thank the Director of Muhima hospital, staff of NICU, parents of preterm infants hospitalized at Muhima hospital who allowed me to conduct my research in their institution.

Lastly, thanks are given to the Government of Rwanda, to my fellow students and to all who worked hand in hand with me during my research and all persons who have contributed directly or indirectly to the success of this study.

ABSTRACT

Background: Prematurity is the leading cause of neonatal mortality (WHO, 2012). Additionally another one million infant deaths are due to the complications of prematurity related to respiratory, cardiac, and neurological problems as well as from neonatal sepsis (Kenner & Lott, 2014). The birth of a preterm baby that requires specialized care is shocking and distressing for parents. Parents feel a loss of parental control when their newborn is rushed away into the neonatal intensive care unit (NICU). Parents also find the environment of the NICU overwhelming when seeing the high technology and unfamiliar equipment. Most parents lack of general knowledge about prematurity and in the care of their preterm infant. Parents in the NICU have an important role in providing physical care to their baby. It is the responsibility of the neonatal nurses to help parents learn how to care for their infant in a high tech medical setting, as well as in their home after the infant is discharged (Thon, 2013). **Purpose of this study:** To determine the effect of an educational training program on the knowledge of parents with preterm infants in the NICU. **Methodology:** Quantitative study was used. **Study Design:** Quasi experimental pre test post test approach was used. **Study setting:** The study was conducted through the NICU at a selected District Hospital in Kigali, Rwanda. **Population:** Parents who have preterm infants in NICU at the selected District Hospital in Kigali, Rwanda. **Sampling:** Non probability sampling by using convenience sampling strategy was used, with a **sample size** of 53 participants.

Results: The study findings revealed that in the pre-test knowledge assessment the mean percentage of correct responses was 54% and the post test the mean percentage of correct responses was 92%. Further effectiveness of planned teaching program was tested by descriptive statistics and inferential statistics using paired two sample t- test by testing two dependent variables of parental knowledge of pre-test and post-test. A very significant P. value of 0.001 was found between pre-test and post-test knowledge score of the respondents indicating an increasing parental knowledge in caring their preterm infant in NICU after planned teaching program. **Conclusion:** Planned teaching program was found to be effective in improving parental knowledge in caring their preterm infants in NICU.

Key words: NICU, Family Centered Care, Increasing knowledge

TABLE OF CONTENT

DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION	ii
M.Rose MUKARUBAYIZA.....	ii
INCREASING PARENTAL KNOWLEDGE ON THE CARE OF THEIR PRETERMNEONATE IN THE NEONATAL INTENSIVE CARE UNIT THROUGH AN EDUCATIONAL TRAINING PROGRAM AT A SELECTED DISTRICT HOSPITAL IN KIGALI, RWANDA	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
ABSTRACT.....	v
TABLE OF CONTENT.....	vi
ABBREVIATIONS	ix
LIST OF FIGURES	xiii
LIST OF ANNEXES.....	xiv
Annexe 1: Request for the permission to conduct the research at Muhima District hospital ...	xiv
Umugereka wa 2: URWANDIKO RUSABA KUGIRA URUHARE	xiv
Annexe 3: INFORMED CONSENT FOR THE PARTICIPATION IN THE RESEARCHSTUDY (English version).....	xiv
Umugereka wa 4: Ibibazo (Ikinyarwanda).....	xiv
Annexe 5: Questionnaire (English version)	xiv
Annexe 7: ETHICAL CLEARANCE FROM IRB	xiv
Annexe 8: Request for data collection.....	xiv
Annexe 9:Approval for data collection	xiv
CHAPTER 1. GENERAL INTRODUCTION	1
1.1 INTRODUCTION	1
1.2 BACKGROUND OF THE STUDY	2
1.3. PROBLEM STATEMENT	5
1.4. OBJECTIVES	7
1.4.1. Main objective:	7
1.4.2 Specific objective.....	7
1.5. RESEARCH QUESTIONS.....	7

1.6. SIGNIFICANCE OF THE STUDY	7
1.7. OPERATIONAL DEFINITION OF KEY TERMS	8
1.8 STRUCTURAL AND ORGANIZATION OF THE STUDY	8
1.9 CONCLUSION.....	9
CHAPTER 2: LITERATURE REVIEW	10
2.1. INTRODUCTION	10
2.3. PARENTAL KNOWLEDGE ON PREMATUREITY AND THEIR COMPLICATIONS	10
2.4. PARENTAL KNOWLEDGE AND ADAPTATION IN NEONATAL INTENSIVE CARE UNIT	11
2.5. PARENTAL KNOWLEDGE IN IN CARING THEIR NEONATES IN NICU	12
2.6. INTERACTION BETWEEN PARENTS AND HEALTH CARE PROVIDERS IN NICU.....	13
2.7. PARENTAL NEEDS IN NEONATAL INTENSIVE CARE UNIT	14
2.8. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION	15
2.9. IMPACT OF AN EDUCATION IN NICU	15
2.10. CONCLUSION.....	16
2.11. CONCEPTUAL FRAMEWORK	17
2.12. DESCRIPTION OF CONCEPTUAL FRAMEWORK	17
2.13. CONCLUSION.....	18
2.14. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION	18
CHAPTER 3: METHODOLOGY	19
3.1. INTRODUCTION	19
3.2 RESEARCH DESIGN	19
3.3 RESEARCH APPROACH	19
3.4 RESEARCH SETTING	19
3.5 POPULATION	20
3.6. SAMPLING	20
3.6.1 Sampling strategy.....	20
3.6.2 Sample size	21
3.6.3 Data collection	22
3.6.4 Data collection instruments.....	22
3.6.5 Data collection procedure	23
3.7 DATA ANALYSIS.....	23
3.8 ETHICAL CONSIDERATIONS	23
3.9 DATA MANAGEMENT.....	24

3.10 DATA DISSEMINATION	24
3.11 PROBLEMS AND LIMITATIONS OF THE STUDY	24
3.12 VALIDITY AND RELIABILITY OF THE INSTRUMENTS	25
3.7. STATISTICAL TREATMENT OF DATA	26
3.8. CONCLUSION OF THE CHAPTER.....	28
CHAPTER 4. RESULTS PRESENTATION	29
4.1. INTRODUCTION	29
4.2. DEMOGRAPHIC INFORMATION	29
4.3 OBSTETRICAL INFORMATION.....	31
4.4 PRE-TEST PARENTAL KNOWLEDGE	32
4.5 POST-TEST PARENTAL KNOWLEDGE.....	36
CHAPTER 5. DISCUSSION OF RESULTS.....	68
5.1. INTRODUCTION	68
5.2 DEMOGRAPHIC INFORMATION	68
5.3 PARENTAL KNOWLEDGE IN PRE-TEST AND POST TEST RESULTS.....	70
CHAPTER 6. CONCLUSION AND RECOMMENDATIONS	72
6.1. CONCLUSION.....	72
6.2. RECOMMENDATIONS	74
REFERENCES.....	75
APPENDICES	78
Annexe 1: Request for the permission to conduct the research at Muhima District hospital	79
Umugereka wa 2: URWANDIKO RUSABA KUGIRA URUHARE	
MUBUSHAKASHATSI4	80
Annexe 3: INFORMED CONSENT FOR THE PARTICIPATION IN THE RESEARCH	
STUDY (English version)	81
Umugereka wa 4: Ibibazo (Ikinyarwanda).....	82
Annexe 5: Questionnaire (English version)	86
Annexe 6: REQUEST FOR ETHICAL CLEARANCE	92
Annexe 7:ETHICAL CLEARANCE FROM IRB	93
Annexe 8: Request for data collection.....	94
Annexe 9:Approval for data collection	95

ABBREVIATIONS

CVI: Content Validity Index

FCC: Family Centered Care

IRB: Institutiona Review Board

NICU: Neonatal Intensive Care Unit

SDG: Sustainable Development Goals

SPSS: Software Statistical Package of Social Sciences

UR: University of Rwanda

WHO: World Health Organization

LIST OF TABLES

No table of figures entries found.	
Table 4. 1:Demographic Characteristics of the Respondents	30
Table 4 2: Obstetrical Information of the Respondents.....	31
Table 4 3: Frequency of Respondents resulted from pre-test parental knowledge	32
Table 4 4: Descriptive statistics of Mean and Std on Pre-test Results Regarding Parental Knowledge	34
Table 4 5: Frequency of Respondents resulted from Post-test Parental Knowledge	36
Table 4 6: Difference between Pretest and Posttest Results on Parental Knowledge in Caring their Preterm Infants in NICU	39
Table 4 7: Descriptive Statistics on Post-Test Results on Parental Knowledge	40
Table 4 8: Table of Relationship between Pretest Mean and Posttest Mean of Parental Knowledge	42
Table 4 9: Correlation of Parental Knowledge before and after Training.	42
Table 4 10: Table of Regression Model of all Demographic and What is Special Unit to Care Preterm Babies	44
Table 4 11: Table of Regression Model of all Demographic and What does it Mean to Say a Baby is Born too Soon	45
Table 4 12: Table of Regression Model of all Demographic and the Related Factors Causing Babies to Come too Soon.....	46
Table 4 13: Table of Regression Model of all Demographic and What are Some Common Problems in Babies Born too Soon	47
Table 4 14: Table of Regression Model of all Demographic and Possible Long Term Complications of a Baby Born too Soon	48
Table 4 15: Table of Regression Model of all Demographic and Why is Colostrum is Important to Give to a Baby Born too Soon	49

Table 4 16: Table of Regression Model of all Demographic and Name 2 Important things to do Before Manual expressing of Breast Milk	50
Table 4 17: Table of Regression Model of all Demographic and What are the Best Ways of Keeping Baby Warm.....	51
Table 4 18:Table of Regression Model of all Demographic and What is the Best Way to Prevent Infection in a Baby Born too Soon?	52
Table 4 19: Table of Regression Model of all Demographic and the Common Mistake in Tube Feeding.....	53
Table 4 20: Table of Regression Model of all Demographic and When a Baby Born too Soon Could be Discharged from the Hospital.....	54
Table 4 21: Table of Regression Model of all Demographic and What are the main Dangers Signs after Discharge to the Hospital need to be Reported Immediately	55
Table 4 22: Table of Regression Model of all Independent Variables Demographic and What is Special Unit to Care Preterm Babies after Training (post-test).	56
Table 4 23: Table of Regression Model of all Demographic and What does it Mean to Say a Baby is Born too Soon after Training (post-test).....	57
Table 4 24: Table of Regression Model of all Demographic and What does it Mean to Say a Baby is Born too Soon after Training (post-test).....	58
Table 4 25: Table of Regression Model of all Demographic and What are Some Common Problems in Babies Born too Soon? after Training (post-test).	59
Table 4 26: Table of Regression Model of all Demographic and Possible Long Term Complications of a Baby Born too Soon after Training (post-test).	60
Table 4 27: Table of Regression Model of all Demographic and Why is Colostrum Important to Give to a Baby Born too Soon after Training (post-test).....	61
Table 4 28: Table of Regression Model of all Demographic and Important things to do Before Manual expressing of Breast Milk after Training (post-test).....	62
Table 4 29: Table of Regression Model of all Demographic and What are the Best Ways of Keeping Baby Warm after Training (post-test).	63
Table 4 30: Table of Regression Model of all Demographic and What is the Best Way to Prevent Infection in a Baby Born too Soon after Training (post-test).....	64

Table 4 31: Table of Regression Model of all Demographic and the Common Mistake in Tube Feeding after Training (post-test).	65
Table 4 32: Table of Regression Model of all Demographic and When a Baby Born too Soon Could be Discharged from the Hospital after Training (post-test).	66
Table 4 33: Table of Regression Model of all Demographic and What are the Main Dangers Signs after Discharge to the Hospital Need to be Reported Immediately? after Training (post-test).....	67

LIST OF FIGURES

Figure 2. 1: Conceptual framework of parenting progress in NICU.....	17
Figure 4. 1: Results of education training.....	43

LIST OF ANNEXES

Annexe 1: Request for the permission to conduct the research at Muhima District hospital

Umugereka wa 2: URWANDIKO RUSABA KUGIRA URUHARE

Annexe 3: INFORMED CONSENT FOR THE PARTICIPATION IN THE
RESEARCHSTUDY (English version)

Umugereka wa 4: Ibibazo (Ikinyarwanda)

Annexe 5: Questionnaire (English version)

Annexe 7: ETHICAL CLEARANCE FROM IRB

Annexe 8: Request for data collection

Annexe 9:Approval for data collection

CHAPTER 1. GENERAL INTRODUCTION

1.1 INTRODUCTION

Pregnancy and birth are physiological events that over 90% of the time results in the uncomplicated delivery of a healthy neonate. Becoming a parent is a life changing event but even more so when there are complications such as the birth of a preterm infant. The birth of a preterm baby that requires specialized care is shocking and distressing for parents who were expecting a perfectly healthy newborn (Guimarães, 2015). Parents feel a loss of parental control when their newborn is rushed away into the neonatal intensive care unit. They suffer in fear and anticipatory grief of not knowing if their baby will live or die (Valizadeh, Zamanzadeh, and Rahiminia, 2013). The World Health Organization (WHO) defines preterm birth as occurring before 37 weeks gestational age and very preterm if born before 32 weeks (Lawn et al., 2013). A full term pregnancy on average lasts 40 weeks from the date of the woman's last menstrual period.

It has been estimated that 15 million babies are born preterm every year around the world and prematurity is the leading cause of neonatal mortality (WHO, 2012). Additionally another one million infant deaths are due to the complications of prematurity related to respiratory, cardiac, and neurological problems as well as from neonatal sepsis (Kenner & Lott, 2014). Long term complications of prematurity include cerebral palsy, chronic lung disease, visual and hearing impairments and learning disabilities (Pennell , 2012). Sub-Saharan Africa region has the highest neonatal mortality rate; 31 deaths per 1000 live birth in 2013 meaning 39% of global neonatal mortality, 35% of global neonatal death were caused by prematurity birth complication, 24% caused by birth asphyxia, 15% caused by sepsis. Rwanda neonatal mortality in 2013 was 9 per 1000 live birth . (Bay, Miller, & Faijer, 2014).

Because preterm infants have special physical needs and often times complications hospitalization in a Neonatal Intensive Care (NICU) is required. The NICU is an area of the hospital that provides specialized medical treatment and nursing care (Khalesi et al., 2015). Parents already in shock from the unexpected early birth also find the environment of the

NICU overwhelming with all the high technology and unfamiliar equipment such as incubators, cardiac monitors, ventilators,

and seeing their infant connected with wires, electrodes and intravenous lines. Most parents are not prepared for the challenges of parenting a preterm infant (Vazquez & Cong, 2014).

The effects of stress on the parents with babies in the NICU is well recognized (Busse et al. 2013; Guimarães, 2015; Turan, Basbakkal and Özbek, 2008). The increased stress and tension has been relate to the parents lack of general knowledge about prematurity and in the care of their preterm infant (Ling, Lian, and Ho, 2009: Rouck & Mark Ley 2009). Parents in the NICU have an important role in providing physical care to their baby (Khalesi et al., 2015). It is the responsibility of the neonatal nurses is to help parents learn how to care for their infant in a high tech medical setting, as well as in their home after the infant is discharged (Thon, 2013).

1.2 BACKGROUND OF THE STUDY

The Neonatal Intensive Care Unit was originally created in the 1960s to care for critically ill newborn infants, but has since turned into a technological space that provides a multitude of healthcare services for newborn infants (Bozzette, Kenner, Boykova, 2010).

The NICU environment has become more technology oriented in the last 20 years and has led to a shift in research to focus on the environmental effects of the NICU on the parents (Lau & Morse, 2003). Musabirema, Brysiewicz, and Chipps (2015) reported that Rwandan parents experienced stress from having their infants in the NICU. In fact, parenting in the NICU is like “being in another world” (Hall, 2005). The admission of a premature infant to the NICU leads to not only the infant’s admission but the parents’ as well, as they are likely to spend a tremendous amount of time visiting their infant (Fabris et al., 2009). The neonatal intensive care nursery is a high-tech battleground for infant survival. The admission of a newborn baby to a NICU in conjunction with other stressors of being in ICU could cause substantial stress for the parents. The infant’s family is significantly impacted by a NICU admission, as it changes the family’s opportunities to engage in caregiving (Vergara & Bigsby, 2004). Another study conducted in one urbain hospital in Rwanda show that ,when a newborn is admitted in NICU, parents are very stressed and worried about non familiar enviornment ,this study shown

again that the presence of technology machine used there, a high morbidity and mortality rate in NICU setting, combine with absence of information from health providers, decrease the parental hope of recovering for their beloved babies. (Munyiginya & Brysiewicz, 2014)

Parents are confronted with the critical-care environment and the demands that come along with that environment from the moment that their infant is admitted to the NICU (Obeidat, Bond, & Callister, 2009). A study by von Gontard, Schwarte, Kribs, & Roth (1999) found that most mothers perceived the atmosphere of the NICU to be stressful. They may be overwhelmed by the presence of the incubator and the nurses who are able to easily care for their infant and feel as though they are a guest in the NICU (Turan, Başbakkal, & Özbek, 2008). Under normal circumstances the process of parent-infant closeness occurs within the first few days after birth and creates the basis for a lifelong relationship between the parents and their offspring (Gooding *et al.* 2011). When the baby is born prematurely or experiences health risk, parent-infant bonding can be affected from admission to the discharge in NICU. The experience of being a parent of a neonate in NICU is stressful and interferes with family functioning and the mental health of the parents. The parent-child relationship is a key element towards positive outcomes in the NICU. (Turner, Chur-hansen, Winefield, & Stanners, 2015). agree how stressful it is to be a parent of a neonate in the NICU. They suggest that communication, collaboration and professional interaction are keys element to cope with this condition. (Turner *et al.*, 2015). The medical progress in the NICU has contributed to a 90% survival rate for all premature infants (Bozzette, Kenner, & Boykova, 2010).

