

**PERCEPTIONS AND PRACTICE ON HUMAN BREAST MILK DONATION  
AND MILK BANKING AMONGST ANTENATAL MOTHERS AT PUMWANI  
MATERNITY HOSPITAL: A MIXED METHODS STUDY**

**JANE WANGUI KAMAU**

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## DECLARATION

This dissertation project is undertaken in partial fulfillment for the Master of Science in Nursing (Midwifery and Obstetrics), it is my original work, and has not been presented for a degree in any other university.

Signature.......... Date 09/11/23

Jane Wangui Kamau

Reg. No.: H56/40583/2021

..  
**SUPERVISORS APPROVAL**

This dissertation project has been submitted for review with the approval of the following University supervisors.

Dr. Mary W. Kamau  
Lecturer  
Department of Nursing Sciences  
Faculty of Health Sciences  
University of Nairobi

Signature.....

Date.....08/11/2023

Prof. Lucy W. Kivuti-Bitok  
Senior Lecturer Department of Nursing Sciences  
Faculty of Health Sciences  
University of Nairobi

Signature.....

Date.....10/11/2023

Head of Department,  
Dr. Emmah Matheka (BScN, MScN, PhD)  
Senior Lecturer, Department of Nursing  
University of Nairobi

Signature 

Date 09/11/2023



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## TABLE OF CONTENTS

DECLARATION .....	ii
SUPERVISORS APPROVAL .....	<b>Error! Bookmark not defined.</b>
DEDICATION .....	<b>Error! Bookmark not defined.</b>
ACKNOWLEDGEMENT .....	iii
TABLE OF CONTENTS.....	v
LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
ABBREVIATIONS .....	xii
OPERATIONAL DEFINITION OF TERMS.....	xiii
ABSTRACT.....	xiv
1.0 CHAPTER ONE: INTRODUCTION.....	1
1.1 Background Information .....	1
1.2 Statement of the Problem .....	3
1.3 Research Questions .....	4
1.4 Study Objectives.....	4
1.4.1 Broad Objective .....	4
1.4.2 Specific Objectives .....	4
1.5 Study Justification .....	5
1.6 Significance of the Study .....	5
2.0 CHAPTER TWO: LITERATURE REVIEW .....	6
2.1 Introduction .....	6
2.2 Introduction to Human Milk Banking.....	6
2.3 The Process of Milk Banking.....	8
2.4 Awareness of the mothers on Human Milk Donation and Milk Banking.....	8

2.5 Mothers Willingness to Donate Milk and Use the Donated Human Milk .....	9
2.6 Hindrances to Donor Milk Use and Milk Donation .....	10
2.7 Factors That Would Promote Donation and Use of the Donated Human Milk .	10
2.8 Theoretical Framework .....	11
2.9 Conceptual Frame Work .....	14
3.0 CHAPTER THREE: RESEARCH METHODOLOGY .....	15
3.1 Introduction .....	15
3.2 Study Design .....	15
3.3 Study Site .....	15
3.4 Study Population .....	16
3.5 Sample Size Determination .....	16
3.6 Sampling Technique .....	17
3.7 Data Collection Tools.....	18
3.7.1 Reliability and Validity of the Tools.....	18
3.7.2 Training of the Research Assistants .....	18
3.7.3 Recruitment and Consenting Procedure.....	19
3.8 Data Collection Procedures .....	19
3.9 Quality Assurance .....	20
3.10 Data Management, Analysis and Presentation .....	20
3.11 Dissemination of Findings.....	22
3.12 Ethical Considerations.....	22
3.13 Study Limitations and Delimitations.....	23
3.14 Study Assumptions.....	23
CHAPTER FOUR: RESULTS .....	24
4.1 Introduction .....	24
4.2 Demographic Characteristics of the Respondents.....	24

4.3 Awareness of Human Breast Milk Donation and Milk Banking among the Respondents .....	26
4.3.1 Respondents' Awareness on Human Milk Donation .....	26
4.3.2 Respondents' Awareness on Human Milk Banking .....	28
4.3.3 Respondents' View on Appropriateness of Human Breast Milk Donation	29
4.3.4 Respondents' Views on the Most Appropriate Way to Feed a Baby Who Had No Access to their Own Mother's Milk .....	31
4.4 Willingness to Donate Human Breast Milk among the Respondents .....	32
4.4.1 Whether the Respondents had ever donated their Breast Milk .....	32
4.4.2 Respondents' Willingness to Donate their Breast Milk .....	33
4.4.3 Preference over Persons to Benefit or Not from Donated Breast Milk .....	34
4.4.4 Respondents' opinion as to which mothers should not be allowed to donate breast milk to a milk bank .....	36
4.5 Willingness to Use Donated Human Breast Milk on their Babies .....	36
4.5.1 Whether the Respondents' Babies had ever Received Donated Breast Milk from a Milk Bank .....	37
4.5.2 Whether the Respondents would allow their Babies to be Fed on Donated Human Milk from a Human Milk Bank .....	37
4.5.3 Mothers from which the Respondents Would Accept Breast Milk from If Unable to Provide Enough Milk to their Babies .....	39
4.6 Hindrances to Donation and Use of the Donated Human Breast Milk among the Respondents .....	40
4.6.1 Hindrances to the Respondents Donating their Breast Milk to the Human Milk Banks .....	40
4.6.2 Hindrances to the Respondents Allowing their Child to Use Donated Human Breast Milk .....	41
4.7 Factors That Would Promote Donation and Use of the Donated Human Milk .	43
4.7.1 Factors That Would Promote Donation of Human Milk to the Milk Banks .....	43
4.7.2 Factors That Would Promote Mothers' Willingness to Use Donated Human Milk from the Milk Banks .....	44

4.8 Association of the Various Attributes with Willingness to Donate Human Breast Milk among the Respondents .....	47
4.9 Association of the Various Attributes with Willingness to Use Donated Human Breast Milk among the Respondents.....	49
CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS .....	51
5.1 Introduction .....	51
5.2 Discussion .....	51
5.2.1 Awareness of Human Breast Milk Donation and Milk Banking among the Respondents .....	51
5.2.2 Willingness to Donate Human Breast Milk among the Respondents.....	53
5.2.3 Willingness to Use Donated Human Breast Milk on their Babies.....	54
5.2.4 Hindrances to Donation and Use of the Donated Human Breast Milk among the Respondents .....	55
5.2.5 Factors That Would Promote Donation and Use of the Donated Human Milk .....	56
5.3 Conclusions .....	57
5.4 Recommendations .....	58
5.5 Suggested Areas for Further Studies .....	58
REFERENCES .....	60
APPENDICES .....	64
Appendix 1: Questionnaire (English).....	64
Appendix II: Focused Group Discussion Guide (English) .....	72
Appendix III: Consent Form for Participation in the Study (English).....	74
Please understand the following: .....	74
Appendix IV: Questionnaire (Kiswahili) .....	77
Appendix V: Focused Group Discussion Guide (Kiswahili) .....	85
Appendix VI: Consent Form for Participation in The Study (Kiswahili) .....	88