These medical advances have also brought along many concerns about the developmental vulnerabilities in the infants that receive care in the NICU (Bozzette, Kenner, Boykova, 2010). The NICU was originally created to be a life-saving treatment setting, but over the years the NICU has developed into more than just a place that provides life-saving care, but one that also strives to create a developmentally supportive environment (White, 2011). The light levels in the NICU have also been of concern, as bright lights may have developmental impacts for premature infants (Vergara & Bigsby, 2004). They may be unable to cope with environmental inputs, demonstrating high sensitive responses, and little tolerance from even the slightest stimuli (VandenBerg, 2007). The stress of the NICU environment can impact the infant's sense of control and increase their stress responses unless their caregivers can recognize their cues for

over stimulation and needs for care (VandenBerg, 2007).

Parental involvement is also known as Family Centered care (FCC) which is defined as care given by family members or parents especially concerning child health and chronic conditions of childhood and spend view of how to work with neonates and their families. Family Centered Care also supports collaboration between the nurses and parents in providing; integrating the needs of both the children and their parents into delivering care(Feeley et al. 2012). This may include mothers, fathers, relatives and extended family. An American national survey (Berns et al. 2007) found that 78% of parents are involved in the NICU with caring for their infant but 22% wished to be more involved. The Institute of Patient and Family-Centered Care identify information sharing, participation and dignity and respect within staff and family members, parental participation and accompanying parents are involved in responsibility of the care of their hospitalized infant, partnership in caring for neonate where parents and nurses work together to provide care for the sick child, negotiation of care are methods of achievement (Fenella J. Gill, Ascoe, Onterosso, oung, Charlotte Burr, Ann Tanner, & Shields, 2014). Many Neonatal Intensive Care Units (NICUs) around the world today are implementing parental involvement in the care of their high-risk newborns. This is in response to the many studies over the years that reported parents found the most stressful part of having their newborn in the NICU was the interruption of their parental role and relationship with their baby (Hughes & McCollum 1994, Dudek-Shriber 2004, Joseph et al. 2007).

Both neonate and family members experience the condition of being long time hospitalized, this situation is the source for parents to be inaccessible from their babies and they become stressful and anxious and cannot communicate with their babies appropriately, consequence of delays in neonatal parent attachment especially for fathers. Some factors such complexity of technologies, complexity of unit facilities, hospital policies and missions, neonatal appearance and different behavior, inability to support the baby encourage feeling of fear, loss, hesitation and inability in family members, but up to now great attempts have been to use models or approach for supplying neonates and family needs. (Kingsinger, 2015). A study conducted by Poppy project said that parents in NICU are supposed to have a moral rapport with nursing caring for their babies and to be offered active support by team in NICU, and they find it as really positive aspects of caring when nurses are approachable and attentive and kind to the

parents but parents reported that it would be better if communication with doctors improved in term of involving parents, increase level of detail provided and clarity in neonate's condition(Group, 2009).

Since the early 1980s in the United Kingdom and Ontario, the elements underlying the notion of partnership such as mutual respect, sharing the process of decision-making, sharing information, and recognizing the individuality of families have been discussed and they concluded that the parental involvement in caring describes approach or a philosophy of providing services for children and their families that involves supportive and respectful treatment, partnership, and information discussion.

When service are truly family-centered, parents obtain the support and information they need to make the required decisions about their child's treatment, in this intervention approach service providers answer in a collaborative way to each family's individual and varying self-identified needs.(Turner et al., 2015). Group Poppy said the manner or behavior of professional providers in NICU while Turner 2015 said how since 1980s the family centered care was adopted and it is better to recognize the individual needs. A study conduct in Rwanda on parents perception on stress in NICU by (Musabirema et al., 2013) showed how family members in NICU were stressed , and she argued that are due to complexity of physical environment, infant's behavior, appearance and staff and parents interaction. She said that in Rwandan culture when a baby is born everyone is excited and happy to care the baby at home and continue ceremony such as naming, but in the case a bay is admitted in NICU the routine care are not happened and family members are worried about health of their infants, and some problems including mental problem, family issues, socio economic issues, and she said that parents are challenged by policies and regulation in accessing to their babies, reduced parental role create separation between parents and their infant.(Musabirema et al., 2013).

1.3. PROBLEM STATEMENT

Prematurity is the leding cause of neontal mortality. It is increasing around the world. Rwanda is committed to decreasing neonatal morality and reaching SDG. According Texas Tech University (2013) and research done on prematurity problems find that a premature birth is all babies born, or delivery occurs before the 37th week of pregnancy, there are more risk factors such maternal factors (multiple pregnancy, problems of uterus, cervix and placenta, smoking

and use drugs abuse, poor nutrition, some infections, chronic conditions like cardiac disease, pulmonary diseases, physical injuries or trauma, conceiving through in Vitro fertilization). The complication for preterm babies includes respiratory problems due immature respiratory system and insufficiency of lung surfactant, heat problems, brain problems such as intra ventricular hemorrhage, increased risk of hypothermia, gastro intestinal problems, anemia, neonatal jaundice, metabolism disorders, neonatal infection due to immaturity of immune system problems, preterm babies are at high risk of getting long term complications such as cerebral palsy, impaired cognitive skills, blindness, loss hearing, behavioral and psychological problems and long term chronic health issues. (Texas Tech University 2013). Along with psychosocial and spiritual support parents need to to understand prematurity and how it affects their child as well as how they can participate in the care and treatments of their infant while in the NICU. Parents of preterm infants experience high stress levels and feelings of helplessness in the NICU and often lack adequate knowledge of how to parent and interact with their infants during the hospital stay. Parents have specific information and communication needs and seek information to reduce the emotional impact of the admission of a child to the NICU . But information needs are not always met by the NICU staff , sometimes explained by the high time demands on professionals , parents probably get information from other sources rather than getting information in public sources or from trained personnel. Moreover, information and communication needs change during the hospital stay and continue after discharge . Hospitalization in neonatal intensive care unit (NICU) leads to a lot of stress and shock to the parents. Nurses, as the primary sources of information, can play an important role in reducing parental stress and increasing their knowledge in caring their preterm infants. Today in Kigali the capital of Rwanda there are neonatal Intensive care units of varying levels of care in each district hospital. Parental education on the care of their preterm or high risk newborn in the NICU if it exists is limited to a simple one page check list presented on admission. There are no formal orientation classes or group educational trainings for caring for their baby while in the NICU or preparation for discharge at any of these facilities. There has been no studies in Rwanda evaluating the effectiveness of any parental education given while in the NICU. The aim of this study is to determine the effect of an educational training program on the knowledge of parents with preterm infants in the NICU. The purpose of the study is to increase the level of parental knowledge on the care for their preterm infant in the neonatal intensive care unit

through an educational training program in a district hospital in Kigali, Rwanda. Parents' participation and decision making in care process, getting enough information, communication with health professional, affect the infant development and early discharge from NICU (Melniket al., 2006).

1.4. OBJECTIVES

1.4.1. Main objective:

To determine the impact of increasing parental knowledge in caring of their preterm infant through an educational training program in NICU in a district hospital in Kigali, Rwanda.

1.4.2 Specific objective

1. To assess the effect of an educational program on parental knowledge on the caring of their preterm infant in the neonatal intensive care unit.
2. To determine the association between parental knowledge scores on the care of their preterm infant in the neonatal intensive care unit with demographic variables .

1.5. RESEARCH QUESTIONS

1. What is the effect of an educational training program on parental knowledge on the care of their preterm infant in the neonatal intensive care unit?
2. What is the association between parental knowledge scores on the care of their preterm infant in the neonatal intensive care unit and demographic variables?

1.6. SIGNIFICANCE OF THE STUDY

This research aimed to increase parental knowledge on the care of their preterm infant in the neonatal intensive care unit. The researcher gave the educational teaching program to the parents in the hospital in NICU service, identified the needs of parents who had neonates in Neonatal Intensive Care Unit, identified existing education provided in Neonatal Intensive Care Unit and determined nurses' attitude toward involving parents in caring for neonates in the Neonatal Intensive Care Unit.

The result of the study should be used by researchers, academicians, stakeholders, government and non-government organizations in using evidence based information in caring for neonates. The findings of this research again can be used by all health professionals to assess parents involvement in caring for their neonate in NICU. The findings could be contributed to the improvement of guidelines and policies related to caring parents who have infant in NICU. It may also served as basis for health policy-makers to instaure a good practices in the healthcare delivery system, with respect to the improvement of quality of service provided to increase parental knowledgein caring their preterm infant in neonatal intensive care.

This thesis helped the researcher to develop knowledge, practice and attitude in parents involvement in caring for neonates in NICU in order to promote child health locally, regionally and globally.

1.7. OPERATIONAL DEFINITION OF KEY TERMS

NICU: is defined as specialized unit for care of ill or premature newborn infants and neonatal intensive care unit (NICU)

Family centered care: is defined as an approach of planning, delivery, and evaluation of health care that is beached in mutually helpful partnerships among health care providers, patients, and families. It redefines the relationships in health care. Is also called Patient- and family-centered care

Involvement: is defined as condition of being involved with or participating in something, acting, collaboration, connection, attachment, relationship or bond.

1.8 STRUCTURAL AND ORGANIZATION OF THE STUDY

This thesis was made by 6 chapters :Chapter 1 Introduction which shall include namely definitions and key terms, background of the study, problem statement, objectives ,research questions and significance of studies and subdivision of the project. Chapter II, Literature review, Chapter III Methodology, Chapter IV Result presentation, Chapter V Result discussion , Chapter VI, Conclusion and Recommendations.

1.9 CONCLUSION

This chapter has shown the general orientation of the study. After the overview of the background and the statement of research problem, the objectives and questions of the study spelled out. Then the holistic significance of the study were elaborated. The scope and limitations of the study were also mentioned before finally defining some key concepts that are often used throughout the study. As an introductory chapter, it definitely constitutes indications of the entire study while the details are in other chapters. The second and third chapters respectively present literature review and methodology, results presentation, result discussion, conclusion and recommendations, references and appendices should be mentioned.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

This study on increasing parental knowledge of caring for their preterm neonates in the NICU through an education program inspired by the existing theories and greatest by the willing to contribute to the scientific knowledge by filling the gap in the existing literature. This chapter of literature review compared, contrasted and critique the scientific works related to the increasing parental knowledge of caring for preterm neonates in the NICU through an education program globally, in Sub-Saharan African institution of health deliveries and in Rwanda. Major concepts has concentrated on the relevant theoretical review, empirical review, critical review and research gap was identified and the concepts framework was linked to the inspiring theories in a theoretical review which finally help to draw a theoretical framework.

2.3. PARENTAL KNOWLEDGE ON PREMATUREITY AND THEIR COMPLICATIONS

According Texas Tech University (2013) and research done on prematurity problems find that a premature birth is all babies born, or delivery occurs before the 37th week of pregnancy, there are more risk factors such maternal factors(multiple pregnancy, problems of uterus, cervix and placenta, smoking and use drugs abuse, poor nutrition, some infections, chronic conditions like cardiac disease, pulmonary diseases, physical injuries or trauma, conceiving through in Vitro fertilization). The complication for preterm babies includes respiratory problems due immature respiratory system and insufficiency of lung surfactant, heat problems such as patent Ductus Arteriosus , brain problems such as intra ventricular hemorrhage, increased risk of hypothermia, gastro intestinal problems, anemia, neonatal jaundice, metabolism disorders, neonatal infection due to immaturity of immune system problems, preterm babies are at high risk of getting long term complications such as cerebral palsy, impaired cognitive skills, blindness, loss hearing, behavioral and psychological problems and long term chronic health issues. (Texas Tech University 2013)

Many complications are associated with NICU admission, and those complications may lead on neurology and cognitive impairment. Studies have shown that the lack of physical and

psychological preparation for NICU admission , combined with parental irresistible distress for the safety of life of their newborn may cause acute stress disorders, and post traumatic stress disorders.(Vazquez & Cong, 2014a).

2.4. PARENTAL KNOWLEDGE AND ADAPTATION IN NEONATAL INTENSIVE CARE UNIT

Cynthia A. Mundy, 2010) described how before the 1970 most hospitalized babies were separate from their parents. During 1970 and 1980, the importance of family's role in the children was recognized. In this time the nurse play essential role during admission and hospitalization, in taking care of the newborn and their family. (Cynthia A. Mundy, 2010). The increase use of technology has lead to development of neonatal intensive care units (NICU), throughout the world including middle and low income countries .These NICUs have greatly decreased neonatal mortality, resulting of globally neonatal mortality reduction. (Bay et al., 2014). NICU setting is one of high stress crisis and confused emotions for the family of the premature and ill newborn, fewer considerations have been paying attention on how to meet psychosocial needs of infant and family, than gathering the infant physical need. (Saunders, Abraham, Crosby, Thomas, & Edwards, 2013) .Parents' play the central role in providing children's emotional, physical, social and developmental needs in child's care in the NICU. Parental knowledge and family centered care in neonatal intensive care should be based on open and sincere information between parent and health professional on medical and ethical issues.(Book, 2010). Parents say that they are not all the time truthfully informed the consequence of medical condition and intensive care treatment received by their babies. the professionals information given to the parents is often communicated in vague statements, and half-truths and that parents may be protected from real information about worries surrounding their babies treatment (Book,2010). According Saunders et al, Neonatal morbidity and mortality have been reduced by technical and scientific advance participation of parent in decision making and caring their babies has been often limited, some centers collaborate on quality expansion tried to create the care of families better by focusing on considering and enhancing parental knowledge and family centered care (Saunders et al., 2003). According to (Russell et al., 2014) highlights that admission in NICU needs special care particularly to the parents where they have to receive emotional support, practical guidance and encouragement in caring for their babies. Clear information and consistent are needed because parents have

anxiety regarding lack of knowledge, neonatal environment, equipment, wires and monitors; encouraging to spend more time with their babies and active involvement of parents shown that it increases parental satisfaction and emotional support. Parents are the suppliers of an enormous amount of information during their infant's admission to the NICU up to discharge.

Special education from health care providers in neonatology is needed to prepare parents for their parenting role. Therefore an education program will reduce parental anxiety, stress and enhance coping and give parents a sense of control. (Document, Review, Kadeen, & Mina, 2016)

2.5. PARENTAL KNOWLEDGE IN CARING THEIR NEONATES IN NICU

Admitting a neonate in NICU because of prematurity or other critical condition it is very anxious for parents and family members due to lack of knowledge, attitude and behavior of a neonate, new environment, unfamiliar equipment. (Russell et al., 2014). Educational session and clear communication will improve understanding of parents, their day to day experience of NICU may assist health care providers in better supporting, caring and decision making for their neonates in NICU. An American study greatest out that successful approach of connecting parents can be very helpful in protecting the newborn regarding physical, emotion behavior security, and in clinical treatment. Thus it is significant that medical facilitators rethink the way they care the parents, aiming to find that increasing their knowledge and involving them in caring their neonates is very usefulness as well as producing perfection of security (Manzo, 2015)

Apparently, as Manzo said in his study find that medical staff sees family presence as a form of control of care delivered to the baby, as result, the applicability of involving parental and increasing their knowledge is incorrectly understood and picture a professional lack of preparation to deal with family, as responsible in the sickness sick child. (Manzo, 2015)

Many benefits are on the both sides to parents and to babies, when parents integrated into NICU, they will be aware of some changes, challenges may be happened to their babies and actively participate in caring for their babies, such as knowing procedure of feeding, recognize some danger signs which may be happen and preventing hypothermia by application of kangaroo care mother or father and gaining knowledge, confident, from admission to the discharge parents will become expert. (Hall et al., 2015) The presence of parent in the NICU is

very important to both parent and the baby. Mehretie (2011), argues that even very small babies recognize their parent's voices and respond to their voice and their touch. Education and visiting hours must be unlimited for parents. Parent education on specific information concerning their babies, length of stay, impact babies' on future and decision making so that their knowledge will be viewed as a form of support (Mehretie, 2011). Literatures say that, absence of giving education to the family with newborn admitted in the

NICU, causes a dissatisfaction to the parent and to the care givers, because health care providers are not truthfully informing to them all the time the medical condition and the intensive care received by their babies. (Craig et al., 2015).