Appendix VII: A Letter to the Medical Superintendent, Pumwani Maternity Hospital .....	91
Appendix VIII: Approval Letter from KNH-UoN ERC .....	93
Appendix IX: Approval Letter from Pumwani Maternity Hospital .....	97
Appendix X: Time Frame (Ghant Chart) .....	98
Appendix XI: Study Budget .....	99
Appendix XII: Similarity Index Report .....	100

## LIST OF TABLES

Table 4.1: Respondents' demographic characteristics.....	25
Table 4.2: Respondents' awareness on human milk donation.....	26
Table 4.3: Respondents' awareness on human milk donation.....	27
Table 4.4: Respondents' awareness on human milk banking.....	29
Table 4.5: Respondents' views regarding circumstances on when a child should be fed on donated human milk from a milk bank.....	30
Table 4.6: Who would you prefer to receive your donated breast milk.....	35
Table 4.7: Who would you not want to receive your donated breast milk.....	36
Table 4.8: Respondents opinion on mothers that should not be allowed to donate breast milk to a milk bank.....	36
Table 4.9: Circumstances under which the respondents would allow their babies to be fed on breast milk donated by another mother.....	38
Table 4.10: Hindrances to the respondents donating their breast milk to the human milk banks.....	41
Table 4.11: Hindrances to the respondents allowing their child to use donated breast milk.....	42
Table 4.12: Factors that would promote donation of human milk to the milk banks..	43
Table 4.13: Factors that would promote mothers willingness to use donated human milk from the milk banks.....	44
Table 4.14: Summary of identified themes.....	46
Table 4.15: Association of the various attributes with willingness to donate human breast milk among the respondents.....	48
Table 4.16: Association of the various attributes with willingness to use donated human breast milk among the respondents.....	50

## LIST OF FIGURES

Figure 2.1: Theory of planned behavior model.....	11
Figure 2.2: Conceptual framework .....	14
Figure 4.1: Respondents' view on appropriateness of human milk donation.....	29
Figure 4.2: Respondents' view on the most appropriate way to feed a baby who did not have access to their own mother's milk.....	32
Figure 4.3: Whether the respondents' would be willing to donate their own breast milk .....	33
Figure 4.4: Whether respondents were particular as to who should receive their donated milk .....	35
Figure 4.5: Whether the mothers would allow their babies to be fed on donated human milk from a human milk bank.....	37
Figure 4.6: Kinds of mothers from which the respondents would accept breast milk from in case they were unable to provide enough milk for their own baby .....	40

## ABBREVIATIONS

<b>BScN</b>	Bachelor of Science in Nursing
<b>DHM</b>	Donor Human Milk
<b>FDG</b>	Focused Group Discussion
<b>HIV</b>	Human Immunodeficiency Virus
<b>HMB</b>	Human Milk Banking
<b>HMBASA</b>	Human Milk Banking Association of South Africa
<b>KNH</b>	Kenyatta National Hospital
<b>KNH/UON-ERC</b>	Kenyatta National Hospital/ University of Nairobi -Ethics and Research Committee
<b>LMICs</b>	Low- and Middle-Income Countries
<b>MOM</b>	Mothers Own Milk
<b>PI</b>	Principal Investigator
<b>SA</b>	South Africa
<b>TPB</b>	Theory of Planned Behavior
<b>UNICEF</b>	United Nations Children’s Fund
<b>WHO</b>	World Health Organization

## OPERATIONAL DEFINITION OF TERMS

<b>Antenatal:</b>	The period of time of conception to before birth (pregnancy period)
<b>Breast milk recipient:</b>	They are infants who receive the donated human milk.
<b>Donated human milk:</b>	Refers to breast milk that is expressed by a mother and processed by a human milk bank for use by a recipient that is not the mother's own baby.
<b>Human milk bank:</b>	Is a service that recruits breast milk donors, collects, screens, Processes, and dispenses by prescription human milk donated by nursing mothers who are not biologically related to the recipient infant.
<b>Milk bank donors:</b>	Are mothers who care about helping others by providing their extra milk to babies who need it.
<b>Mother's own milk:</b>	This is breast milk expressed only for the consumption by the mother's own baby.
<b>Pasteurized milk:</b>	This is milk that has been heat-treated at 63° C for 30 min. Pasteurization destroys harmful microorganisms that can lead to diseases.
<b>Perception:</b>	The state of awareness, it can also mean a belief or opinion.
<b>Practice:</b>	The actual application or use of an idea, belief or a method.
<b>Premature babies:</b>	Babies born before 37 completed weeks.

## ABSTRACT

**Background:** Breast milk is the primary source of nutrition for the newborns and is important for their healthy growth and development. When the mother's own milk is not available, WHO recommends donor human milk as the best alternative. Kenya launched the first breast milk bank at Pumwani Maternity Hospital in 2019. Premature babies, sick babies and abandoned newborns have benefitted from the initiative though its uptake remains sub-optimal.

**Objective:** To assess the perception and practices of human breast milk donation and banking among antenatal mothers at Pumwani Maternity Hospital.

**Methodology:** The study was descriptive cross-sectional research with a mixed methods approach. It was conducted at Pumwani Maternity Hospital among antenatal mothers attending the hospital's antenatal clinic. A sample of 233 participants was selected using systematic random sampling for quantitative data while purposive sampling was used for qualitative data. The research utilized a structured questionnaire and 3 focused group discussions (FGDs) of about 6-8 participants to collect the quantitative and qualitative data respectively. Quantitative data was analyzed various descriptive statistics with SPSS version 25. Bivariate logistic regression analysis, at 5% significance level, was also performed to establish associations between study variables. Quantitative data results were presented in form of tables and pie charts. Qualitative data from the FGDs were analyzed using thematic data analysis with results reported verbatim.

**Results:** Majority of the respondents were aged 21-39 years (93.1%), were married (80.4%) and had 1-3 children (95.4%). Over half (54.3%) of the mothers had never heard of mothers who donated their own milk while 75.8% said they had never seen a child or children who were fed on donated human milk. Most (57.1%) said they would be willing to donate their breast milk to a human milk bank while 65.8% indicated that they would allow their babies to be fed on donated human milk but only when necessary or unavoidable. Fear of familial diseases ( $\beta=-0.729$ ,  $p = .000$ , OR = 0.29) and fear that their own babies won't have enough ( $\beta=-0.636$ ,  $p = .000$ , OR = 0.37) were the leading hindrances to the mothers' donation and use of donated human milk while educating the mothers on significance of donated human milk ( $\beta=0.681$ ,  $p = .000$ , OR = 2.13) was the primary factor promoting the initiative.

**Conclusion:** There was inadequate awareness of human breast milk donation and banking among the mothers. The mothers demonstrated willingness to donate their breast milk for use by babies in need, though most were less inclined to allowing their babies to be fed with donated human milk. Some factors acted as hindrances while others were promoters of human breast milk donation and banking.

**Recommendation:** Healthcare workers at Pumwani Maternity Hospital's antenatal care clinics should create more awareness on human breast milk donation and human milk banking among antenatal mothers attending the clinics through educating them about this existing intervention. Efforts should be made to address hindrances to the mothers' donation and use of the donated human breast milk.