2.6. INTERACTION BETWEEN PARENTS AND HEALTH CARE PROVIDERS IN NICU

(Kingsinger, 2015) explained that interaction between staff and parents is a key point in caring but some beliefs that open visitation would reduce from patient care and present issues with difficult family members. In this study some nurse explained that spending much time talking to a patient's family when it is the period of care she said that she is not providing sufficient care to a patient's needs. Also some health care providers said they fight between family members and visitors threatening to finish the job. Here in this study nurses have negative perceptions about family centered care and open visitors. (Kingsinger, 2015). It is way through this incorrect way of caring parents in NICU; researcher is inspired to work on an education program to detect impact and increasing parental knowledge through an education program. The study done on strengths and weaknesses of parent- nurse communication in the NICU conducted by Helena Wigert, Micheal Blom Dellenmark and Kristina Bry (2013) shown the results where parents were asked to fill full a survey, in order to demonstrate features of strength and weakness in parents nurse communication. The findings shown that in general, parent were happy with communication with the staff in the neonatal intensive care, they confirmed to have regular information about their child situation. Though, some parents agreed to have an access to discuss with doctors easily and to be present during ward round on their babies. But they report ineffective and poor communication when nurses were occupied in caring for the neonate and during the handover with shift change or during transfer. As

conclusion research found that both staff need training in how to satisfy parent emotion needs, to increase their knowledge, and to develop successful communication by using the primary nurse staff to improve continuity of care .(Wigert, Dellenmark, & Bry, 2013)

2.7. PARENTAL NEEDS IN NEONATAL INTENSIVE CARE UNIT

The study conducted in Toronto in 2015, by using systematic review, Kadeen Briscoe, and Mina Singh working on parents information needs of neonatal Intensive Care ,with purpose of assessing information needs of parents of premature infants during hospitalization in the NICU. They have find that , parents must work with nurses for regular and continuing information needs assessment and they have suggest that for active engagement in caring their baby parent must have necessary information for meeting their needs (Document, Review, Kadeen, & Mina, 2016).They have identify a high level of stress of mothers, a feeling of helplessness, and inability to feed and to protect baby from pain procedure. At the end, researcher concluded that educational program and family centered care must be done in NICU and is very helpful in developing relationship between mother and neonates from admission to the discharge(Sikorova & Kucova, 2012). The same study said again that, when parents have been educated on time of admission and participate in caring , making decision on their newborn increase from 8 to 20% and that study confirmed also that if parental education have been givenan education in the NICU and involvement in caring their babies improve their outcome and relationship within the family (Guimarães, 2015). The findings in the study conducted at Boston Children's Hospital, between 2008-2011 which was qualitatative research that was called memorable conversations in neonatal intensive carewas aimed to explore the perspective of provider on difficult conversation in NICU. Participants repotted 5 elements which may be the causes of challenges in satisfying family needs in NICU such as: newborn health situation, personality of family members, nurse/doctors characteristics, the nurse/doctors -family relationship. Finally, the conclusion taken was to consider the practitioners' experience among difficult discussion to help the personnel to anticipate some confront in neonatal planning, and they propose message and relational effort of education and learning (Brodsky et al., 2014) .

Fegran, Helseth, Fagermoen 2008, and Thon, Kelly in 2013 foundd that for mothers, when newborn are in the NICU, mothers may experience a feeling of helplessness due to the

unexpected birth experience and they need to be supported emotionally. Some mothers are affected by the newborn NICU admission differently from fathers in the sense that the mothers focused more on babies physical appearance and mothers stay long time near their preterm which impacted their need for control and participation in the care of the baby (Thon, 2013).

2.8. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION

The literature review examined multiple databases and they found some literatures on increasing parental knowledge of caring for their preterm neonate through an education program but were not specifically examined and no findings in Rwandan context. In Neonatal Intensive care Units, few studies were addressed the effectiveness of increasing parental knowledge. According research design, organization and presentation of this study and evidence level 4 of the effectiveness of increasing parental knowledge in caring their neonates in NICU were used. In doing this study

evidence 4 which was descriptive and case study was used, cross sectional and case control studies provide class 3 of evidence also was used, non-randomized controlled trials which is class 2 of evidence was used in this study, class 1 of evidence which is randomized controlled trials also was used in this research.

2.9. IMPACT OF AN EDUCATION IN NICU

The education training for family need in NICU was defined as a necessity which when completed, alleviates or reduces the suffering of the family, or improves the sense of well being and knowledge increase of the family. Improve well being is a special role of nurses (Document, Review, Kadeen, & Mina, 2016). As a result of the premature birth, mothers do not have as much time to develop the intrauterine mother-infant attachment, which likely impacts their relationship with their infant (Fegran, Helseth, Fagermoen, 2008). Mothers may also experience a feeling of helplessness due to the unexpected and traumatic birth experience, likely reducing her confidence in her role as a mother (Fegran, Helseth, Fagermoen, 2008). The physical appearance of the preterm neonate was expressed by parents to be one of the most difficult things for them when seeing their baby for the first time in the NICU. Premature infants are often born looking vastly different than full-term infants. They frequently have thin skin and little fat, hair, and external ear cartilage (Preyde, 2007). Premature infants have been

found to be less likable and less attractive due to often not having the typical facial characteristics that full-term infants possess (Kelly, Vannostrand, Shiflett & Chan, 1996). In a study by Colville et al. (2009), reported that parents haunting memories of their child's appearance due to both the amount of equipment attached to them but also because of the excess fluid that had built up in their bodies. Therefore, a premature birth and how an infant looks and behaves can cause significant stress for parents (Dudek-Shriber, 2004). Health education on admission and the period of parenting in NICU helped both family, preterm baby and medical personnel.

2.10. CONCLUSION

This chapter gives a deep understanding of the different concepts through the consideration of the literatures and the review of the related theories. It familiarizes the reader with the repeated concepts related to the research of increasing parental knowledge of caring for their preterm neonates in NICU through an education program. Parental knowledge in caring their neonates in NICU is very crucial, it helps in collaboration, partnership and improves decision making in caring neonates in NICU. It seemed that the youngest women in reproductive age do not have enough general knowledge on pregnancy and fetus development and do not have enough knowledge about prematurity and other associated problems, it is why educational intervention in NICU is very necessary by explaining that the birth of a premature and critical ill infant makes parents to be very

stressful and that tension may be related to lack of awareness and knowledge in care and interaction with premature infants. (Khalesi, Anjom, Rezaeiezhadeh, & Farahani, 2015)

2.11. CONCEPTUAL FRAMEWORK

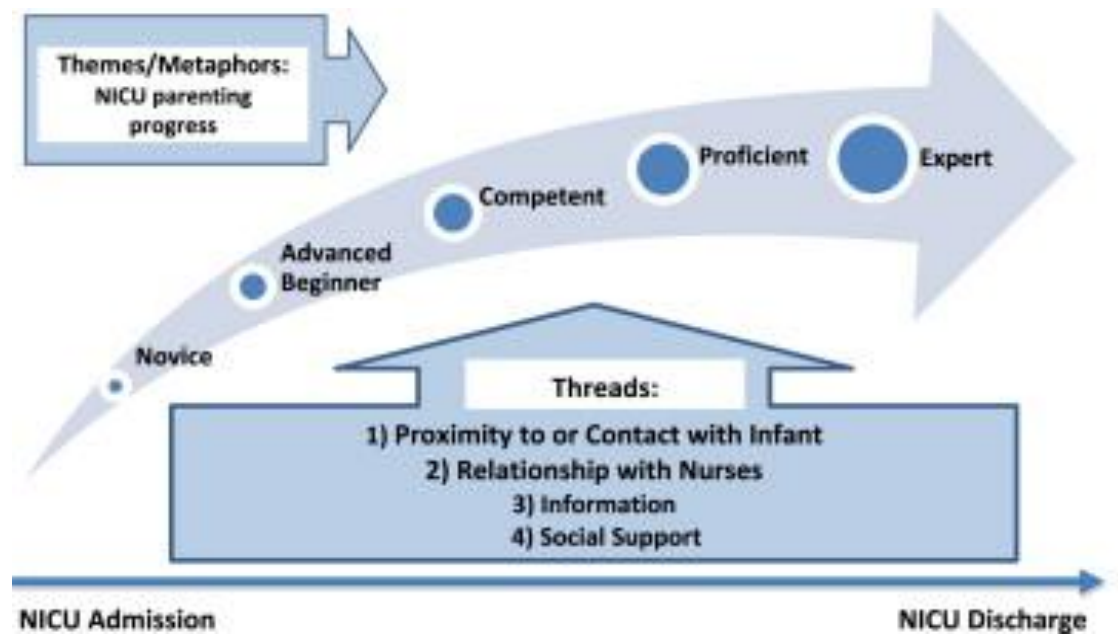


Figure 2. 1: Conceptual framework of parenting progress in NICU

Vazquez & Cong, 2014, P. 6

2.12. DESCRIPTION OF CONCEPTUAL FRAMEWORK

This conceptual framework shows the parental progression from the admission in NICU to discharge process. The required from novice parents to expert progress in parenting, relationship with nurses, getting information, psychosocial support in hospitalization in NICU.

At the beginning in parenting process, the parents are not familiar with environment, they walked into the big room where are incubators and critical ill babies, many machines sending out loud beeps, they feel nearly collapsed, babies had so many lines, tubes attached to his tiny body, the parents said that it was terrible environment and they wanted to run away, this first contact between parent-infant attachment and bonding is very crucial, the parents had fear of holding their babies and causing other problem to them and it is a barrier to many parents. (Vazquez & Cong, 2014b, p. 4). The beginners parents want as much information and many explanations as they want to be incorporated

and tolerate this environment, after getting information and knowledge they become competent, proficiency and even expert in caring their babies in different activities done in NICU. This conceptual framework show how proximity and contact are significant where physical contact for first feeding and holding premature infant pose them many new challenges in NICU. The relationship between parents- nurse require much teaching, encouragement and support, negotiation on feeding and how many times and others needed procedures. This conceptualframework from the admission to the discharge, shows how giving more information to the parents,good health care provider- patient relationship, social support will help for gaining more confidence in their parenting knowledge, skills, attitude and it is very important for nursing to continue to promote independence of the parents in caring for their premature babies. (Vazquez & Cong, 2014b, p. 6)

2.13. CONCLUSION

This chapter gives a deep understanding of the different concepts through the exploration of the literature and the review of the related theories. It familiarizes the reader with the repeated concepts related to the research of increasing parental knowledge of caring their preterm neonates in the NICU through an education program in neonatal intensive care unit. Parental knowledge and involvement in caring their neonates in NICU is very crucial, it helps in collaboration, partnership and improves decision making in caring neonates from admission to the discharge in NICU.

2.14. CRITICAL REVIEW AND RESEARCH GAP IDENTIFICATION

The literature review examined multiple studies and they find inconsistencies of terminology limited the search to several synonyms such as “family, patient or client-centered” but individual structures of a family-centered approach were not precisely examined, and no findings in Rwandan context. In pediatric population or services few studies were addressed the effectiveness of family-centered care. According research design, organization and presentation of this study and evidence level 4 of the effectiveness of parental involvement in caring their neonates in NICU were used. In doing this study evidence 4 which is descriptive and case study was used, cross sectional and case control studies provide class 3 of evidence also was used, non-randomized controlled trials which is class 2 of evidence was used in this study, class 1 of evidence which is randomized controlled trials also was used in this research.

CHAPTER 3: METHODOLOGY

3.1. INTRODUCTION

This chapter attempts to describe the methodology that used in assessing parental knowledge in involvement of caring for their neonates in Neonatology Intensive Care Unit, and it includes introduction, research design, research approach, research setting, population, sampling, sampling strategy, sample size, data collection, data collection instruments, data collection procedure, data analysis, ethical considerations, data management, data dissemination, limitations, challenges and conclusion to this chapter.

3.2 RESEARCH DESIGN

This study adopted a quasi- experimental research design one-group pretest and post test research design after intervention of teaching on caring preterm infants in NICU; it was used to increases parental knowledge in the care of their neonate in Neonatal Intensive Care Unit. (Thomas & Nelson, 1996) described that quantitative studies help to discover the status quo of the situation. Quantitative method was chosen because of its high level accuracy, precision and objectivity through measures of central tendency (Burns & Grooves, 2001). And this design helped to describe the variables and examine the relationship between independent and dependent variables found in this study.

3.3 RESEARCH APPROACH

This research use a quasi- experimental through educarion program as quantitative approach pre test and posttest questionnaires were considered after intervention. This approach provided the procedural outline for conducting a study. It specified procedures for collecting, analyzing and reporting results in quantitative research as suggested by Creswell(2002).

3.4 RESEARCH SETTING

This study was conducted in the Neonatal Intensive Care Unit., at Muhima Distrct Hospital. It is located in Nyarugenge district in Muhima Sector, Amahoro cell. This setting has been chosen because it is one of the busiest maternal and newborn hospitals in Rwanda with an estimated 600 births per month. The NICU has 16 beds; 6 beds for the highest acuity and 10 beds serves as a step down unit. There are six beds for Kangaroo Mother Care and 15 beds for

infants waiting to be discharged. MUHIMA district hospital is public hospital with a catchment population of 282,769 and

is the hospital that received the largest number of prematurity cases estimated at 30 prematurity cases per month.

3.5 POPULATION

The study population involved parents who had preterm infants in NICU department at Muhima Hospital. Muhima Hospital received 364 premature infants from January to December 2016, then estimation within one month were 30 preterm infants per month, data collection were done within 2 months starting from 13th February to 12th April 2017 as indicated in approval letter from University of Rwanda, College of Medicine and Health Sciences. The study considered within two months population of 60 participants who were parents that their preterm babies were hospitalized in Neonatal Intensive Care Unit at Muhima Hospital.

3.6. SAMPLING

In research, sampling is the process, or technique of selecting a suitable sample for a purpose of selecting representative part in determining parameters or characteristics of whole population. (Barreiro & Albandoz, 2001)

3.6.1 Sampling strategy

Sampling strategy used were non probability sampling by using purposive sampling strategy.

a. Inclusion criteria :

To be a mother or a father of the preterm baby admitted in the NICU at Muhima Hospital and willingness or voluntary to participate in this study.

b. 4.2. Exclusion criteria

Exclusion criteria was health professionals and care givers. Parents of high-risk newborns not related to prematurity were excluded from the study. Any parent not willing to sign the informed consent was also not allowed to participate in the study.

3.6.2 Sample size

In determining sample size, additional to the purpose of the study and population size, there were three criteria that needed to be specified in determining appropriate sample size; those are the level of precision, level of confidence or risk and the degree of variability.

Using online formula which is available on [www. raosoft .com](http://www.raosoft.com)

Sample size were calculated using software:

N=60 (Total number of preterm newborn admitted at Muhima NICU within 2 months)

Margin error =5%

Confidence Interval =95%

n=53

Sample size were 53 parents who had their preterm babies hospitalized in NICU at Muhima hospital

Also by using **Slovin's formula**; $n = \frac{N}{1+Na^2}$

Where:

n = sample size

N = Population size

a = level of significance (0.05)

The formula developed by (Adanza, 1995) was used in determining sample size. As the proposed N are 60 target populations, $a < 0.05$, and

Calculation of the sample size using Slovin's formula: $n = \frac{N}{1+Na^2}$

Sample size (n) was = $\{60 / [1+60*(0.05)^2]\}$

= $\{60 / [1+60*(0.0025)]\}$

= $\{60 / [1+0.15]\}$

$$= \{60/ 1.5\}$$

$$n = \sim 52.1 = 53$$

Total sample size calculated of respondents was 53 n =53 Sample size of parents whom they babies were hospitalized in NICU due to prematurity. Therefore, the total sample size is 53 out of 60 population among 364 tagert population of prematurity per year of 2016.

3.6.3 Data collection

According to Patton (1990:160), data collection is the process of gathering information and measuring that information on targeted variables, in systematic approach, and enabling to answer relevant questions related to the topic and evaluates outcomes.

3.6.4 Data collection instruments

Research instruments were used for questions in 3 sections: Section 1 were demographic information, Section 2 were obstetrical information, Section 3: were 12 questions related to parental knowledge in caring their preterm infant in Neonatal Intensive Care Unit at Muhima Hospital (same questions for pre test and post test) 53 participants for pre test and the same 53 participants for post test after intervion of an education session. The computer, projector, pen, notebook, were used during education training program session for data collection. A multiple choice questions were formulated to collect information before and after intervention. After an education training the same multiple choice questions were given to the participants. Those categories of questions were to increase the parental knowledge on the caring preterm neonate in Neonatal Intensive Care Unit, identifying existing parental knowledge through an education program. The education training and multiple choice questions were translated from English to Kinyarwanda to facilitate respondents to understand and respond using understandable language. Education training and videos included the following topics: How to express breastmilk, Feeding with nasogastric tube, Keeping baby warm, Protecting small babies from infection, Discharge the small babies, Danger signs after discharge. Those who did not know to read and write the researcher heped them by reading for them the questionnaire and each particapants choose the best response before intervention and after intervention.

3.6.5 Data collection procedure

The investigator explained to the parent the purpose of the study, how to maintain the confidentiality by using code and non name anywhere in questionnaire. After having a signed consent letter, the questionnaire was distributed to the available parents who were accepted to participate in the study and collect filled questionnaires immediately after completeness. A guide were used for respondents who were enable to read and to write themselves. The investigator started with pre-testing of the participants, teaching session composed by prepared session of power point presentation, 5 different videos then post test questionnaires were distributed to the participants .

3.7 DATA ANALYSIS

Data collected was coded, entered, and analyzed using the Computer; Software Statistical Package of Social Science (SPSS) version 21.0. The data was organized into subgroups of items that permitted a more meaningful examination of different measurements. Descriptive statistics were used and results were expressed in percentages for nominal level data, numbers and percentages for nominal level data, in mean values and standard deviations and inferential statistics for continuous variables, graphs, tables, charts were used so that readers should draw the meaning of the findings.

3.8 ETHICAL CONSIDERATIONS

In general ethical consideration is a mandate in doing research. (Polit & Beck, 2006) said that the ethical responsibilities of researchers should not be taken lightly and he agreed that people engaged in research activities should be systematically knowledgeable about the rights of human or animal subject (Polit & Beck, 2006). Ethical approval were obtained from Institutional Review Board of University of Rwanda, College of Medicine and Health Sciences, Nyarugenge Campus. And approved letter by ethical committee from Muhima Hospital where obtained. An informed consent were also obtained from respondents; this means that respondents had adequate information regarding the research, and had the right of free choice, allowing them to consent or drop out participation voluntarily.

The nurses, midwives, physicians and parents who their babies were admitted in NICU were approached and eligible group were informed about the nature, potential risk and the purpose of the study and written consent were obtained prior to participate in the study,

The participants were informed that this research is part of an academic requirement. Respondents were assured that their privacy were protected and anonymity were guaranteed. All those participants who received consent form were asked to complete the questionnaires and questionnaires were collected on the same day after completion.

3.9 DATA MANAGEMENT

Guideline of responsibility data management explained that once data have been collected and recorded the next step is data storage and management. Data were saved within notes, observations and electronic data; data storage is a fundamental to research project for the following reasons such as safeguard of research investment, accessibility in the future to explain successive research,

researchers may wish to evaluate or to use the result of that research, storing and manage data could protect research subjects and researchers in events of legal allegations. (Services, 2010).

3.10 DATA DISSEMINATION

According to the guideline of responsible data management, the researchers were not obligated to share their findings while research is ongoing, data sharing usually occurs once a study has been accomplished, and typically the findings may be published results in a scientific journal or article. Before publication there is often no obligation to share any preliminary data that have been collected, however data in some cases preliminary, data should be shared immediately with the public if there is a grave risk or a great benefit(Services, 2010). After accomplishment of this study the results should be shared in University of Rwanda, Ministry of Health, Muhima hospital, other hospital in Rwanda, Colleagues of medicine and health sciences, the result should be used to improve quality care in involving parents in caring for their infants in NICU.

3.11 PROBLEMS AND LIMITATIONS OF THE STUDY

Some problems were happened such as shortage of funds, transport and didactic materials during education session .

The study is an academic requirement therefore, time was a limitation.

Generalization problem due to small sample size and one site of research.

3.12 VALIDITY AND RELIABILITY OF THE INSTRUMENTS

According to (William, 2003), validity can be explained as the degree to which the research conclusions sound plausible and linked with the responses to the questions asked by the researcher and are used in quantitative research and quasi-experimental approach. According to Cohen, Manion & Morrison (2007), the validity implies that the findings are a genuine reflection of a phenomenon studied whereas the reliability implies that the results are repeatable or replicable. Those quality of assessment soundness are fit in quantitative research where assessing parental involvement in caring their newborn in NICU, validity and reliability are very crucial in quality assessment of this study. The validity and reliability of this instrument were established by having it cross examined for approval by a research consultant, to ensure that the information they have generated was appropriate and consistent. Before going out to carry out the study, the researcher has first consulted supervisor, to make sure that these instruments, methodologies were generating relevant information during the study. In addition, a pilot study was conducted at another health facility in district hospital on 6 participants means 10% of total sample size in order to test and improve on the validity of the questionnaire. In this study the pilot study was done shown the result below, the content validity index was calculated from the formula below:

CVI= n/N , Where:

CVI: Content Validity Index, n: Total number of items questions in one questionnaire.

N: Number of relevant items of the questionnaires for delivery to respondents, In this research the total number of items questions is (n) is equal to 42 including pre test and post test. The number of relevant sample size items as like total questionnaires (53) was equal to 53. Then the content validity index (CVI) is equal to $42/53 = 0.79$ or 79%. The validity index value above 0.7 is good and below 0.7 is not clear even it is not appreciated during data collection but in this study the value of CVI is greater than 0.7 which means that the questionnaire tool used were accuracy for data collection. The larger the validity coefficient, the more confidence you can have in predictions made from the test scores. However, a single test can never fully predict parental knowledge increasing or success on caring their preterm infants in NICU but depends on so many varied factors. (Hessen, *et al*, 2011) had described reliability into two types: The first one is internal consistency, in field observation: the researcher responds to questions whether the

observations are reasonable, fit together, or are consistent over time, cost, quality and stakeholders in different contexts. The second is external consistency; verification is done by cross-checking observations with other divergent document and neighbour competences. The alpha reliability of the variable is derived by assuming each item represents a retest of a single item. But the reliability is calculated in such a way that it represents the reliability of the mean of the items, not the reliability of any single item. Alpha reliability should be regarded as a measure of internal consistency of the mean of the items at the time of administration of the questionnaire (Hessen, *et al*, 2011).

Table 3. 1:General Guidelines for Reliability

Reliability	Interpretation
.90 and up	Excellent
.80-.89	Good
.70-.79	Adequate
Below .70	May have limited applicability

Source: (Hessen, *et al*, 2011)

3.7. STATISTICAL TREATMENT OF DATA

According to (Creswell, 2008) defined data analysis as “the process of bringing order, structure, and interpretation to the mass of collected data. Therefore researcher has used a quantitative approach of data analysis; basically selective coding method has been used because of its data analytic advantages. This method involved first step called editing where collected questionnaires were verified through reading of the data and making short notes to reduce it into preliminary subheading while identify evidence.

The second step involved organizing the preliminary heading into major themes or headings. The third step will be selective coding, where the researcher critically examined the codes or headings to identify and select data supported analysis and interpretation. It helped the researcher to classify the responses to questions into meaningful themes/heading as to bring out

their essential pattern. As the data collected was dependent and independent variables, the SPSS was used for more generating result from tabulation and getting findings into correlation of variables and regression analysis with found out coefficient determination and other test required in order to find out and to interpret exactly results. The frequency and percentage distribution were used to determine the demographic characteristics of the respondents, obstetrical variables, and parentalknowledge on caring their preterm infant in NICU. The mean and standard deviations were applied for pretest and posttest. (Creswell, 2008). After a successful data collection exercise, the researcher edited, coded, recorded the data and analyzes them through SPSS (Statistical Package for Social Sciences). Objectives were analyzed using descriptive statistics where frequencies, mean and standard deviation were be produced and inferential statistics were used.

Table 3. 2: Evaluation of the Mean

Mean Range	Interpretation
1 – 1.9	Weak
2 – 2.49	Moderate
2.5 – 4.00	Strong

Source: (Chrispeels, 2008)

Table 2 shows the means ranges and the corresponding interpretation of the respondents' responses to reflect their perception and rating of each variable(s) under study. This translation was assist in clarification of the means obtained from the descriptive statistics of total meanof pre test and post test.

Table 3. 3: Evaluation of the Standard Deviation

Mean Range	Interpretation
St.dev $\leq$ 0.5	homogeneous of perception
St.dev $\geq$ 0.5	heterogeneous of perception

Source: (Chrispeels, 2008)

This table 3 represents the standard deviation and their corresponding interpretation of the respondents' responses to reflect their perception and rating of each variable(s) under study. This translation was assist in clarification of the standard deviation obtained from the descriptive statistics of pre test and post test.

3.8. CONCLUSION OF THE CHAPTER

In describing the methodology that was used in this study entitled increasing parental knowledge on the care of their preterm neonate in the neonatal intensive care unit through an educational in Neonatal Intensive Care Unit at Muhima hospital, in order to achieve the objectives of the study, the researcher adopted quasi-experimental approach. Study setting was Muhima Hospital in Neonatal Intensive Care Unit; sample size was 53 parents with preterm babies hospitalized in NICU, multiple choice questions was used for data collection after an education training. Validity and reliability for this research and ethical consideration was taken into consideration, data management and statistical treatment of data were shown.

CHAPTER 4. RESULTS PRESENTATION

4.1. INTRODUCTION

This chapter gives a summary of the main findings of the study, on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program. The content of this chapter is demographic information, obstetrical history, and knowledge of parents in caring their preterm babies, both are explained in the tables, graphs, and descriptive statistics and inferential statistics were used to describe and interpret the data that were collected on the 53 participants. Same participants for pretest and posttest but demographic information were collected once on during pretest period.

4.2. DEMOGRAPHIC INFORMATION

The study used a sample of 53 participants who had their preterm babies hospitalized at Muhima hospital in Neonatal Intensive Care Unit, from various respondents in this study were described according gender, age, level of education, residence,

Table 4. 1 : Demographic Characteristics of the Respondents

S/N	Demographic information	Consideration	Frequency	Percentage %
1	Gender	Male	1	1.9
		Female	52	98.1
2	Age	Under 14 -24years	29	54
		24 to 34 years old	17	32.1
		34 t0 44 years old	7	13.2
3	Education level	No formal education	5	9.4
		Primary school	38	71.7
		Ordinal level	8	15.1
		Secondary school	2	3.8
4	Residence	Kigali City	49	92.5
		Out of Kigali City	4	7.5

Source: Primary data, 2017

As indicated in the summarized table 4.1; majority of the respondents at 98% were females. The age bracket of between 14 to 24 years had the highest number of respondents at 54% and lowest at the bracket of age under 34-44 years at 13.2%. The education level for majority of the respondents was primary school with 71.7%. The residence of Kigali City for respondents was majority with 92.5%.

4.3 OBSTETRICAL INFORMATION

Table 4. 2 : Obstetrical Information of the Respondents

S/N	Obstetrical information	Characteristics	Frequency	Percentage %
1	Weeks of gestation at birth	22 to 32 weeks of gestational	5	9.4
		33 to 37 weeks of gestational	48	90.6
2	Gravidity	Primigravida	30	56.6
		Multigravida	23	43.4
3	Multiple birth	Singleton birth	49	92.5
		Multiple birth	4	7.5
4	Date of birth	February 2017	11	20.8
		March 2017	15	28.3
		April 2017	23	43.4
		May 2017	4	7.5
5	Birth area	Muhima Hospital	49	92.5
		Transferred from another health facility	4	7.5

Source: Primary data, 2017

As indicated in the summarized table 4.2; Majority of the respondents on weeks of gestation at 90.6% indicated baby born at 33-37weeks of gestations. The gravidity of respondents indicated by primigravida and Multigravida where the frequency of primigravida was high with 56.6% of all respondents. The multiple birth shows that the mostly is 92.5% of Singleton birth. The date of birth was indicated that 43.4% have born in April 201. The highest number of preterm babies gave birth at Muhima Hospital with 92.5% and 4% of preterm babies were transferred from another health facilities to Muhima hospital.

4.4 PRE-TEST PARENTAL KNOWLEDGE

Table 4. 3 : Frequency of Respondents resulted from pre-test parental knowledge

S/N	Characteristics	Responses	Respondents/53	Percentage %
1	What is special unit to care preterm babies?	Incorrect	38	71.7
		Correct	15	28.3
2	What does it mean to say a baby is born too soon?	Incorrect	12	22.6
		Correct	41	77.4
3	The related factors causing babies to come too soon	Incorrect	17	32.1
		Correct	36	67.9
4	What are some common problems in babies born too soon?	Incorrect	36	67.9
		Correct	17	32.1
5	Possible long term complications of a baby born too soon	Incorrect	16	30.2
		Correct	37	69.7
6	Why is colostrum important to give to a baby born too soon?	Incorrect	18	34
		Correct	35	66
7	Important things to do before manual expressing of breast milk	Incorrect	22	41.5
		Correct	31	58.5
8	What are the best ways of keeping	Incorrect	35	66

	baby warm?	Correct	18	34
9	What is the best way to prevent infection in a baby born too soon?	Incorrect	31	58.5
		Correct	22	41.5
10	The common mistake in tube feeding	Incorrect	25	47.5
		Correct	28	52.8
11	When a baby born too soon can be discharged from the hospital?	Incorrect	23	43.4
		Correct	30	56.6
12	What are the main dangers signs after discharge to the hospital need to be reported immediately?	Incorrect	20	37.7
		Correct	33	62.3
Correct average	54			
Incorrect avearage	46			

Source: Primary data, 2017

As indicated in the summarized above table 4.3; This table shows pre-test results on parental knowledge on caring their preterm infant in NICU, therefore the highest percentage of the respondents on parental knowledge is 77% on defining a baby born too soon. While 71.7% they do not know what exactly special unit where they care a baby born too soon. Correct average in pre test on parental knowledge was 54%.

Table 4. 4 : Descriptive statistics of Mean and Std on Pre-test Results Regarding Parental Knowledge

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
What is special unit to care preterm babies?	53	0	1	.28	.455
What does it mean to say a baby is born too soon?	53	0	1	.77	.423
The related factors causing babies to come too soon are	53	0	1	.68	.471
What are some common problems in babies born too soon?	53	0	1	.32	.471
List 2 possible long term complications of a baby born too soon	53	0	1	.70	.463
Why is colostrum important to give to a baby born too soon?	53	0	1	.66	.478
Name 2 important things to do before manual expressing of breast milk	53	0	1	.58	.497
What are the best ways of keeping baby warm?	53	0	1	.34	.478

What is the best way to prevent infection in a baby born too soon?	53	0	1	.42	.497
The common mistake in tube feeding	53	0	1	.53	.504
Baby born too soon can be discharged from the hospital once they can	53	0	1	.57	.500
What are the main dangers signs after discharge to the hospital need to be reported immediately?	53	0	1	.62	.489
Valid N (listwise)	53				

Source: Primary data, 2017

Table 4.4 shows that the twelve variables are indicating the sample size for each variable, minimum, maximum, mean and standard deviation, all variables describing the findings results of descriptive statistics in two types average and measures of dispersion. Quoting both a measure of central tendency and the relevant measure of dispersion for one set of data gives a much better picture of data than quoting one alone. The highest variable is dispersed or varies in the above data is the presentation of what does it mean to say a baby is born too soon? was shown with standard deviation of .423 and .77 mean and the lowest values is the the questionrelated to definition of special unit to care preterm babies; with standard deviation of .455 and .28 mean values. With different variables as shown in the table above have different standard deviation and mean value.

4.5 POST-TEST PARENTAL KNOWLEDGE

Table 4. 5 : Frequency of Respondents resulted from Post-test Parental Knowledge

S/N	Characteristics	Responses	Respondents/53	Percentages %
1	What is special unit to care preterm babies?	Incorrect	4	7.5
		Correct	49	92.5
2	What does it mean to say a baby is born too soon?	Incorrect	6	11.3
		Correct	47	88.7
3	The related factors causing babies to come too soon	Incorrect	4	7.5
		Correct	49	92.5
4	What are some common problems in babies born too soon?	Incorrect	5	9.4
		Correct	48	90.6
5	Possible long term complications of a baby born	Incorrect	4	7.5
		Correct	49	92.5

	too soon			
6	Why is colostrum important to give to a baby born too soon?	Incorrect	3	5.7
		Correct	50	90.3
7	Important things to do before manual expressing of breast milk	Incorrect	4	7.5
		Correct	49	92.5
8	What are the best ways of keeping baby warm?	Incorrect	3	5.7
		Correct	50	90.3
9	What is the best way to prevent infection in a baby born too soon?	Incorrect	5	9.4
		Correct	48	90.6
10	The common mistake in tube feeding	Incorrect	8	15.1
		Correct	45	84.5

1	When a baby born too soon	Incorrect	1	1.9
	can be discharged from the hospital?	Correct	52	98.1
12	What are the main dangers signs after discharge to the hospital need to be reported immediately?	Incorrect	2	3.8
		Correct	51	96.2
Correct average	92			
Incorrect average	8			

Source: Primary data, 2017

As indicated in the summarized above table 4.5; this summary shows post-test results on parental knowledge on caring their preterm infant in NICU, therefore the highest percentage of correct responses on parental knowledge was 88% on knowing when a baby can be discharged from the hospital. While 84% was the lowest percentages of correct on knowing the common mistakes in tube feeding. Correct average was 92% of success after education training.