## 1.0 CHAPTER ONE: INTRODUCTION

### 1.1 Background Information

Breast milk is the primary source of nutrition for the newborns. It contains all the nutrients the baby requires for healthy growth and development; it also contains antibodies that protect them against infections. Compared with formula milk, the nutrients in breast milk are easier to digest and are better absorbed. Premature babies who are given breast milk are less likely to get serious infections like necrotizing enterocolitis, respiratory conditions because the human milk is better tolerated by babies that are born preterm (Kimani-Murage, 2019).

Initiating breastfeeding within the first hour of birth is advised by the World Health Organization (WHO) and UNICEF. Donor human milk is the greatest option for infants, particularly those with low birth weights, when mothers own milk (MOM) is not available. In order to meet the need for donor human milk, there is growing interest worldwide in establishing and maintaining human milk banks due to the advantages of donor human milk (Tyebally Fang *et al.*, 2021). Over 60 countries already operate human milk banks, with a modest but growing number of milk banks operating in low-income and middle-income countries in the year 2020 estimated milk banks were 756 in 66 countries globally (Tyebally Fang *et al.*, 2021).

Most of the milk banks are in Europe, The USA, Asia, and Brazil. With Brazil having most comprehensive network of human milk banks in the world, becoming a worldwide reference for the use of strategies that combine low cost and technology to provide high quality milk banks for babies who are in need. They have 222 operational milk banks (Ballard *et al.*, 2019). In Africa only seven countries i.e., South Africa, Angola, Mozambique, Kenya, Uganda, Cameroon and Carpe Verde host even a single operational bank.

When mother's milk is unavailable or insufficient, donor human milk (DHM) is advised as the first option (Kimani-Murage *et al.*, 2019). WHO claims that it is the only option that can save lives, especially those of preterm, low birth weight, orphaned, malnourished, and critically unwell infants. Establishment of milk banks has been

significant in promoting breast milk feeding. Public health advocates for non – profit human milk banks, because they are cost effective in preventing complications in vulnerable babies, shortens hospital stays, avoids infections that are expensive to treat and also eliminates high cost of purchasing the formula milk (Reimers *et al.*, 2018).

Every baby should be breastfed or given donated human milk to give them the best, development and wellbeing, thus the infant shouldn't be denied its benefits if the mother is unable to provide them. Premature newborns, especially those with very low birth weight are at the greatest risk of developing NEC and human milk can reduce the risk (Furlow, 2020)

Milk banks play an important role by providing human milk to infants who would otherwise not be able to receive human milk. The milk bank collects, screens, stores, processes and distributes human milk. Donating mothers are usually mothers who have nursed their babies and have surplus and so they volunteer to donate their milk. They are carefully selected and screened for HIV-I and HIV-2, human T-cell leukemia's, Hepatitis A, B C and syphilis. Also, mothers should not be on any medication or ill health. Milk from a single donor is then pooled after several pumping and then pasteurized. Once pasteurized and screened again, it is then placed in small containers of around (50-100 Mls) and is stored frozen for up to 1 year (Colaizy, 2021).

In an effort to enhance infant health, there has been a global surge in the number of human milk banks. The number of milk banks continues to rise in low- and middle-income countries (LMICs), where there are projected to be 756 of them in 66 countries by the year 2020. One of the top LMICs, Brazil has established guidelines for the bigger health system's Inco-operating human milk banking (HMB). Around 70 operational human milk banks exist in other parts of the world, such as South Africa (SA), and they are governed by the South African breast milk bank reserves and the Human Milk Banking Association of South Africa (HMBASA). The Pumwani Maternity Hospital became home to Kenya's first milk bank (Haiden and Ziegler, 2016).

Donor breast milk is not only beneficial for the baby's growth and development but it's also important in supporting the mental health of the parents as they feel that they are listened to, supported and their infant feeding decisions are facilitated. Therefore it helps motivate the mothers even as the work towards building their own milk supply



(Brown and Shenker, 2022).

In October 2019, Kenya launched the first breast milk bank at Pumwani Maternity Hospital, Nairobi. The milk bank was set up by the ministry of Health and the African Population and Health Research Center (APHRC). It is the second after South Africa in 2011 to establish a human milk bank in sub-Saharan Africa. The process of establishing a milk bank started in 2016 (Kimani-Murage, 2019). In Pumwani Maternity Hospital priority is given to the preterm babies, sick newborns whose mothers are not able to produce enough milk needed for their babies, as well as the abandoned and orphaned newborns. The donated human milk is given on prescription after assessment of the mother and the baby. Milk donation is from the mothers who have surplus after feeding their own babies and are willing to donate.

## **1.2 Statement of the Problem**

Statistics from donor and recipient booklets at Pumwani Maternity Hospital shows that from May 2020, there were about 931 mothers have donated milk, while they have had 1538 recipients. From January to September 2023 there were 374 mothers who underwent donor screening, 53 failed but 321 passed and were allowed to donate their milk to the milk bank. Ninety six percent (96%) of the donors are mothers with babies in the newborn unit while the 4% are mothers from the postnatal wards. Pumwani Maternity Newborn unit are still using formula milk despite having a milk bank just next to it due to the shortage of the donor human milk. There is a low turn up of the milk donors and the demand is high. And also, not all donated milk is usable after the testing/screening procedure and some mothers who are willing to donate fail the donor screening tests.

Some of the mothers who don't have adequate milk are reluctant to use the donated milk on their children, until thorough counseling is done on the need and the importance. This informed the need to assess the mothers' perception on human milk donation and milk banking at Pumwani Maternity Hospital. It is very important to explore their perceptions on the program so that any concerns are addressed early enough and thus improve the initiative's acceptability.

### **1.3 Research Questions**

- a. Are antenatal mothers at Pumwani Maternity Hospital aware of human breast milk donation and milk banking?
- b. Are antenatal mothers at Pumwani Maternity Hospital willing to donate human breastmilk?
- c. Are antenatal mothers at Pumwani Maternity Hospital willing to use the donated human breast milk on their babies?
- d. What are the hindrances to donation and use of the donated human breast milk among antenatal mothers at Pumwani Maternity Hospital?
- e. What factors can promote donation and the use of the donated human breast milk among antenatal mothers at Pumwani Maternity Hospital?

### **1.4 Study Objectives**

#### **1.4.1 Broad Objective**

To determine the perception and practices of human breast milk donation and milk banking amongst antenatal mothers at Pumwani Maternity Hospital

#### **1.4.2 Specific Objectives**

- a. To assess the awareness of the antenatal mothers at Pumwani Maternity Hospital on human breast milk donation and milk banking.
- b. To assess the willingness of the antenatal mothers at Pumwani Maternity Hospital to donate human breast milk
- c. To assess the willingness of the antenatal mothers at Pumwani Maternity Hospital to use the donated human breast milk on their babies.
- d. To identify the hindrances to donation and the use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital.

- e. To identify the factors that would promote donation and use of the donated humanbreast milk among antenatal mothers at Pumwani Maternity Hospital.

### **1.5 Study Justification**

Human milk offers the best nourishment, fosters growth and development, and lowers the risk of disease and illness. The perceptions of the moms who are meant to contribute and use the donated milk on their babies must be evaluated because Pumwani Maternity was the first hospital in Kenya to open a human milk bank.

It is only when the mothers' concerns which they may have been addressed, that this initiative will be very successful and to the advantage of the babies who will benefit from the donated milk, other than using the formula milk when the DHM supply is limited. And not only should the mothers with babies in the newborn unit donate, but all mothers who have surplus and meet criteria should be able to voluntarily donate, and all babies who require the milk should get it. If mothers embrace donating and use of the donated milk when there is need, it will be very easy to start such initiatives in other facilities i.e., setting up milk banks in national and county hospitals in Kenya.

### **1.6 Significance of the Study**

Determining the perceptions of the antenatal mothers, especially at Pumwani Maternity Hospital where this initiative has begun is really important. This is because it will help identify gaps and proper interventions put in place, antenatal mothers are the potential donors and their babies are potential recipients. If gaps noted are addressed right from the Antenatal, then it will be much easier when they become postnatal mothers. They will voluntarily donate milk if they have surplus and in case their babies are in need, they would not find it hard to accept the donated milk. Again, if this initiative becomes a success at Pumwani Hospital which is the pioneer, it will be a bit easier to handle other milk banks that will be set up in future.

## **2.0 CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter reviews the history of human milk banking, the method of milk banking, mothers' knowledge of human milk donation and milk banking, mothers' willingness to donate and use donated breast milk, barriers to human milk donation and its use, and finally, factors that would ~~conge~~ influence human milk donation and its use.

### **2.2 Introduction to Human Milk Banking**

We examine the procedures involved in human milk banking and how they have changed through time. A human milk bank is a company that finds breast milk donors, collects the donated milk, pasteurizes it, stores it, checks it for contaminants, and then gives the milk to infant recipients on prescription. Healthy nursing postpartum mothers with extra milk who volunteer to donate their human milk are known as donors. They are screened to determine if they are eligible to donate (Tran, Nguyen and Mathisen, 2020).

In order to destroy any bacterial and viral pathogens, donated human milk (DHM) is pasteurized. Thirty minutes of pasteurization at 62.5 C. This maintains the nutritive and immunological properties of breast milk while removing the possibility of harmful bacterial or viral infections, such as HIV and SARS-CoV-2 (Tran, Nguyen and Mathisen, 2020). A study by Unger et.al (2020) on the effectiveness of Holder pasteurization in inactivating SARS-CoV -2 showed that pasteurization of milk at 62.5 c for 30 minutes renders the milk safe for consumption and handling by the care providers (Unger *et al.*, 2020). When there is a shortage of donor milk, newborns with serious medical issues, premature babies, or babies with very low birth weights (1500g), are given priority. Wet nursing, which was an ancient tradition in which women breastfed infants who were not their own, can be traced as the origin of donating breast milk. Wet nursing was the first method of storing donor milk and dates back to the early years of the year 2000 BC. As a result of worries about the wet nurses' unhealthy lifestyles, the practice started to diminish by the 19th century (Moro, 2018).

From 1901 through 1911, research by Theodor Escherich, professor emeritus of pediatrics at the University of Vienna, examined the impact of various dietary sources on newborns. After learning that breastfed infants fared better in terms of health, he established the first human milk bank in Vienna in 1909. The next year, Boston saw the opening of a second human milkbank, and others spread around Europe and the United States (Moro, 2018).

Because of improvements in prenatal care and newborn formula milk, milk banking decreased in 1960. Nevertheless, in spite of these developments, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) were adamant that using donor breast milk was the best option in cases where the biological mother was unable to breastfeed.

With the HIV epidemic spreading, the practice of milk banking fell even further, and the requirement for stricter screening raised the cost of running milk banks, causing them to close. Today, nevertheless, there are more effective screening techniques and regulated protocols, making donated milk a suitable substitute for mother's breast milk. Understanding the purposes of milk banks, which are being established in many parts of the globe, can aid with the acceptance of donated human milk and its preservation for later use.

To prepare for pasteurization, it is thawed in the refrigerator overnight. Breast milk from individual donors or multiple donors about four depending on the milk bank is then pooled and collected in different containers, then pasteurization is done at 62.5 C for 30 minutes. The samples taken from each batch are usually taken to laboratory for culture before and after pasteurization for microbiological testing to ensure safety and quality. Any milk that is culture positive for any pathogen or for greater than  $10^4$  colony forming unit/ml of skin flora before pasteurization or after pasteurization is discarded. The pasteurized milk is stored in the freezer at -2 C and dispensed when prescribed (Tran et al., 2021). Only the milk that has undergone the pasteurization process and has been cleared free of contamination will be declared safe for consumption. It is then placed in small quantities ready for use by those babies whose mothers are not able to provide their own milk.

### **2.3 The Process of Milk Banking**

For the donated milk to be safe for consumption by another mother's baby, there is need for some important steps to be observed. Once a mother qualifies to be a donor after the vigorous screening, safe milk collection technique is taught. Breast milk collection can be done using the manual method or by use of breast pumps. A mother may express a single additional feed or several feeds in a single day. The raw milk is subsequently kept in the freezer, and each container is marked with the necessary information. Name, date, time of collection, and amount collected for the donor are listed there (Colaizy, 2021).

### **2.4 Awareness of the mothers on Human Milk Donation and Milk Banking**

Creating awareness is crucial to the success of any endeavor since it educates people and dispels misconceptions. All women and society at large need to be aware of human breast milk donation and milk banking as well as their benefits. Despite the fact that the positive effects of donor breast milk are well documented, there is still a lack of knowledge and a significant gap in people's perceptions about human milk donation and milk banking. An essential public health endeavor is health education, which is required to improve mothers' awareness of human milk donation and banking (Pal *et al.*, 2019).

A study done by Kimani-Murage (2019) in Nairobi, Kenya on human milk banking, reveals that there was a need for more awareness on human milk donation and banking. Only 23% of those interviewed had heard about it, and this was from the internet and also hearing it from friends. The study done by Hosseinzadeh (2023) at the health centers in Tabriz, Iran revealed a low level of knowledge but relatively positive attitudes from the Iranian mothers on milk banking. Similarly in another study done at Michigan, United States on alternative to mothers' own milk (MOM) and maternal awareness of DHM and milk banks by Ellsworth, Sturza and Stanley (2021) showed limited maternal awareness regarding donor human milk and milk banks. Participants (89%) chose formula milk over those who chose donor human milk for their babies were 11%. and in the event the donor milk was the only option, they would choose donor milk from a relative or a friend over a milk bank. Education of mothers can play an important role in supporting human milk banks by improving mothers' knowledge and increase

acceptance of donor milk and milk banking (Hosseinzadeh et al., 2023).

From the different studies, there is a need to create more awareness on human breast milk donation and milk banking. This will help change perceptions and improve its acceptability.

## **2.5 Mothers Willingness to Donate Milk and Use the Donated Human Milk**

Mothers who donate their surplus milk to newborns in need through milk banks do so freely to benefit others. They are not paid or otherwise compensated; instead, they just feel good about helping another baby's wellbeing. According to Kimani-Murage (2019), majority of the mothers had a positive attitude towards donating about 80% and also feeding the babies on the donated milk about 87%. But when it comes to personal level 78% of mothers interviewed were willing to donate their milk to HMBs, while only 59% were willing to use the milk on their babies.