Table 4. 6 : Difference between Pretest and Posttest Results on Parental Knowledge in Caring their Preterm Infants in NICU

S/N	Questions related to parental knowledge	Pre-test results%	Posttest results %	Difference in %
1	What is special unit to care preterm babies?	28.3	92.5	64.2
2	What does it mean to say a baby is born too soon?	77.4	88.7	11.3
3	The related factors causing babies to come too soon	67.9	92.5	24.6
4	What are some common problems in babies born too soon?	32.1	90.6	58.5
5	List 2 possible long term complications of a baby born too soon	69.8	92.5	22.7
6	Why is colostrum important to give to a baby born too soon?	66	94.3	28.3
7	Important things to do before manual expressing of breast milk	58.5	92.5	34
8	What are the best ways of keeping baby warm?	34	94.3	60.3
9	What is the best way to prevent infection in a baby born too soon?	41.5	90.6	49.1
10	The common mistake in tube feeding	52.8	84.9	32.1
11	When a baby born too soon can be discharged from the Hospital?	56.6	98.1	41.5
12	What are the main dangers signs after discharge to the hospital need to be reported immediately?	62.3	96.2	33.9

Source: primary data, 2017

In general the results shown in table above 4.6 indicated that there is a high improvement after an education training program in defining special unit for preterm infants with different of 64.2% from pre-test of 28.3% to 92.5% of participants after intervention. Therefore the results shown that the lowest different in improvement in parental knowledge was 11.3% in defining baby born too soon meant that the pre-test results were 77.4% , post test results shown 88.7% of after

intervention. Means the parents had prior knowledge in defining a baby born too soon before and after intervention. Difference mean average from prest to the post test was 38% of an increase in parental knowledge after intervention.

Table 4. 7 : Descriptive Statistics on Post-Test Results on Parental Knowledge

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
What is special unit to care preterm babies?	53	0	1	.92	.267
What does it mean to say a baby is born too soon?	53	0	1	.89	.320
The related factors causing babies to come too soon are	53	0	1	.92	.267
What are some common problems in babies born too soon?	53	0	1	.91	.295
List 2 possible long term complications of a baby born too soon	53	0	1	.92	.267
Why is colostrum important to give to a baby born too soon?	53	0	1	.94	.233
Name 2 important things to do before manual expressing of breast milk	53	0	1	.92	.267

What are the best ways of keeping baby warm?	53	0	1	.94	.233
What is the best way to prevent infection in a baby born too soon?	53	0	1	.91	.295
The common mistake in tube feeding is	53	0	1	.85	.361
Baby born too soon can be discharged from the hospital once they can	53	0	1	.98	.137
What are the main dangers signs after discharge to the hospital need to be reported immediately?	53	0	1	.96	.192
Valid N (listwise)	53				

Source: Primary data, 2017

Table 4.7 shows that the twelve variables for all respondents, the results shown each variable; minimum, maximum, mean and standard deviation, all variables describing the findings results of descriptive statistics in two types average and measures of dispersion. The highest variable was in presented results was on knowing when a baby born too soon could be discharged from the hospital and was shown with standard deviation of .137 and .98 mean and the lowest was the knowledge on common mistake in tube feeding , with standard deviation of .361 and .850 mean

Table 4. 8 : Table of Relationship between Pretest Mean and Posttest Mean of Parental Knowledge

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
mean of pretest	6.49	12	3.617	1.044
Pair 1 mean of posttest	6.50	12	3.606	1.041

As indicated in the table 4.8 above the means average values of 6.49 for pre-test and post-test of 6.5 with standard deviation of 3.617 for pre-test and 3.606 posttest which has contributed in the correlation and relationship of comparison of Pre-test and Post-test which is shown in the table 2 above which is very strong as indicated in the table for two variables has mean with the range of more than four which is very strong as indicated in the table 2 above and two variables has standard deviation with the range more than 0.5 which are indicated heterogeneous of perception as indicated in the table 3 above. by (Chrispeels, 2008).

Table 4. 9 : Correlation of Parental Knowledge before and after Training.

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 mean of pretest & mean of posttest	12	1.000	.000

As shown in the above table 4.9; a very significant P. value <0.0001 a difference was found between pre test and post test knowledge scores of the respondents indicating an increase in knowledge after planned teaching programme. There is a statistically significant effect of an education training program on increasing parental knowledge in caring the preterm infant in Neonatology Intensive Care Unit as shown by this P. Value is 0.0001 which is less than α 0.05.

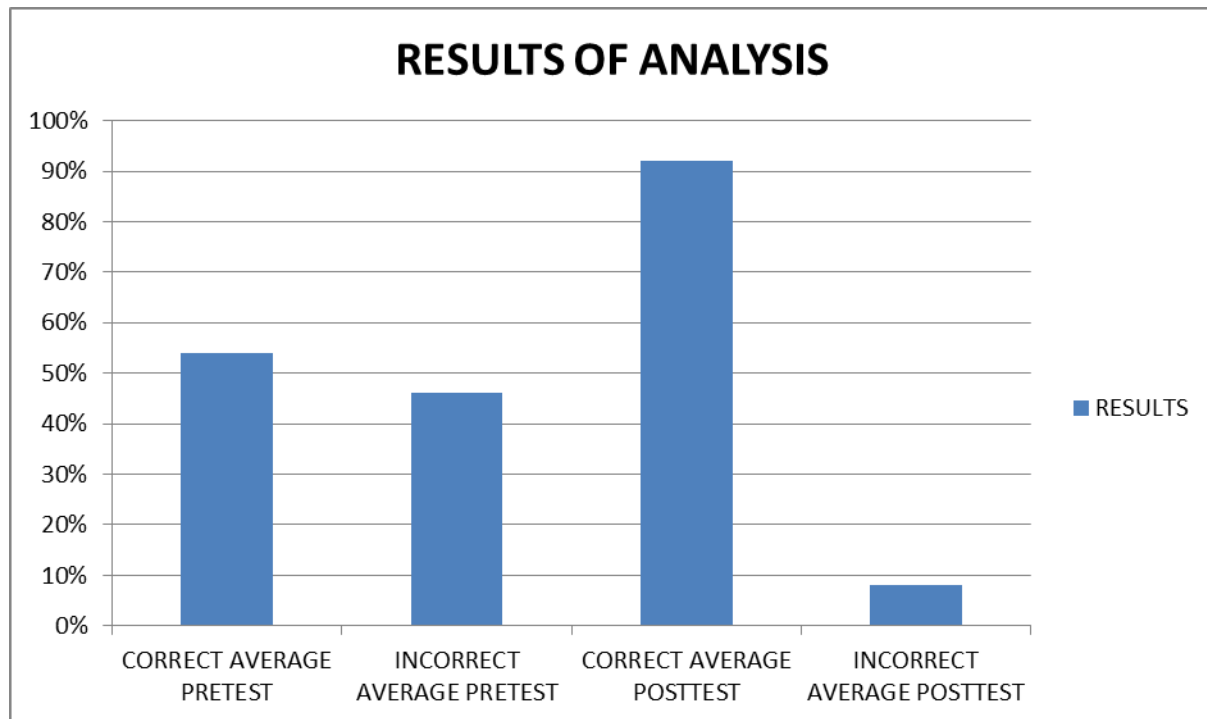


Figure 4. 1: Results of education training

This Figure 4.2 shows the results before education training on increasing parental knowledge and post test results where in pre-test the correct responses were on 54% while incorrect responses were on 46% thus the findings revealed an effectiveness of planned teaching in post test after intervention of teaching using power points presentation, 5 different videos and demonstration of some procedures in caring preterm infants.

Table 4. 10 : Table of Regression Model of all Demographic and What is Special Unit to Care Preterm Babies

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.175	.583		.301	.765
Age	.284	.106	.449	2.674	.010
Education level	.043	.102	.059	.426	.672
Weeks of gestational at birth	.311	.217	.202	1.431	.159
Parity	-.326	.161	-.347	-2.030	.048
Date of birth	.011	.061	.025	.177	.861
Birth area	-.293	.269	-.172	-1.090	.281
Residence	-.273	.259	-.160	-1.051	.299

a. Dependent Variable: What is special unit to care preterm babies?

As shown in the above table10 only parity in obstetrical information and age among other independent variables demographic profile where effect of statistical significant are P- Value of 0.048 on parity and 0.01 on age at the 5% of significant level. The remaining demographic variables has no effect of statistical significant to the question of what is special unit to care preterm babies as dependent variable with above different results of P-Values which are less than 5% of significant level.

Table 4. 11 : Table of Regression Model of all Demographic and What does it Mean to Say a Baby is Born too Soon

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.751	.638		1.178	.245
Age	.068	.116	.105	.585	.561
Education level	.185	.111	.248	1.664	.103
Weeks of gestational at birth	-.055	.238	-.035	-.229	.820
Obstetrical history	-.165	.176	-.172	-.938	.353
Date of birth	.021	.066	.048	.311	.757
Birth area	-.129	.294	-.074	-.438	.664
Residence	-.124	.284	-.071	-.438	.663

a. Dependent Variable: What does it mean to say a baby is born too soon?

As shown in the above table 4.11 there is no effect significant in all Independent variables demographic profile where effect of statistical significant with P- Value is above 0.05 which are differ 5% of significant level. In all Independent variables has no effect of statistical significant to the question of what does it mean to say a baby is born too soon. As dependent variable with above different results of P-Values all of them are more than 5% of significant level.

Table 4. 12: Table of Regression Model of all Demographic and the Related Factors Causing Babies to Come too Soon

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.986	.624		1.582	.121
Age	-.226	.114	-.345	-1.990	.053
Education level	.137	.109	.181	1.265	.212
Weeks of gestational at birth	-.400	.233	-.251	-1.721	.092
Obstetrical history	.269	.172	.277	1.568	.124
Date of birth	-.073	.065	-.166	-1.119	.269
Birth area	.202	.287	.114	.702	.486
Residence	.090	.277	.051	.324	.748

a. Dependent Variable: The related factors causing babies to come too soon are

As shown in the above table 4.12 there is no one a significant in all independent variables demographic profile where statistical significant with P- Value were above 0.05 which are differ from 5% of significant level. In all independent variables has no effect statistical significant to the question of what are the related factors causing babies to come too soon , As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 13 : Table of Regression Model of all Demographic and What are Some Common Problems in Babies Born too Soon

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.338	.603		-.561	.578
Age	.125	.110	.190	1.134	.263
Education level	.132	.105	.174	1.253	.217
Weeks of gestational at birth	.012	.225	.007	.051	.959
Obstetrical history	.091	.166	.094	.550	.585
Date of birth	.125	.063	.285	1.994	.052
Birth area	-.220	.278	-.125	-.792	.432
Residence	-.002	.268	-.001	-.008	.993

a. Dependent Variable: What are some common problems in babies born too soon?

As shown in the above table there 4.13 is no effect statistical significant in all Independent variables demographic profile where statistical significant results P- Value is above 0.05 which are differ 5% of significant level. In all variables has no statistical significant to the questions of what does it mean to say a baby is born too soon? As dependent variable with above different results of P-Values which are more than 5% of significant level. The approach significant of Date of Birth has statistical effect approach with 0.052 which is more than all independent variables and is best among other independent as consider significant level of 5%.

Table 4. 14 : Table of Regression Model of all Demographic and Possible Long Term Complications of a Baby Born too Soon

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.733	.635		1.154	.255
Age	.076	.116	.119	.661	.512
Education level	.070	.111	.094	.636	.528
Weeks of gestational at birth	-.098	.237	-.062	-.412	.682
Obstetrical history	-.293	.175	-.306	-1.676	.101
Date of birth	.010	.066	.022	.145	.886
Birth area	.279	.293	.161	.953	.346
Residence	-.039	.282	-.023	-.140	.890

a. Dependent Variable: Possible long term complications of a baby born too soon

As shown in the above table 4.14 there is no effect of significant in all Independent variables in demographic profile where effect statistical significant with P- Value is above 0.05 which is differ 5% of significant level. In all variables has no effect statistical significant to the questions of possible long term complications of a baby born too soon, As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 15 : Table of Regression Model of all Demographic and Why is Colostrum is Important to Give to a Baby Born too Soon

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.330	.608		-.543	.590
Age	-.146	.111	-.220	-1.321	.193
Education level	.315	.106	.410	2.975	.005
Weeks of gestational at birth	-.098	.227	-.060	-.430	.669
Obstetrical history	.214	.168	.217	1.279	.207
Date of birth	.033	.063	.075	.527	.601
Birth area	.286	.280	.159	1.020	.313
Residence	.060	.270	.034	.223	.824

a. Dependent Variable: Why is colostrum important to give to a baby born too soon?

As shown in the above table 4.15 only education level among demographic profile as Independent variable has effect statistical significant with P- Value of 0.05 which is equal to 5% of significant level to the Independent variable called why is colostrum important to give to a baby born too soon. The remaining demographic has no statistical significant to the questions of why is colostrum important to give to a baby born too soon as Independent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 16 : Table of Regression Model of all Demographic and Name 2 Important things to do Before Manual expressing of Breast Milk

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.518	.689		.752	.456
Age	.041	.126	.059	.323	.748
Education level	.089	.120	.111	.743	.461
Weeks of gestational at birth	.072	.257	.043	.279	.781
Obstetrical history	-.072	.190	-.070	-.377	.708
Date of birth	-.118	.072	-.255	-1.649	.106
Birth area	-.229	.318	-.123	-.720	.475
Residence	.258	.306	.138	.841	.405

a. Dependent Variable: Important things to do before manual expressing of breast milk

As shown in the above table 4.16 there are no effect significant in all Independent demographic profile variables where effect of statistical significant with P- Value is above 0.05 which are differ 5% of significant level. In all variables has no statistical significant to the questions of Name 2 important things to do before manual expressing of breast milk, As dependent variable with value above different results of P-Values which are more than 5% of significant level.

Table 4. 17 : Table of Regression Model of all Demographic and What are the Best Ways of Keeping Baby Warm

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.720	.653		1.103	.276
Age	.038	.119	.057	.318	.752
Education level	.136	.114	.177	1.193	.239
Weeks of gestational at birth	-.210	.244	-.130	-.862	.393
Obstetrical history	-.106	.180	-.108	-.590	.558
Date of birth	.039	.068	.088	.577	.567
Birth area	-.376	.301	-.210	-1.250	.218
Residence	.124	.291	.069	.427	.672

a. Dependent Variable: What are the best ways of keeping baby warm?

As shown in the above table 4.17 there is no effect significant in all demographic profile like as follow as Independent variables where statistical significant results in above table P- Value are above 0.05 which are differ 5% of significant level. In all Independent variables has no effect statistical significant to the questions what are the best ways of keeping baby warm? As Independent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 18 :Table of Regression Model of all Demographic and What is the Best Way to Prevent Infection in a Baby Born too Soon?

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.146	.686		.213	.832
Age	-.187	.125	-.270	-1.496	.142
Education level	-.101	.120	-.126	-.843	.403
Weeks of gestational at birth	.387	.256	.229	1.511	.138
Obstetrical history	.120	.189	.117	.637	.528
Date of birth	.069	.071	.150	.970	.337
Birth area	-.185	.316	-.099	-.585	.562
Residence	-.068	.305	-.036	-.222	.825

a. Dependent Variable: What is the best way to prevent infection in a baby born too soon?