- a. In a study conducted by (Gelano *et al.*, 2018) on acceptability of donor breast milk banking among mothers in Eastern Ethiopia, showed that about 11% of the participants were willing to donate while 15.2% of the mothers were willing to use the donated milk. The acceptance of donor milk banking was more likely among mothers who had heard about milk banking. This indicates that mothers are willing to donate and use the donated milk, though targeted public education may help increase the acceptance and practice of donating and use of the donated human milk (Iloh *et al.*, 2018). Public sensitization and education campaigns are indispensable for the acceptability of donated breast milk (Namuddu *et al.*, 2023). Family factors, social factors, and breast milk adequacy were associated with increased milk donation, with family support being the strongest predictor in the study of the factors influencing milk donation to a milk bank in Iran (Doshmangir, Naghshi and Khabiri, 2019).

It is possible to link awareness to the willingness to contribute or use milk that has been donated. Mothers who had heard of human milk donation and banking were more likely

to be supportive of it than those who hadn't, whereas those who hadn't were more hesitant.

## **2.6 Hindrances to Donor Milk Use and Milk Donation**

Different factors can be a barrier to the practice of milk donation and use of the donor milk. They range from misconceptions, lack of awareness, personal dislike. There is a need to identify them and respond to them appropriately so that they don't affect such initiatives that are helpful to the babies.

Scaling up on human milk banks would be a perfect solution for saving vulnerable babies (Mondkar *et al.*, 2018). In a study on the barriers to milk donation and use in a metropolitan Indian city, it was discovered that while most mothers were at ease donating milk, a small percentage of them were reluctant to do so out of concern that there wouldn't be enough milk for their own babies. The recipients were also accepting of the donation but worried about the donors' health and hygiene. Others were okay with using DHM in accordance with facility standards, but they were worried about the safeguards in place to ensure the safety of the milk. According to a cross-sectional survey conducted in China, the majority of postpartum women are encouraging and more willing to provide milk than to receive it. The major reasons why postpartum women choose not to donate or accept donor milk are a lack of understanding about milk banks and safety concerns (Zhang *et al.*, 2020).

Cultural beliefs, religion and safety of breast milk in HMBs affected the attitude towards the donated milk among refugee women in rural region of Turkey (Varer Akpinar *et al.*, 2022). Therefore, before initiation of the donor milk bank program, awareness should be created to dispel misconceptions about its safety and also mothers be informed about the benefits (Gelano *et al.*, 2018).

## **2.7 Factors That Would Promote Donation and Use of the Donated Human Milk**

Donated human milk (DHM), being the best alternative when the mother's own milk (MOM) is not available, is therefore supposed to be in adequate supply from the mothers who have surplus and voluntarily donate. Also, the recipients should be able



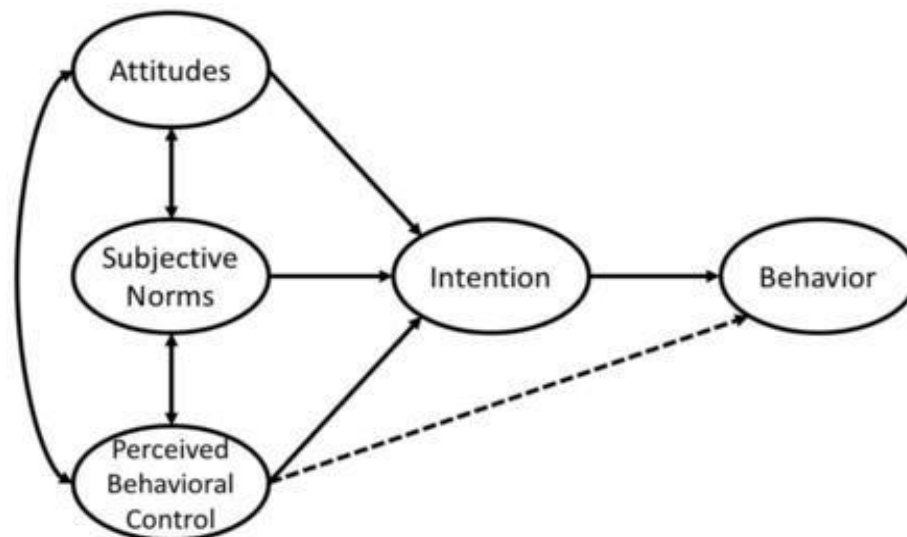
to get the milk without the mothers being skeptical about it.

Findings in a cross-sectional survey in Wuhan hospitals in China indicated that it was important to enhance public awareness regarding human milk banks as a potential resource for life saving therapy for the pre-terms. And also, health education to pregnant women to include the importance of human milk as well as the alternative and safety of donor milk from the milk banks (Zhang *et al.*, 2020).

Health care professional involvement in terms of education and attitude towards HMB could potentially have a far reaching positive influences on increasing the number of donors(Bhoola and Biggs, 2021). And also for effective implementation there will be need to educate people on milk donation and banking (Ogundele, Ogundele and Bello, 2022).

## 2.8 Theoretical Framework

The Theory of Planned Behavior (TPB), created by Icek Ajzen in 1991, is used in this study. Utilizing this approach, behavior can be understood and predicted. Intentions shape behaviors, which in turn are influenced by attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). All this will influence a person's intentions.



**Figure 2.1: Theory of planned behavior model**

**Source: Adopted from Ajzen**

The theory of planned behavior (TPB), is subdivided into 5 constructs.

- b. Attitude, which is the degree in which a person has a favorable or unfavorable evaluation of the behavior of interest. In this study it is about the willingness of the mothers to donate and use the donated human milk.
- c. The behavioral intention which is the motivational factor that will influence a given behavior. Where the intention to perform a behavior is stronger, the more likely the behavior will be performed. Mothers who had knowledge and awareness about milk donation and banking were 2.33 times more likely to donate and use DHM compared to those who were not aware of milk donation and banking (Ahmed *et al.*, 2022).
- d. Subjective norms and social norms: They are individual perceptions about a particular behavior and may be influenced by significant others or practices. A study by Leila
- e. Doshmangir (2021) showed that perceptions by family and friends regarding human milk donation and banking, were among the critical factors that influence mothers' decision to donate or use the donated milk. Husbands' disagreement with milk donation and use can significantly decrease donation and use of the milk from the milk banks. Religion and cultural beliefs were significant factors influencing human milk donation and use (Doshmangir, Naghshi and Khabiri, 2019).
- f. Perceived power, which is the presence of factors that may facilitate or impede performance of behavior. Lack of awareness on donated human milk, its benefits, screening methods and storage are barriers that could be addressed through improved health education (Mogwan, Burgoine and Ogara, 2020).
- g. Perceived behavioral control which is the person's perception of the ease or difficulty in performing the behavior of interest. Maternal education during pregnancy is a central, influential and crucial factor for preparing mothers for

milk donation and use in the future (Doshmangir, Naghshi and Khabiri, 2019).

- i. In conclusion, the theory of planned behavior, helps us to understand that when an individual believes that suggested behavior is positive, and that the significant other would support their action (subjective norm), then the intention or the motivation would be greater especially if factors that would facilitate that behavior will be put in place (perceived power) and the individual is more likely to perform the behavior.
- ii. In this study the model helped to assess mother's willingness to donate and use the donated human milk, the hindrances and facilitators to human milk donation and use. From this any gaps would be identified and appropriate measures put in place to ensure sustainability of milk donation and its use.

## 2.9 Conceptual Frame Work

The study variables included independent variables which were the demographic factors like age, parity, level of education, the number of visits to ANC clinic and socio-economic status. Cultural and religious beliefs together with health status had an effect on the mother's perception and practice on human milk donation and banking. This affected the willingness to donate and use the donated human breast milk. The conceptual framework showed the relationship.

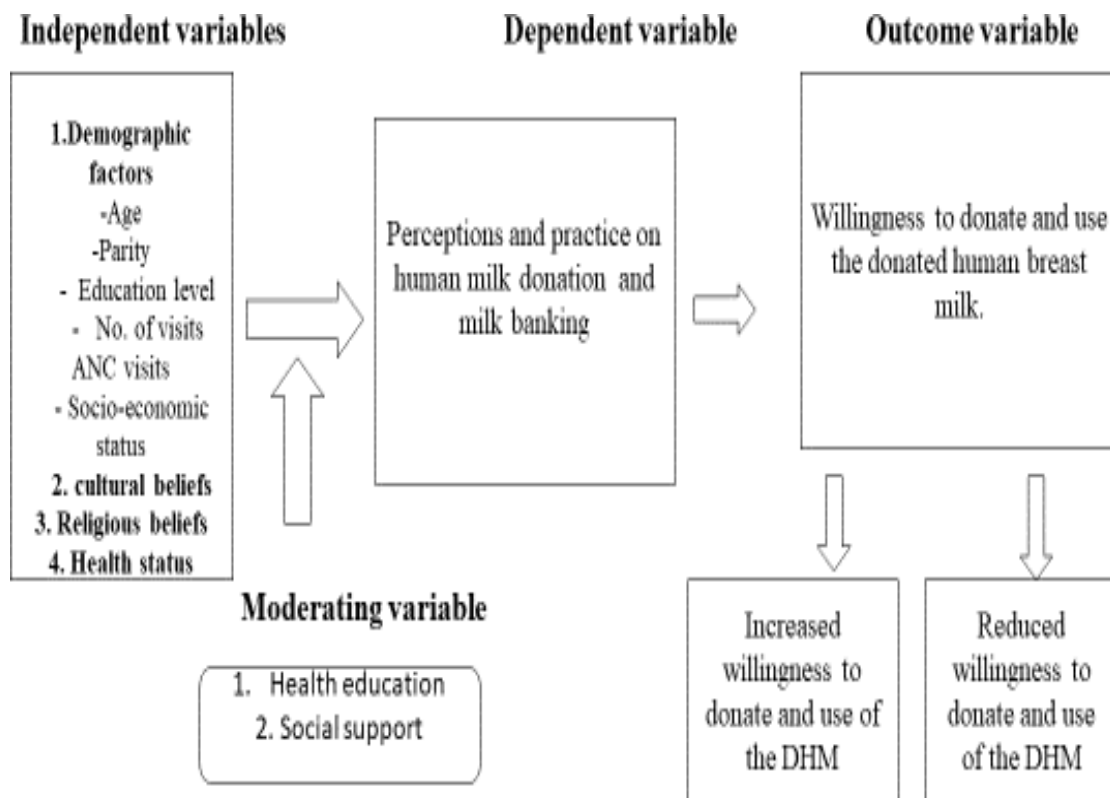


Figure 2.2: Conceptual framework

## **3.0 CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter provides an overview of the research methodology, including the research design, study site, population under study, sampling strategy, and methods for gathering and managing data. Additionally, it draws attention to the study's restrictions and boundaries as well as its presumptions and ethical considerations.

### **3.2 Study Design**

This study adopted a descriptive cross-sectional design. It utilized a mixed methods approach where both qualitative and quantitative data were obtained. It assessed the perceptions and practices of the antenatal mothers at Pumwani Maternity Hospital on human milk donation and milk banking. Quantitative data was collected using a structured administered questionnaire while the qualitative data was collected using a focused group discussion guide.

### **3.3 Study Site**

The study was carried out at Pumwani Maternity Hospital (PMH), a referral maternity facility east of Nairobi City and located in Nairobi County. The largest hospital in Kenya with a focus on maternity and newborn care is this one. It is also East Africa's biggest maternity facility. The hospital aspires to become a self-sufficient, effective maternity facility that offers all expectant moms the full range of maternity care that they require. At the moment, it serves as a referral hospital for pregnant mothers in Nairobi and surrounding districts. It contains 2 theaters, 354 obstetric beds, and 144 baby cots. Daily normal deliveries were about 50-100 and caesarean sections were about 10-15 daily. The average number of babies in the Newborn unit is 90 with half of these babies being admitted with prematurity. The study will take place at the Antenatal clinic which serves an average of 30 mothers per day. Most of Nairobi's low-income and informal settlements, as well as those in the neighboring counties, were encompassed in Pumwani Hospital's catchment area.

### 3.4 Study Population

The study population was the antenatal mothers attending Pumwani Maternity Hospital antenatal clinic. The clinic served an average of 30 antenatal mothers per day.

#### 3.4.1 Inclusion Criteria

- a. Mothers coming for antenatal clinic visit at Pumwani Maternity Hospital.
- b. Mothers attending antenatal clinic who consent to participate in the study

#### 3.4.2 Exclusion Criteria

- a. Antenatal mothers with medical, surgical or gynecological conditions.
- b. Mothers who did not consent to participate in the study.

### 3.5 Sample Size Determination

Sample size of the participants was calculated using the Fischer's Formula where by

$$N = \frac{Z^2 p}{d^2}$$

N = desired sample size when population was > 10,000

Z = normal standard deviation at desired confidence interval taken at 95%=1.96

p = Proportion of population with the desired characteristics (50%) was used

(1-p) is the proportion of the population without desired characteristics.

d = Degree of precision at 5%

$$n = \frac{(1.96)^2 (0.5) (0.5)}{(0.05)^2}$$

$$= 384.16$$

$$= 384.16$$

$$n = 384$$

From the ANC service monthly report 2022, the number of mothers seen throughout the year was 7,104 mothers both new visits and revisits with an average of 592 ANC mothers seen in a month.

So  $n_f = n$

$$1 + n/N$$

$$N_f = 384 / (1 + 384/592)$$

$$= 384 / (1 + 0.65)$$

$$= 384 / 1.65$$

$$= 232.7$$

Therefore, target participants were 233

### **3.6 Sampling Technique**

For quantitative data, systematic random sampling was used and every 2<sup>nd</sup> mother was offered an opportunity to be included in the sample as long as they meet the inclusion criteria and they consent. The sampling interval used was the study population of three hundred mothers, divided by targeted participants (sample size) of one hundred and sixty-eight mothers, where you will get two. So, every 2<sup>nd</sup> mother in the queue was eligible to participate in the study. This was done until the desired sample size of 233 participants was achieved.

For qualitative data, purposive sampling was used to select the participants in the focused group discussions. It included mothers with diverse characteristics like those who have come for their first visit, those who were revisiting, and mothers who had had babies before, primi gravida, different age groups. This was to ensure there was wide variety of views on the study topic, and will help to get the in-depth perceptions and practices of the mothers on milk donation and banking. Those mothers who met the inclusion criteria and gave consent were included in the study.