As shown in the above table 4.18 there are no one effect of significant in all Independent demographic variables has effect statistical significant with P- Value above 0.05 which are differ 5% of significant level. In all Independent variables has no effect statistical significant to the questions What is the best way to prevent infection in a baby born too soon, As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 19 : Table of Regression Model of all Demographic and the Common Mistake in Tube Feeding

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.403	.706		-.571	.571
Age	.045	.129	.064	.347	.730
Education level	.152	.123	.188	1.238	.222
Weeks of gestational at birth	.098	.263	.057	.373	.711
Obstetrical history	.106	.194	.102	.543	.590
Date of birth	-.001	.073	-.003	-.017	.987
Birth area	.460	.325	.243	1.414	.164
Residence	-.267	.314	-.141	-.849	.400

a. Dependent Variable: The common mistake in tube feeding

As shown in the above table 4.19 there are no one significant in all demographic profile like Independent variables were statistical significant with P- Value were above 0.05 which are differ 5% of significant level. In all Independent variables has no effect statistical significant to the questions of the common mistake in tube feeding, As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 20 : Table of Regression Model of all Demographic and When a Baby Born too Soon Could be Discharged from the Hospital

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.450	.703		.640	.526
Age	.069	.128	.099	.537	.594
Education level	.140	.122	.173	1.140	.260
Weeks of gestational at birth	.097	.262	.057	.371	.712
Obstetrical history	-.116	.194	-.112	-.599	.552
Date of birth	-.087	.073	-.188	-1.194	.239
Birth area	-.048	.324	-.026	-.148	.883
Residence	-.070	.313	-.038	-.225	.823

a. Dependent Variable: When a a baby born too soon can be discharged from the hospital

As shown in the above table 4.20 there are no one significant in all demographic profile like as follow as Independent variables were statistical significant with P- Value were above 0.05 which are differ 5% of significant level. In all variables has no effect of statistical significant to the questions Baby born too soon can be discharged from the hospital once they can, As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 21 : Table of Regression Model of all Demographic and What are the main Dangers Signs after Discharge to the Hospital need to be Reported Immediately

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.583	.681		.856	.397
Age	-.063	.124	-.092	-.505	.616
Education level	.075	.119	.095	.633	.530
Weeks of gestational at birth	-.042	.254	-.025	-.166	.869
Obstetrical history	-.026	.188	-.025	-.136	.892
Date of birth	.097	.071	.212	1.365	.179
Birth area	-.080	.314	-.044	-.254	.800
Residence	-.029	.303	-.016	-.096	.924

a. Dependent Variable: What are the main dangers signs after discharge to the hospital need to be reported immediately

As shown in the above table 4.21 there is no one significant in all demographic profile as Independent variables were statistical significant with P- Value were above 0.05 which are differ 5% of significant level. In all Independent variables has no effect of statistical significant to the questions what are the main dangers signs after discharge to the hospital need to be reported immediately? As Independent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 22 : Table of Regression Model of all Independent Variables Demographic and What is Special Unit to Care Preterm Babies after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.162	.373		3.120	.003
Age	.002	.068	.006	.035	.972
Education level	-.020	.065	-.047	-.310	.758
Weeks of gestational at birth	-.068	.139	-.076	-.491	.626
Obstetrical history	-.009	.103	-.016	-.086	.932
Date of birth	.009	.039	.037	.234	.816
Birth area	.206	.172	.206	1.201	.236
Residence	-.277	.166	-.277	-1.673	.101

a. Dependent Variable: What is special unit to care preterm babies

As shown in the above table 4.22 only in Predictors Constant has effect among other independent variables demographic profile where effect of statistical significant are P- Value of 0.003 at the 5% which is equal 0.05 of significant level. The remaining demographic variables has no effect of statistical significant to the question of what is special unit to care preterm babies as dependent variable with above different results of P-Values which are less than 0.05 of significant level.

Table 4. 23 : Table of Regression Model of all Demographic and What does it Mean to Say a Baby is Born too Soon after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.393	.459		.857	.396
Age	.011	.084	.024	.130	.898
Education level	.051	.080	.098	.632	.530
Weeks of gestational at birth	.083	.171	.077	.487	.629
Obstetrical history	.009	.127	.013	.070	.944
Date of birth	.004	.048	.014	.085	.933
Birth area	.110	.212	.092	.521	.605
Residence	.065	.204	.054	.319	.751

a. Dependent Variable: What does it mean to say a baby is born too soon

As shown in the above table 4.23 there is no effect significant in all Independent variables demographic profile where effect of statistical significant with P- Value is above 0.05 which was differ 5% of significant level. In all Independent variables has no effect of statistical significant to the question of what does it mean to say a baby is born too soon? As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 24 : Table of Regression Model of all Demographic and What does it Mean to Say a Baby is Born too Soon after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.107	.371		2.986	.005
Age	.006	.068	.017	.092	.927
Education level	.044	.065	.103	.686	.496
Weeks of gestational at birth	-.100	.138	-.111	-.725	.472
Obstetrical history	.000	.102	.000	.002	.998
Date of birth	-.019	.039	-.078	-.505	.616
Birth area	.240	.171	.240	1.402	.168
Residence	-.289	.165	-.289	-1.753	.086

a. Dependent Variable: The related factors causing babies to come too soon are

As shown in the above table 4.24 there is effect statistical significant in constant with 0.005 at 0.05 significant level among all remaining Independent variables demographic profile where effect of statistical significant with P- Value is above 0.05 which are differ 5% of significant level. In all Independent variables has no effect of statistical significant to the question of what does it mean to say a baby is born too soon? As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 25 : Table of Regression Model of all Demographic and What are Some Common Problems in Babies Born too Soon? after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.721	.416		1.734	.090
Age	.055	.076	.133	.719	.476
Education level	-.044	.072	-.092	-.602	.550
Weeks of gestational at birth	.054	.155	.054	.346	.731
Obstetrical history	.022	.115	.035	.188	.852
Date of birth	-.022	.043	-.080	-.506	.616
Birth area	.077	.192	.070	.401	.690
Residence	.023	.185	.021	.123	.903

a. Dependent Variable: What are some common problems in babies born too soon

As shown in the above table 4.25 there is no effect statistical significant in all Independent variables demographic profile where statistical significant results P- Value is above 0.05 which are differ 5% of significant level. In all variables has no statistical significant to the questions of what does it mean to say a baby is born too soon? As dependent variable with above different results of P-Values which are more than 5% of significant level. The approach significant of Date of Birth has statistical effect approach with 0.052 which is more than all independent variables and is best among other independent as consider significant level of 5%.

Table 4. 26 : Table of Regression Model of all Demographic and Possible Long Term Complications of a Baby Born too Soon after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.201	.360		3.341	.002
Age	.088	.066	.237	1.341	.187
Education level	.036	.063	.085	.582	.564
Weeks of gestational at birth	-.134	.134	-.148	-.999	.323
Obstetrical history	.057	.099	.103	.574	.569
Date of birth	-.024	.037	-.096	-.636	.528
Birth area	-.041	.166	-.041	-.248	.805
Residence	-.204	.160	-.204	-1.276	.209

a. Dependent Variable: List 2 possible long term complications of a baby born too soon

As shown in the above table 4.26 there is effect of statistical significant with 0.002 at 0.05 of significant level among all remaining Independent variables in demographic profile where effect statistical significant with P- Value is above 0.05 which is differ 5% of significant level. In all variables has no effect statistical significant to the questions of List 2 possible long term complications of a baby born too soon, As dependent variable with above different results of P- Values which are more than 5% of significant level.

Table 4. 27 : Table of Regression Model of all Demographic and Why is Colostrum Important to Give to a Baby Born too Soon after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.804	.311		2.585	.013
Age	.034	.057	.104	.595	.555
Education level	-.001	.054	-.003	-.020	.984
Weeks of gestational at birth	.181	.116	.229	1.563	.125
Obstetrical history	-.088	.086	-.182	-1.021	.313
Date of birth	.009	.032	.041	.275	.785
Birth area	-.351	.143	-.401	-2.445	.018
Residence	.204	.138	.233	1.472	.148

a. Dependent Variable: Why is colostrum important to give to a baby born too soon

As shown in the above table 4.27 only effect statistical significant on Birth area and constant with 0.018 and 0.013 which are less than 0.05 significant level among remaining Independent variables demographic profile has no effect statistical significant due the P- Value of is more than 5% of significant level to the dependent variable called why is colostrum important to give to a baby born too soon? . The remaining demographic has no statistical significant to the questions of why is colostrum important to give to a baby born too soon? as dependent variable with above different results of P-Values which are less 5% of significant level.

Table 4. 28 : Table of Regression Model of all Demographic and Important things to do Before Manual expressing of Breast Milk after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.893	.286		3.121	.003
Age	.058	.052	.156	1.107	.274
Education level	-.077	.050	-.179	-1.543	.130
Weeks of gestational at birth	.377	.107	.417	3.533	.001
Obstetrical history	-.022	.079	-.040	-.283	.779
Date of birth	5.771E-006	.030	.000	.000	1.000
Birth area	-.023	.132	-.023	-.178	.860
Residence	-.520	.127	-.520	-4.088	.000

a. Dependent Variable: Important things to do before manual expressing of breast milk

As shown in the above table 4.28 there is effect of statistical significant in constant with 0.003, weeks of gestational with 0.001 and residence with 0.0001 at 0.05 significant level in all Independent demographic profile variables where effect of statistical significant with P- Value is above 0.05 which are differ 5% of significant level. In all variables has no statistical significant to the questions of Name 2 important things to do before manual expressing of breast milk, As dependent variable with value above different results of P-Values which are more than 5% of significant level.

Table 4. 29 : Table of Regression Model of all Demographic and What are the Best Ways of Keeping Baby Warm after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.042	.291		-.144	.886
Age	.022	.053	.067	.411	.683
Education level	.025	.051	.068	.500	.619
Weeks of gestational at birth	.382	.108	.483	3.524	.001
Obstetrical history	.051	.080	.107	.641	.525
Date of birth	.021	.030	.097	.694	.491
Birth area	.067	.134	.077	.503	.618
Residence	-.018	.129	-.021	-.143	.887

a. Dependent Variable: What are the best ways of keeping baby warm?

As shown in the above table 4.26 there is effect of statistical significant of weeks of gestational at birth with 0.001 at 0.05 of significant level among all remaining Independent variables in demographic profile where effect statistical significant with P- Value is above 0.05 which is differ 5% of significant level. In all variables has no effect statistical significant to the questions of List 2 possible long term complications of a baby born too soon, As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 30 : Table of Regression Model of all Demographic and What is the Best Way to Prevent Infection in a Baby Born too Soon after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.739	.415		1.779	.082
Age	.012	.076	.030	.164	.871
Education level	-.026	.072	-.054	-.353	.726
Weeks of gestational at birth	-.084	.155	-.084	-.545	.589
Obstetrical history	.064	.114	.105	.559	.579
Date of birth	.046	.043	.169	1.071	.290
Birth area	.113	.191	.102	.590	.558
Residence	.049	.185	.045	.267	.791

a. Dependent Variable: What is the best way to prevent infection in a baby born too soon?

As shown in the above table 4.30 there is no effect statistical significant in all Independent variables demographic profile where statistical significant results P- Value is above 0.05 which are differ 5% of significant level. In all variables has no statistical significant to the questions of What is the best way to prevent infection in a baby born too soon? As dependent variable with above different results of P-Values which are more than 5% of significant level. The approach significant of Date of Birth has statistical effect approach with 0.052 which is more than all independent variables and is best among other independent as consider significant level of 5%.

Table 4. 31 : Table of Regression Model of all Demographic and the Common Mistake in Tube Feeding after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.039	.506		2.051	.046
Age	.055	.092	.109	.596	.554
Education level	.003	.088	.005	.032	.975
Weeks of gestational at birth	-.139	.189	-.113	-.735	.466
Obstetrical history	-.098	.140	-.131	-.700	.488
Date of birth	.033	.053	.099	.631	.531
Birth area	.249	.233	.184	1.066	.292
Residence	-.210	.225	-.155	-.931	.357

a. Dependent Variable: The common mistake in tube feeding

As shown in the above table 4.31 there is effect of statistical significant with 0.046 at 0.05 of significant level among all remaining Independent variables in demographic profile where effect statistical significant with P- Value is above 0.05 which is differ 5% of significant level. In all variables has no effect statistical significant to the questions of List 2 possible long term complications of a baby born too soon, As dependent variable with above different results of P- Values which are more than 5% of significant level.

Table 4. 32 : Table of Regression Model of all Demographic and When a Baby Born too Soon Could be Discharged from the Hospital after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.021	.192		5.332	.000
Age	-.052	.035	-.271	-1.483	.145
Education level	-7.710E-005	.033	.000	-.002	.998
Weeks of gestational at birth	.004	.071	.008	.051	.960
Obstetrical history	-.011	.053	-.038	-.204	.839
Date of birth	.003	.020	.027	.174	.862
Birth area	-.012	.088	-.023	-.132	.896
Residence	.051	.085	.099	.598	.553

a. Dependent Variable: Baby born too soon can be discharged from the hospital once they can

As shown in the above table 4.32 there is effect of statistical significant with 0.0001 at 0.05 of significant level among all remaining Independent variables in demographic profile where effect statistical significant with P- Value is above 0.05 which is differ 5% of significant level. In all variables has no effect statistical significant to the questions of Baby born too soon can be discharged from the hospital once they can, As dependent variable with above different results of P-Values which are more than 5% of significant level.

Table 4. 33 : Table of Regression Model of all Demographic and What are the Main Dangers Signs after Discharge to the Hospital Need to be Reported Immediately? after Training (post-test).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.137	.257		4.429	.000
Age	-.022	.047	-.082	-.469	.641
Education level	-.008	.045	-.026	-.180	.858
Weeks of gestational at birth	-.026	.096	-.041	-.276	.784
Obstetrical history	.035	.071	.088	.495	.623
Date of birth	.003	.027	.015	.098	.922
Birth area	-.304	.118	-.421	-2.568	.014
Residence	.187	.114	.259	1.637	.109

a. Dependent Variable: What are the main dangers signs after discharge to the hospital need to be reported immediately?

As shown in the above table 4.33 there is effect of statistical significant in constant with 0.0001 and birth area with 0.014 at 0.05 significant level in all Independent demographic profile variables where effect of statistical significant with P- Value is above 0.05 which are differ 5% of significant level. In all variables has no statistical significant to the questions of what are the main dangers signs after discharge to the hospital need to be reported immediately? As dependent variable with value above different results of P-Values which are more than 5% of significant level

CHAPTER 5. DISCUSSION OF RESULTS

5.1. INTRODUCTION

This chapter gives a summary of discussion of the results findings in the chapter four, were based on the study objectives on title of increasing parental knowledge on the care of their preterm neonate in the neonatal intensive care unit through an educational training program at a selected district hospital in Kigali, Rwanda. The content of this chapter is the assessment of an effect of an education program on parental knowledge on the care of their preterm infant in NICU, determination of relationship between parental knowledge score with demographic variables, both were explained in the tables with descriptive statistics and inferential statistics were used to describe and interpreted the data that were collected from 53 respondents who had their preterm infant hospitalised at Muhima hospital in NICU service.

5.2 DEMOGRAPHIC INFORMATION

The study has revealed that majority of participants were women who cared their babies in NICU 98.1% (52 respondents among 53 respondents) while men were only 1.9% (1 respondents among 53 respondents) as written in the literature said to be admitted in NICU because of prematurity or other critical condition it is very anxious for parents and family members due to lack of knowledge, attitude and behavior of a neonate, new environment, unfamiliar equipment. (Russell et al., 2014). Some studies in American shown the greatest successful approach of connecting all parents to the preterm infant and can be very helpful in protecting the newborn regarding physical, emotion behavior security, and in clinical treatment, by aiming to increase their knowledge and involving them in caring their neonates. (Manzo, 2015). When both parents are integrated in NICU, many benefits are on the both sides to parents and to babies, they will be aware of some changes happened to the babies and actively participate in caring for their babies, such as knowing some procedures such as preventing hypothermia by application of kangaroo care mother or father and gaining knowledge, confident, from admission to the discharge parents will become expert. (Hall et al., 2015). As explained in conceptual framework; Vazquez & Cong, 2014, P. 6 said that from admission in NICU when there is proximity to or contact with infant, good relationship with nurses, clear information, social support to the parents, they get knowledge step by step from novice to advanced beginner, from this point to competent, from competent to proficient then at the discharge they become expert.

The age bracket of between 14 to 24 years had the highest number of respondents at 54% (29 respondents among 53 respondents) and lowest at the bracket of age under 34-44 years at 13.2% (7 respondents among 53 respondents) and participants aged between 24 to 34 years old were 32.1% (17 respondents among 53 respondents). The education level for majority of the respondents was primary school with 71.7% (38 respondents among 53 respondents), respondents with no formal education were 9.4% (5 respondents among 53 respondents) and the researcher helped them by reading questions and they choose the response, immediately researcher wrote on the questionnaire corresponding to her/ his code. Only 3.8% (2 respondents among 53 respondents) finished secondary school. Participants who had finished ordinary level of secondary education were 15.1% (8 respondents among 53 respondents). Majority of participants lived in Kigali City with 92.5% (49 respondents among 53 respondents) and 7.5% lived out of Kigali (4 respondents among 53 respondents).