### **3.7 Data Collection Tools**

The researcher used a structured administered questionnaire that was used to collect the quantitative data. It was administered to the participants and asked to fill in their responses. Those not able to do it by themselves were assisted by the researcher or the research assistants to read the questions and they mark the answers given by the participants. For qualitative data, a focused discussion group interview guide was used to get an in-depth view on the study topic.

The questionnaire and the focused group discussion guide were adopted from a study by Murage- Kimani, et.al. (2019) on the perceptions on donated human milk and human milk banking in Nairobi County, Kenya. It was conducted in health facilities and community level between December and August 2016. This was because it helped to answer the research questions in this study and was able to meet the objectives. It was just modified a bit to make the questions more qualitative.

#### **3.7.1 Reliability and Validity of the Tools**

This study used a tool that had been previously been pre-tested and already validated. And through the feedback from my supervisors the tools were able to meet the objectives in my study. Pretesting was done among eligible participants (mothers with children below 3 years) in the outpatient department of each of the study facility, namely Mama Lucy Kibaki Hospital, Kenyatta National Hospital, Gertrude's children hospital in Muthaiga and Lavington clinics before commencement of data collection.

#### **3.7.2 Training of the Research Assistants**

There was a two days training of two research assistants, selected from BScN Nursing students from the University of Nairobi. This training engaged the assistants on what the study was all about and the role they were supposed to take to ensure that quality data was obtained. They assisted in data collection from the participants and also to guide the participants while answering the questionnaire. They were monitored by the researcher to ensure that quality data was collected.



### **3.7.3 Recruitment and Consenting Procedure**

The principal investigator recruited mothers who had come for their antenatal visit. Recruitment started by creating rapport and explaining to the mother about the study while at the triage, then let the mothers be attended to. After health care services, those who met criteria and had earlier agreed to participate were again explained to about the study, the aim, the benefits, the risks, confidentiality and were allowed to give a verbal and also sign an informed consent.

For the focused group discussion, it included those mothers who were not among the sample yet met the inclusion criteria. Mothers with diverse characteristics were sampled and were informed that the discussion would be audio-recorded. They were required to give a verbal and written informed consent before participation in the study. They were then put in 3 groups of 7-8 participants. Research assistants were required to help in explaining to the mothers about the study, and also helped in filling in responses on the questionnaire for those who were unable to do it by themselves.

### **3.8 Data Collection Procedures**

For quantitative data structured questionnaires was administered to every 2nd person who had signed the consent form. Those eligible but unwilling to participate were replaced by the next 2nd person until the sample size was obtained. The questionnaire was in English and Kiswahili and the participant could choose the language they were most comfortable with. The researcher and the assistants helped the participants to ensure that the questionnaire was completely filled.

The questionnaire aimed at assessing the perception and practice of the mothers on human milk donation and banking. It had 5 sections. Section A to obtain the demographic data, Section B was on awareness on human milk donation and banking, C will assess the mothers views and practice on donation and the use of DHM, D assessed the hindrances to milk donation and use and E assessed the factors that would promote milk donation and the use of the donated milk. Data was then checked for completeness before releasing the study participants.

For qualitative data a focused group discussion of 6-8 mothers with diverse characteristics like age, parity, and religion was conducted by the researcher who is a master's student in midwifery and obstetrics nursing in one of the rooms at MCH in 3 groups. Participants were seated in a semicircle and at least 1 meter from each other ensuring Covid 19 protocols were followed. With the help of an FGD guide, Open ended questions were asked in all the 5 sections and participants allowed to give their opinions as the audio recording continues. The data was collected in both English and Kiswahili depending with the language a participant is comfortable with. A field diary was also used to document the happenings and to also write some reflective notes that would inform final data analysis and interpretation. Data was conducted in 2 weeks until the sample size was achieved.

### **3.9 Quality Assurance**

In order to produce a consistent and a reliable data, the researcher ensured that the research assistants were well trained on data collection. Also, before releasing the participants after filling in the questionnaires, data was checked for clarity and completeness.

### **3.10 Data Management, Analysis and Presentation**

#### **3.10.1 Quantitative Data Analysis**

Data from the closed-ended questions was coded first to verify accuracy, entered into the computer, cleaned, and validated using the latest version of the Statistical Package for Social Sciences (SPSS). A password was used to restrict computer access for the sake of confidentiality, and each questionnaire was assigned a serial number. There was a descriptive analysis on the demographic data for the participant's characteristics to show the distribution, it will be done in form of frequencies, mean and standard deviations as a measure of central tendency and spread e.g. Those in the same age group, parity, level of education, number of ANC visited etc. Analysis on awareness of on human milk donation and banking showing the number of participants who have heard about it and perhaps have participated in it, and from the different sources where they got the information from. Mother's willingness to donate and use the donated milk

was also analyzed, those who were willing to donate and use the donated milk and those who were unwilling, was analyzed in frequencies and percentages. Factors that hindered the donation and use of the donated milk were listed and described in form of percentages. Factors that the participants perceived to promote donation and use of the DHM were also highlighted and put in form of figures and percentages. Bivariate logistic regression analysis, at 5 % significance level was applied in assessing associations of the various identified factors and the willingness for donating and use of the donated human milk among the respondents. Tables, pie charts and bar graphs were used to present the analyzed data.

### **3.10.2 Qualitative Data Analysis**

This analysis was conducted by the researcher who is a master's student in midwifery and obstetric nursing at university of Nairobi. The audio recorded discussion was transcribed verbatim and translated in English (where applicable) and then saved in word files. Thematic data analysis approach was used in processing the data, whereby followed the six-step framework by Braun and Clarke (2013) and also as outlined by Kamau (2020). This approach was useful in identifying patterns within the qualitative data.

The first step was the researcher familiarizing themselves with the data, that is the participant's opinions on milk donation and milk banking, their views and practice on milk donation and use of the donated breast milk, the hindrances to milk donation and its use, and the factors that would promote milk donation and use of the donated milk. It involved reading and re-reading the transcripts, listening to the audio-recorded data and writing down the initial impression.

The second step is where by the researcher identified items of analytical interest in the data and give them a coding label e.g., responses on why mothers would donate milk or hindrance to donation and use of donated milk gotten from different participants. The researcher decided on the codes or some shorthand labels that well described their content and each code expressed an idea or certain opinions. The third step was generating themes by summarizing information on a particular domain, where by there is a shared meaning across the data collected. Like some of the hindrances to milk

donation may come out as because of fear of disease transmission, fear that the donating mothers were not clean etc. The fourth step was reviewing themes and this was where the researcher ensured that the themes were useful and were an accurate representation of the data. It involved going back to the data and see if anything was missed on what mothers think about milk donation and banking, the hindrances and factors that would promote human milk donation and its use. Just to confirm that the themes generated were what was in the data.

The fifth step was defining and naming themes, it involved formulating what each theme mean and how it helps us in understanding the data, like when the participants talk of fear of donating mothers not being clean, a theme of hygiene concerns may apply. And finally, the sixth step was undertaking the analysis based on the developed themes from the participant's responses. The findings were summarized according to the themes identified, percentages were used for every theme that emerged e.g., for the identified hindrance to use of the donated milk or to milk donation.