Regarding obstetrical information of participants as indicated in the summarized table 4.2. Majority of the respondents on weeks of gestation at birth 90.6% were babies born between 33-37 weeks of gestations (48 respondents among 53 respondents), while 9.4% were babies born between 22 to 32 weeks of gestational age (5 respondents among 53 respondents gave birth babies aged between 22 to 32 weeks of gestational). Information regarding the gravidity, among respondents primigravida were 56.6% (30 respondents among 53 respondents) then 43% of multigravida (23 respondents among 53 respondents). Texas Tech University 2013 explained that the complication for preterm babies includes respiratory problems due immature respiratory system and insufficiency of lung surfactant, heat problems, brain problems such as intra ventricular hemorrhage, increased risk of hypothermia, gastro intestinal problems, anemia, neonatal jaundice, metabolism disorders, neonatal infection due to immaturity of immune system problems, preterm babies are at high risk of getting long term complications such as cerebral palsy, impaired cognitive skills, blindness, loss hearing, behavioral and psychological problems and long term chronic health issues so the clear information, more explanation and an education training of caring their babies are very crucial in this period of caring preterm infant in NICU. The multiple birth shows that the mostly is 92.5% of Singleton (49 birth respondents among 53 respondents) and 7.5% of multiple birth (4 respondents among 53 respondents). The date of birth was indicated that the researcher found more participants who gave birth in April/ 2017 with 43.4% (23 respondents among 53 respondents) during the period of that collection. The highest

number of preterm babies gave birth at Muhima Hospital with 92.5% (49 respondents among 53 respondents) and 7.5% of preterm babies admitted at Muhima hospital in NICU service were transferred from another health facilities to Muhima hospital.

5.3 PARENTAL KNOWLEDGE IN PRE-TEST AND POST TEST RESULTS

The pre-test results on parental knowledge on caring their preterm infant in NICU showing the highest percentage of the respondents on parental knowledge is 77% on defining a baby born too soon. While 71.7% they do not know what exactly special unit. (Kingsinger, 2015) explained that interaction between staff and parents is a key point in caring but some beliefs that open visitation would reduce from patient care and present issues with difficult family members. In this study some nurse explained that spending much time talking to a patient's family when it is the period of care she said that she is not providing sufficient care to a patient's needs. Also some health care providers said they fight between family members and visitors threatening to finish the job.

The post-test results on parental knowledge on caring their preterm infant in NICU, therefore the highest percentage of correct responses on parental knowledge was 88% on knowing when a baby can be discharged from the hospital. While 84% was the lowest percentages of correct on knowing the common mistakes in tube feeding where they care a baby born too soon and the Correct average of responses in pre- test on parental knowledge was 54% which is low in knowledge required. While the the Correct average of responses in pro- test on parental knowledge was 92% which is highest in knowledge required and difference mean average from pretest to the post test was 38% of an increase in parental knowledge after intervention that means the training required in the preterm children as said that a premature birth and how an infant looks and behaves can cause significant stress for parents (Dudek-Shriber, 2004). Health education on admission and the period of parenting in NICU helped both family, preterm baby and medical personnel.

Demographic profile findings results on the obstetrical history and age of the pre-test has effect among other independent variables demographic profile where effect of statistical significant was P- Value of 0.048 and 0.01 at the 5% of significant level. The results from post-test is only in Predictors Constant has effect among other independent variables demographic profile where effect of statistical significant are P- Value of 0.003 at the 5% which is equal 0.05

of significant level. In the findings of Pre-test, education level among demographic profile as Independent variable has effect statistical significant with P- Value of 0.048 and 0.01 at 0.05 of the significant level to the Dependent variable called why is colostrum important to give to a baby born too soon? . The results of Post-test have effect statistical significant on Birth area and constant with 0.018 and 0.013 which is less than 0.05 significant level used. The tesult shown in the pre-test and post-test results shows an impact of trainging in health facilities, the results before education training on increasing parental knowledge and post test results where in pre-test the correct responses were on 54% while incorrect responses were on 46% thus the findings revealed an effectiveness of planned teaching in post test after intervention of teaching using power points presentation, 5 differents videos and demonstration of some procedures in caring preterm infants and some similar studies done on impact of an education training in pre eclampsia in primigravida women shown hown educationhas high impact on women knowledge.(Souza, 2015)

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

The general findings results of the study, discussion to the findings were based on the study objectives, on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program. The Independent and Dependent variables were used in the data Analysis after data collected, edited and recorded with different findings results from descriptive and inferential analysis by SPSS program. The results are not equally where the values of P-Values, Mean, Standard deviation and frequencies generated from Paired-t- test, descriptive and regression models were presented in this thesis through different tables. The results of two objectives in summary the comparison of pre-test and post-test by paired -t-test and regression results of effect of demographic profile at pre-test and post-test of parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program was (0.0001 at 0.05 significant level), (0.0001at 0.05 significant level) respectively in 53 sample size for first objective there is a statistical significant but for second objective some demographic profile have no effect to the knowledge on the care of preterm in the results where P-Value is more than 0.5 of significant level. Theses null hypotheses were rejected due the significant level obtained are less than 0.05 significant level used and other are accepted due that findings P-Value are more than 0.05 of significant level. As based on problem statement took about that there are no formal orientation classes or group educational trainings for caring for their baby while in the NICU or preparation for discharge at any of these facilities. There has been no studies in Rwanda evaluating the effectiveness of any parental education given while in the NICU therefore there are a gap shown within pre-test and post-test of on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program.

The first objective findings results through descriptive analysis shown that the correct answers average of pre-test was 54% remaining were wrong/ incorrect responses which were indicated that the percentage of knowledge on caring preterm is not enough satisfied in parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit and findings results on the correct answers average of post-test was 92% which is satisfied as an improvement

on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program. The discrepancies of 38% are an input of an education training program to the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program.

The also first objectives findings results of inferential analysis for paired t-test through comparison before training and after training the same group show that P- Values is 0.0001 at 0.05 significant level which is statistical significant. The null hypothesis said that there is no an input of an education training program to the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program is rejected due the significant level obtained is less than 0.05 significant level used. As based on problem statement the training of parental knowledge should be reinforced while the findings are unbalanced therefore there are a gap within pre-test and post-test on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program.

Second objective findings results on the obstetrical history and age of the pre-test has effect among other independent variables demographic profile where effect of statistical significant was P- Value of 0.048 and 0.01 at the 5% of significant level. The results from post-test is only in Predictors Constant has effect among other independent variables demographic profile where effect of statistical significant are P- Value of 0.003 at the 5% which is equal 0.05 of significant level.

In the findings of Pre-test, education level among demographic profile as Independent variable has effect statistical significant with P- Value of 0.048 and 0.01 at 0.05 of the significant level to the Dependent variable called why is colostrum important to give to a baby born too soon? . The results of Post-test have effect statistical significant on Birth area and constant with 0.018 and 0.013 which is less than 0.05 significant level used.

The results of demographic effect with parental knowledge variables with only post-test with effect significant after training and the results significant are like, there is effect statistical significant in constant with 0.005 at 0.05 significant level to the question of what does it mean to say a baby is born too soon? , there is effect of statistical significant with 0.002 at 0.05 of significant level to the questions of List 2 possible long term complications of a baby born too

soon, Second there is effect of statistical significant in constant with 0.003, weeks gestational with 0.001 and residence with 0.0001 at 0.05 significant level to the questions of Name 2 important things to do before manual expressing of breast milk, there is effect of statistical significant with 0.046 at 0.05 of significant level among all remaining Independent variables in demographic profile where effect statistical significant with P- Value is above 0.05 of significant level, there is effect of statistical significant with 0.0001 at 0.05 of significant level to the question of baby born too soon can be discharged from the hospital once they can, there is effect of statistical significant in constant with 0.0001 and birth area with 0.014 at 0.05 significant level to the question of what are the main dangers signs after discharge to the hospital need to be reported immediately.

6.2. RECOMMENDATIONS

From the findings and conclusions, the following recommendations were drawn regarding the on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program. In this study the recommendation for health care providers especially who are responsible for care of the preterm neonates in Neonatal Intensive Care Unit should focus on following parameters: involving parents in admission and training about caring the preterm infants, for increase of parental knowledge of parents it should be started in community then increase to encourage them in attending antenatal care visit in health facilities. Involve parents in caring, identify their needs will help both parents and health providers. The study recommends that father should support their wife during pregnant period and in NICU if happened where they should share and support each other in care of their preterm neonates in Neonatal Intensive Care Unit. About demographic issues they should attend the class which it should improve their knowledge level of understanding and responsibility required on their preterm neonates in Neonatal Intensive Care Unit. The suggestion on the findings and the field observation was focused on increasing parental knowledge on the care of their preterm neonates in Neonatal Intensive Care Unit through an education training program which is a key component of preterm neonates in Neonatal Intensive Care Unit but with effective way of training program. An education training program should be an effective way to increase level of knowledge and is a key success that must be include in all health facilities and incorporate into education and curriculum development. A comparative study can be conducted in rural and urban settings.

REFERENCES

- Barreiro, P. L., & Albandoz, J. P. (2001). Population and sample . Sampling techniques.
- Bay, G., Miller, T., & Faijer, D. J. (2014). Mortality.
- Book, B. (2010). for Family-Centered, 92(5).
- Brodsky, D., Lamiani, G., Andrade, O., Johnson, V. M., Luff, D., & Meyer, E. C. (2014). Memorable conversations in neonatal intensive care: A qualitative analysis of interprofessional provider perspectives, 4(3), 38–48. <http://doi.org/10.5430/jnep.v4n3p38>
- Craig, J. W., Glick, C., Phillips, R., Hall, S. L., Smith, J., & Browne, J. (2015). Recommendations for involving the family in developmental care of the NICU baby. *Journal of Perinatology*, 35(S1), S5–S8. <http://doi.org/10.1038/jp.2015.142>
- Creswell, J. W. and Plano Clark, V. L. (2011). Designing and conducting mixed methods Research. Thousand Oaks, CA: Sage Publications.
- Cynthia A. Mundy. (2010). *Assessment of family needs in neonatal intensive care units. American Journal of Critical Care.*
- Document, T., Review, S., Kadeen, N., & Mina, D. (2016). Information Needs of Neonatal Intensive Care Parents : A Scoping Review, 4–10.
- Feeley, N., Waitzer, E., Sherrard, K., Boisvert, L., & Zelkowitz, P. (2012). Fathers ' perceptions of the barriers and facilitators to their involvement with their newborn hospitalised in the neonatal intensive care unit, 22, 521–530. <http://doi.org/10.1111/j.1365-2702.2012.04231.x>
- Fenella J. Gill, E. P., Ascoe, L. M., Onterosso, J. Y., oung, Charlotte Burr, Ann Tanner, and L., & Shields. (2014). ResearchOnline @ ND Parent and staff perceptions of family-centered care in two Australian children ' s hospitals, 1, 317–325. Retrieved from http://researchonline.nd.edu.au/cgi/viewcontent.cgi?article=1077&context=nursing_article
- Group, P. R. A. (2009). *Family-centred care in neonatal units*. Retrieved from <http://www.poppy-project.org.uk/resources/Poppy+report+for+PRINT.pdf>

- Guimarães, H. (2015). The importance of parents in the neonatal intensive care units, 4(2), 9–11. <http://doi.org/10.7363/040244>
- Hall, S. L., Cross, J., Selix, N. W., Patterson, C., Segre, L., Chuffo-Siewert, R., ... Martin, M. L. (2015). Recommendations for enhancing psychosocial support of NICU parents through staff education and support. *Journal of Perinatology*, 35(S1), S29–S36. <http://doi.org/10.1038/jp.2015.147>
- Khalesi, N., Anjom, F. S., Rezaeiezadeh, G., & Farahani, Z. (2015). Evaluation of Parents' Awareness and Knowledge about Problems and Issues Related to Their Premature Infants in an Iranian Hospital, (May), 465–469.
- Kingsinger, V. (2015). Family Centered Care in ICU Settings.
- Manzo, B. F. (2015). The family-centered care practices in newborn unit nursing perspective, 19(4), 629–634. <http://doi.org/10.5935/1414-8145.20150084>
- Mehretie, K. (2011). Institution Based Prospective Cross-Sectional Study on Patterns of Neonatal Morbidity at Gondar University Hospital Neonatal Unit , (3), 73–79.
- Munyiginya, P., & Brysiewicz, P. (2014). The needs of patient family members in the intensive care unit in Kigali , Rwanda, 30(1), 5–8. <http://doi.org/10.7196/SAJCC.162>
- Musabirema, P., Brysiewicz, P., Chipps, J., Africa, S., Africa, S., & Brysiewicz, P. (2013). Parents perceptions of stress in a neonatal intensive care unit in Rwanda, (Harvey 2010), 1–8. <http://doi.org/10.4102/curationis.v38i2.1499>
- Russell, G., Sawyer, A., Rabe, H., Abbott, J., Gyte, G., Duley, L., & Ayers, S. (2014). Parents' views on care of their very premature babies in neonatal intensive care units : a qualitative study, 1–10. Retrieved from <http://www.biomedcentral.com/1471-2431/14/230>
- Saunders, R. P., Abraham, M. R., Crosby, M. J., Thomas, K., & Edwards, W. H. (2003). Family-Centered Care in Neonatal Intensive Care Units, 111(4).
- Services, H. (2010). *Guidelines for Responsible Data Management in*. Retrieved from <http://www.rcreducation.com>.

- Sikorova, L., & Kucova, J. (2012). The needs of mothers to newborns hospitalised in intensive care units. *Biomedical Papers*, 156(4), 330–336. <http://doi.org/10.5507/bp.2011.046>
- Souza, L. S. M. D. (2015). Effectiveness of planned teaching programme on pre- eclampsia for primigravida women in a selected community at Mangalore, 2(2350), 74–77.
- Thon, K. N. (2013). Supporting Parents of Premature Infants in the Neonatal Intensive Care Unit : A Manual for Practitioners. *Niversity of St. Thomas, Minnesota UST Research Online Professional*.
- Turner, M., Chur-hansen, A., Winefield, H., & Stanners, M. (2015). The assessment of parental stress and support in the neonatal intensive care unit using the Parent Stress Scale – Neonatal Intensive Care Unit. *Women and Birth*, 28(3), 252–258. <http://doi.org/10.1016/j.wombi.2015.04.001>
- Vazquez, V., & Cong, X. (2014a). Parenting the NICU infant: A meta-ethnographic synthesis. *International Journal of Nursing Sciences*, 1(3), 281–290. <http://doi.org/10.1016/j.ijnss.2014.06.001>
- William, M. (2003). Making Sense of Social Research. New Delhi: Thousand Oaks, New Delhi: SAGE Publications.
- Wigert, H., Dellenmark, M. B., & Bry, K. (2013). Strengths and weaknesses of parent-staff communication in the NICU: a survey assessment. *BMC Pediatrics*, 13(71), 1–14. <http://doi.org/10.1186/1471-2431-13-71>
- White, H. (2006). Impact Evaluation: The Experience of Independent Evaluation Group of the World Bank. <http://Inweb90.worldbank.org>.
- World Health Organization, 2012. Born too soon: the global action report on preterm birth.
- Wigert, H., Dellenmark, M. B., & Bry, K. (2013). Strengths and weaknesses of parent-staff communication in the NICU: a survey assessment. *BMC Pediatrics*, 13(71), 1–14. <http://doi.org/10.1186/1471-2431-13-71>

APPENDICES

Annexe 1: Request for the permission to conduct the research at Muhima District hospital

M. Rose MUKARUBAYIZA

UR/ CMHS

Neonatal Track

E-mail: rubayizarose@yahoo.fr

Contact: 0788693458 / 0722693458

26th January, 2017

To: The General Director of Muhima District Hospital

Kigali-Rwanda

RE: Request for the permission to conduct the research at Muhima District hospital on “Parental knowledge on the care of their preterm neonate in the Neonatal Intensive Care Unit”

Dear Sir,

I am registered nurse with Bachelor ‘s degree in nursing Education and currently I am a candidate in Master of Sciences in nursing, Neonatal track at University of Rwanda, College of Medicine and Health Sciences; whereby I am required to do and submit a research dissertation to fulfill this program.

It is in this regard I am requesting the permission to conduct the research in the hospital, under your authority. The research topic is “Increasing parental knowledge on the care of their preterm neonate in the neonatal Intensive care unit through an educational training program in a selected district hospital in Kigali , Rwanda”. Pretest and posttest will be used, and organized education training will be conducted, multiple choice questions will be used to collect data. The findings will help to create a mechanism of improving parental knowledge in caring their preterm neonates in NICU.

I trust this request will receive your favorable consideration.

Yours faithfully.

**Umugereka wa 2: URWANDIKO RUSABA KUGIRA URUHARE
MUBUSHAKASHATSI4**

M. Rose MUKARUBAYIZA

Nyakubahwa, Madamu, Bwana,

Njyewe, **M. Rose MUKARUBAYIZA**, umufomokazi n’umunyeshuri mukiciro cya gatatu cya Kaminuza mu ishami ry’Ubuwuzi bw’abana bavukanye ibibazo n’ abavutse badashyitse , muri Kaminuza y’u Rwanda, Koleji y’Ubuzima n’Ubuwuzi, nejejwe no kubasaba kugira uruhare muri ubu bushakashatsi bufitwe insanganyamatsiko igira iti: “ **Kongera ubumenyi bw’ ababyeyi bafite abana bavutse badashyitse barwariye mu bitaro by’ abana mukigo cy’ ubuwuzi cya Muhima, Kigali,Rwanda**”

Ubu bushakashatsi bugamije guteza imbere ubumenyi bw’ ababyeyi barwariye mubitaro by’abana bavutse badashyitse nk’uko insanganya matsiko ibigaragaza..

Nyakubahwa Madamu / Bwana, kugira uruhare muri ubu bushakashatsi ni ubushake bwanyu, si agahato kandi mbijeje ko , ubushake, uruhare n’amakuru muzatanga muri ubu bushakashatsi bizagirwa ibanga . Ibi ni ukuvugako amazina yanyu, ibisubizo muzatanga kurupapuro rw’ibibazo, cg ubundi buryo ubwaribwo bwose buzakoreshwa mukuranga urupapuro mwasubirijeho, ntaho bizandikwa cyangwa ngo bigaragazwe. Mbijeje ko kugira uruhare muri ubu bushakashatsi nta ngaruka n’imwe bizabagiraho kandi mwemerewe guhagarika kubugiramo uruhare igihe icyo aricyo cyose bitewe n’impamvu zanyu bwite.Kugira uruhare muri ubu bushakashatsi ni ibyagaciro gakomeye, ni inkunga ntagereranywa mu kongera ubumenyi bw’ ababyeyi barwaza abana babo bavutse badashyitse muri ibi bitaro ndetse n’ ahandi hanyuranye.

Mbashimiye ubwitange n’uruhare rwanyu muri ubu bushakashatsi

Numero y’ ibanga:.....

Itariki n’umukono:.....

Ugize ikibazo wabaza: 0783340040/ gahutu@hotmail.com

**Annexe 3: INFORMED CONSENT FOR THE PARTICIPATION IN THE RESEARCH
STUDY (English version)**

Dear Madam, Miss, Sir,

I, **M. Rose MUKARUBAYIZA** , candidate in Master of sciences in Nursing program, Neonatal track at University of Rwanda, College of Medicine and Health Science, kindly request for your participation in this study titled **“INCREASING PARENTAL KNOWLEDGE ON THE CARE OF THEIR PRETERM NEONATE IN THE NEONATAL INTENSIVE CARE UNIT THROUGH AN EDUCATIONAL TRAINING PROGRAM IN A SELECTED DISTRICT HOSPITAL IN KIGALI, RWANDA”** with the aim to improve the parental knowledge in caring for their preterm babies in NICU. The total confidentiality of your voluntary participation in this study is guaranteed and the information you provide will be kept anonymous. This means that your form of identification will not be included in any records presentation and your answers in these questions will not be shared with any other person whether or not you choose to participate in this study.

Your participation in this study is highly appreciated and is for invaluable contribution in the improvement of the level of parental knowledge in caring for their preterm babies in NICU.

I thank you very much for taking part in this study.

Code number:.....

Date and Participant Signature:.....

Contact: Director for Research, Innovation and postgraduate studies

Email: gahutu@hotmail.com

0783340040

Umugereka wa 4: Ibibazo (Ikinyarwanda)

UMWIRONDORO

1. Igitsina: Gore

☐

Gabo

☐

2. Imyaka: Hagati ya 14- 24

☐

Hagati ya 24-34

☐

Hagati ya 34-44

☐

Hejuru ya 44

☐

3. Imbyaro wagize:

Inda watwise

☐

Inda zageze kugihe

☐

Inda zavuyemo

☐

Abana bariho

☐

Abana bavutse badashyitse

☐

4. Amashuri wize:

Ntaho nageze mu ishuri

☐

Amashuri abanza

☐

Icyiciro rusange

☐

Amashuri yisumbuye

☐

Kaminuza

☐

Andi mashuri waba warize:

☐

Umwana yavutse ryari:

☐

Yavutse afite igihe kingana gute:

☐

Aho wavukiye:.....

Aho mutuye:.....

HITAMO IGISUBIZO GIKWIYE (IBAZWA MBERE NA NYUMA YO KWIGA)

1. Bisobanura iki aho bakirira abana bavutse batagejeje igihe?

- a. Ibitaro byihariye aho bavurira abana bavukanye uburwayi bukomeye.
- b. Aho bavurira abana bavutse badashyitse
- c. Ibitaro bifite ibikoresho byihariye n' abaganga babyigiye bakira abana bavukanye ibibazo.
- d. Ibyavuzwe hejuru byose nibyo

2. Umwana wavutse adashyitse bisobanura iki?

- a. Umwana wavukiye ukwezi kumwe kugeza kuri atatu
- b. Umwana wavukiye kumezi atatu kugeza kuri ane

- c. Umwana wavutse mbere y'amezi umunani
- d. Umwana wavutse arengeje amezi icyenda

3. Ni ukubera iki umwana ashobora kuvuka adashyitse?

- a. Kubera ko umubyeyi atajya murusengero ngo asenge bihagije.
- b. Kubera ko umubyeyi yarwaye indwara zifata munzira z' inkari cyangwa yarwaye malariya.
- c. Kubera ko umubyeyi yiyongereye ibiro byinshi atwite.
- d. Kubera ko umubyeyi yabwiye abantu bose ko atwite afite inda ntoya.

4. Ni ibihe bibazo rusange abana bavutse badashyitse bakunda kugira?

- a. Ibibazo byo guhumeka nabi kuko ibihaha bye biba bitarakura neza.
- b. Ibibazo byo kugira ubukonje.
- c. Ibibazo byo kudashobora konka ku ibere
- d. Ibibazo byo kugira umuhondo kuruhu
- e. Ibyavuzwe haruguru byose nibyo

5. Vuga nibura ibibazo bibiri bishobora kumara igihe kirekire kumwana wavutse adashyitse.

- 1.....
- 2.....

6. Kubera iki amashereka y' umuhondo ari meza kumwana wavutse adashyitse?

Umuhondo ufite uturemangingo dufasha mukurwanya indwara n'izindi mikorobe.

Umuhondo ntago wemewe kumwana wavutse adashyitse

Muri iyi minsi amata yo mubikombe niyo meza kumwana wavutse adashyitse.

Umuhondo bawukamira hasi kugeza haje amashereka y' ibara ry' umweru

7. Vuga ibintu bibiri by'ingezi umuntu akora mbere yo gukama amashereka ukoresheje intoki

1.....

2.....

8. Ni ubuhe buryo bwiza butuma umwana agumana ubushyuhe bukwiye bw' umubiri?

a. Kuryamisha umwana kugituzza cyangwa kunda ya mama we, gutinda kumwuhagira akivuka.

b. Kugumisha umwana ku gituzza cyangwa kunda ya mama we akimara kuvuka ni uburyo bwiza bwo kumwongerera ubushyuhe bw' umubiri.

c. Gushyira umwana kugituzza cyangwa kunda ya mama we bimufasha gutangira konka hakiri kare.

d. Ibyavuzwe haruguru byose nibyo

9. Ni ubuhe buryo bwiza cyane bwo kurinda mikorobe umwana wavutse adashyitse?

a. Gukaraba intoki mbere yo gukora kumwana

b. Kwambika umwana imyenda myinshi

c. Kumuha isukari cyangwa ubuki

d. Kumurinda ubukonje bwinshi

10. Amakosa akunda kubaho mukagaburira umwana tunyujije mugapira ni:

a. Gusunika amashereka cyane mugihe urimo kuyamuka mugapira, bishobora gutuma umwana ahita ayagarura cyangwa akamujya mubihaha.

b. Gukaraba intoki mbere yo kumuha amashereka

c. Kureba neza igipimo gikwiye cy' amashereka buri muni

d. Kureka amashereka akagenda mugapira buhoro buhoro hagati y'iminota icumi kugeza kuri cumi n'itanu.

11. Umwana wavutse adashyitse asohoka mubitaro iyo afite ibi bikurikira:

a. Iyo abasha konka neza ku ibere cyangwa ku gikombe.

b. Iyo ahumeka neza adakenera ko bamwongerera umwuka.

c. Iyo ibipimo by'ubushyuhe biri kukigero gikwiye kandi yiyongera ibiro neza.

d. Ibyavuzwe haruguru byose nibyo

12. Ni ibihe bimenyetso mpuruza k'umwana watashye murugo byatuma wihutira kugaruka kwa muganga kuburyo bwihuse?

a. Umwana ashushye cyane cyangwa akonje cyane mugihe umukozeho kumubiri we.

b. Umwana guhinduka umuhondo kumubiri

c. Kugagara cyangwa gucika integer kuburyo budasanzwe.

d. Kubyimba inda.

e. Ibyavuzwe haruguru byose nibyo.

Umubare w' ibanga:.....

Umukono n' itariki:.....

Annexe 5: Questionnaire (English version)

Demographic information

1. **Sex:** F ☐
M ☐
2. **Age:** Under 14 -24years ☐

24 to 34 years old ☐

34 to 44 years old ☐

Above 44 years old ☐

3. Education level:

No formal education ☐

Primary school ☐

Ordinal level ☐

Secondary school ☐

Undergraduate ☐

Post graduate and others: ☐

4. Gestational age at birth:

Between 22 to 32 weeks of gestational ☐

Between 33 to 37 weeks of gestational ☐

5. Gravidity:

Primigravida ☐

Multigravida ☐

6. Multiple birth at this pregnancy:

Singleton birth ☐

Multiple births ☐

7. Date of birth:

February 2017 ☐

March 2017 ☐

April 2017 ☐

May 2017 ☐

8. Birth area

Muhima hospital ☐

Transferred from other health facility ☐

9. Residence:

Kigali city ☐

Out of Kigali city ☐

MULTIPLE CHOICE QUESTIONS (PRE TEST AND POST TEST)

3. What is special unit to care a baby born too soon?

- a. Special nursery in hospital where they provide care for very sick newborns.
- b. A place for babies born too soon with serious health problems
- c. A place with special equipment and trained health works to care for vulnerable babies.
- d. All the above are correct

4. What does it mean to say a baby is born too soon?

- a. A baby born before 1 to 3 months of pregnancy
- b. A baby born before 3 to 4 months of pregnancy
- c. A baby born before 8 months of pregnancy
- d. A baby born after 9 months of pregnancy

3. Why are some babies born too soon?

- a. Because the mother did not go to church and pray enough.
- b. Because the mother had an infection like malaria or infection in her urine
- c. Because the mother gains too much weight.
- d. Because the mother told all of her friends she was pregnant too soon.

4. What are some common problems in babies born too soon?

- a. Trouble breathing because their lungs are not fully developed.
- b. Staying warm -babies born too soon often get too cold.
- c. Weak suck reflex – causing feeding difficulties
- d. Jaundice – when the baby turns yellow
- e. All the above

5. List 2 possible long term complications of a baby born too soon

- 1.....
- 2.....

6. Why is colostrum important to give to a baby born too soon?

- a. It contains antibodies that help the baby fight off viruses and bacteria.
- b. Colostrum is contra indicated in a baby born too soon
- c. Actually formula is better for a baby born too soon
- d. Colostrum must be tossed out until the real milk comes in.

7. Name 2 important things to do before manual expressing of breast milk

1.....

2.....

8. What are the best ways of keeping baby warm?

- a. Skin-to-skin contact, delayed bathing, and loose warm clothing are key
- b. Keeping the newborn skin-to-skin with the mother is the best way for her to stay warm after birth.
- c. Skin-to-skin contact also gives the baby the best chance to establish breastfeeding.
- d. All the above

9. What is the best way to prevent infection in a baby born too soon?

- a. Hand washing
- b. Protecting a baby in many clothes
- c. Giving sugar and honey
- d. Keep warm the baby

10. The common mistake in tube feeding is:

- a. Pushing the plunger to speed up the feeding, this can be dangerous and can cause vomiting and possibly breathe milk into the lungs.

- b. Hand washing before feeding
- c. Check the chart daily for the volume of breast milk
- d. Let the milk move slowly into the baby's stomach over 10-15 minutes.

11. Baby born too soon can be discharged from the hospital once they can:

- a. Breast-feed or bottle-feed very well
- b. Breathe well without support
- c. Maintain body temperature and increasing body weight
- d. All the above

12. What are the main dangers signs after discharge to the hospital need to be reported immediately?

- a. Hot or cold to the touch on the baby's body
- b. Yellowish discoloration of the skin
- c. Seizure or lethargic
- d. Abdominal distension
- e. All the above

Code:.....

Date and Signature:.....

Annexe 6: REQUEST FOR ETHICAL CLEARANCE

M. Rose MUKARUBAYIZA

UR/ CMHS

Neonatal Track

E-mail: rubayizarose@yahoo.fr

Contact: 0788693458 / 0722693458

20th December, 2016

To: The IRB Chairperson/CMHS-UR

Re: REQUEST FOR ETHICAL CLEARANCE

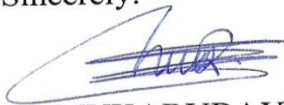
Dear Sir,

I hereby write a letter to humbly request for the permission and ethical clearance to conduct the research at Muhima District Hospital.

I am a tutorial assistant studying in Master of sciences in nursing program, at University of Rwanda College of Medicine and Health Sciences in Neonatal Track. The general aim of the study is **to increase the level of parental knowledge on the care of their preterm neonate in the neonatal intensive care unit through an educational training program in a selected district hospital in Kigali, Rwanda.** Pretest and posttest will be used, and organized education training will be conducted, multiple choice questions will be used to collect data. The findings will help to create a mechanism of improving parental knowledge in caring their preterm neonates in NICU. I also attached the research proposal, questionnaire and consent form for data collection.

Looking forward to hearing from you.

Yours Sincerely.



M. Rose MUKARUBAYIZA

Annexe 7:ETHICAL CLEARANCE FROM IRB



COLLEGE OF MEDICINE AND HEALTH SCIENCES

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 16/01/2017

Ref: CMHS/IRB/062/2017

M. Rose Mukarubayiza
School of Nursing and Midwifery, CMHS, UR

Dear M. Rose Mukarubayiza

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance of the revised protocol of the study entitled *"Increasing Parental Knowledge On The Care Of Their Preterm Neonate In The Neonatal Intensive Care Unit Through An Educational Training Program In A District Hospital In Kigali, Rwanda"*.

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

For Professor Kato J. NJUNWA
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR



JB Gahutsi
IRB Vice-Chair

Cc:

- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR

Annexe 8: Request for data collection



COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

Kigali, on 30 / 01 /2017

Ref. No: 46 / UR-CMHS/SonNM/17

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

Re: Request to collect data

Referring to the above subject, I am requesting for permission for **MUKARUBAYIZA M. Rose**, a final year student in the Masters of Science in Nursing at the University of Rwanda/College of Medicine and Health Science to collect data for his/her research dissertation entitled: **INCREASING PARENTAL KNOWLEDGE ON THE CARE OF THEIR PRETERM NEONATE IN THE NEONATAL INTENSIVE CARE UNIT THROUGH AN EDUCATIONAL TRAINING PROGRAM.**

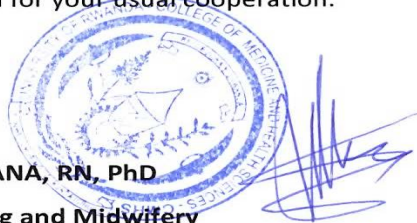
This exercise that is going to take a period of 2 months starting from 13th February 2017 to 12th April 2017 will be done at **MUHIMA District Hospital**

We are looking forward for your usual cooperation.

Sincerely,

for

Dr. Donatilla MUKAMANA, RN, PhD
Dean, School of Nursing and Midwifery
College of Medicine and Health Sciences



Annexe 9:Approval for data collection

REPUBLIQUE DU RWANDA



VILLE DE KIGALI
DISTRICT DE NYARUGENGE
HOPITAL DE MUHIMA
B.P : 2456 KIGALI
Tél. /Fax : +252 50 37 7
E-mail : muhimahospital@gmail.com

ETHICS COMMITTEE/ COMMITTEE D'ETHIQUE

06 January, 2017

Review Approval Notice

Dear M. Rose MUKARUBAYIZA

Re: Your request to conduct a research at Muhima hospital.

During the meeting of ethic committee of Muhima District Hospital that was held on 03 February 2017 to evaluate your demand we are pleased to inform you that the Muhima Hospital Ethic Committee has approved your request.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the committee of any proposal change(s) or amendment(s), serious or unexpected outcomes related to the conduct of the research, or research termination for any reason. The committee expects to receive a final report at the end of the research.

Yours sincerely,

Dr MANIRAGUHA YEZE Aimée Victoire

Chair Person, Ethics Committee