### **3.11 Dissemination of Findings**

A comprehensive report was written to include all the findings, conclusions and recommendations and it shall be disseminated to various stakeholders including the University of Nairobi, Pumwani Maternity Hospital Management, and Mother and Child Health clinic staff. The obtained information shall also be published in medical and nursing journals and also shared in scientific conferences.

### **3.12 Ethical Considerations**

The principal investigator obtained ethical clearance of the study from Kenyatta National Hospital-University of Nairobi Ethics and Research committee (KNH/UoN-ERC). Permission was sought from Pumwani Maternity Hospital administration, and also from the in-charge of the antenatal clinic in the hospital. Consent was sought from the study participants, to whom the purpose of the study was explained to and participation was voluntary and not from any form of coercion or enticement. Participants gave verbal and written consent by signing or providing a thumb print on the consent form. Participants were also informed that they could withdraw from the study

anytime if they felt uncomfortable to continue with the study. Confidentiality and privacy were observed and the data was obtained only for the purpose of the research only. Participants were assured that there was no risk associated with them participating in this study and they would even be able to gain more insight about the topic as any questions they had were addressed.

### **3.13 Study Limitations and Delimitations**

This study was conducted in a facility where there was a milk bank already and the results may not fully represent perceptions in other areas where they did not have a milk bank in place though the findings would help to know how to go about advocating for human milk donation and banking in many other facilities across the country as more milk banks continue to be put up. The fact that the questionnaires and the focus group discussions were conducted after the mothers had been attended to, some mothers were impatient and wanted to leave immediately, though with proper explanation about the study and voluntariness in participation, it helped them spare their time for the purpose of the study.

### **3.14 Study Assumptions**

- a. The participants were truthful in their answers
- b. The participants who had heard or participated in milk donation and use, had more ideas and also were eager to learn more.

## **CHAPTER FOUR: RESULTS**

### **4.1 Introduction**

This chapter presents results of the study as set out in the research methodology. The results relate to the perceptions and practice on human breast milk donation and milk banking amongst antenatal mothers at Pumwani Maternity Hospital. The chapter begins with highlighting the response rate. It then provides results on the respondents' demographic characteristics before outlining the findings based on the research objectives.

#### **4.1.1 Response Rate**

An aggregate of 233 antenatal mothers attending Pumwani Maternity Hospital's antenatal clinic were targeted as respondents. From the questionnaires administered, the researcher was able to obtain adequate responses from 219 of the mothers translating into a response rate of 94%. The remaining 14 mothers were excluded from the final analysis on account of availing incomplete data. The response rate was deemed to be illustrative and appropriate as it conformed to Pandey and Pandey (2021) provision that an acceptable rate of response that is adequate to be analyzed and reported should be at least 50%, with rates of 70% and above considered as excellent.

#### **4.2 Demographic Characteristics of the Respondents**

The study sought to establish the demographic profile of the respondents. The demographic attributes considered were age, marital status, education level, religion, occupation, number of children and number of antenatal clinic visits made.

According to the results, majority of the mothers were aged 21 to 39 years, with 55.7% (n = 122) aged 21 - 30 years while 37.4% (n = 82) were aged 31 - 39 years. Most (80.4%, n = 176) of the mothers were married. On education level, 47% (n = 103) had Secondary education while 38.8% (n = 85) had been to college/university. Majority (96.3%, n = 211) of the mothers were Christians. On occupation, half (50.2%, n = 110) were self-employed while a third (32.9%, n = 72) were unemployed. Further, majority of the mothers had 1-3 children (95.4%, n = 209) and most had attended less than 4

antenatal clinic visits (65.8%, n = 144). Results are outlined in Table 4.1.

**Table 4.1: Respondents' demographic characteristics**

		<b>Frequency</b>	<b>Percent</b>
Age (in years)	≤ 20 years	9	4.1
	21 - 30 years	122	55.7
	31 - 39 years	82	37.4
	40 years and above	6	2.7
	<b>Total</b>	<b>219</b>	<b>100.0</b>
Marital status	Single	37	16.9
	Married	176	80.4
	Separated	6	2.7
	<b>Total</b>	<b>219</b>	<b>100.0</b>
Education level	Primary	31	14.2
	Secondary	103	47.0
	College/University	85	38.8
	<b>Total</b>	<b>219</b>	<b>100.0</b>
Religion	Christian	211	96.3
	Muslim	8	3.7
	<b>Total</b>	<b>219</b>	<b>100.0</b>
Occupation	Self-employed	110	50.2
	Formally employed	7	3.2
	Casual	30	13.7
	Unemployed	72	32.9
	<b>Total</b>	<b>219</b>	<b>100.0</b>
Number of children	1 - 3	209	95.4
	4 and above	10	4.6
	<b>Total</b>	<b>219</b>	<b>100.0</b>
Number of antenatal clinic visits made	< 4 times	144	65.8
	4 times and above	75	34.2
	<b>Total</b>	<b>219</b>	<b>100.0</b>

### 4.3 Awareness of Human Breast Milk Donation and Milk Banking among the Respondents

The study assessed the awareness of human breast milk donation and milk banking among the antenatal mothers at Pumwani Maternity Hospital. Results are presented in the subsections.

#### 4.3.1 Respondents' Awareness on Human Milk Donation

The respondents were queried on whether they had ever heard of mothers who donated milk to be fed on another child other than their own. From the findings, 54.3% (n = 119) indicated that they had never heard of mothers who donated milk to be fed on another mother's child while 45.7% (n = 100) said they had heard of such cases.

Among the 100 mothers who indicated as having heard of mothers who donated milk to be fed on another mother's child, the mothers said they had heard it from health workers (50%, n = 50), friends (28%, n = 28), social media (16%, n = 16) and mass media (6%, n = 6), as illustrated in Table 4.2.

**Table 4.2: Respondents' awareness on human milk donation**

		<b>Frequency</b>	<b>Percent</b>
Ever heard of mothers who donate milk to be fed on another mother's child?	Yes	100	45.7
	No	119	54.3
	<b>Total</b>	<b>219</b>	<b>100.0</b>
If yes, heard it from?	Health worker	50	50.0
	A friend	28	28.0
	Social media	16	16.0
	Mass media (TV or Radio)	6	6.0
	<b>Total</b>	<b>100</b>	<b>100.0</b>

Further, the respondents were asked whether they had seen children who were fed on donated human milk and if so the reason as to why the child was fed on donated human milk.



From the findings, majority (75.8%, n = 166) of the mothers indicated that they had never seen a child or children who were fed on donated human milk. However, among the 53 mothers who had seen a child being fed on donated human milk, the primary reason why the child was fed on donated human milk was because the child’s mother had died, as is outlined in Table 4.3.

**Table 4.3: Respondents’ awareness on human milk donation**

		<b>Frequency</b>	<b>Percent</b>
Ever seen a child who was fed on donated human milk?	Yes	53	24.2
	No	166	75.8
	<b>Total</b>	<b>219</b>	<b>100.0</b>
If yes, why was the child fed on donated human milk?	Mother died	44	83.0
	Mother not available to breastfeed	6	11.3
	Mother had no enough milk	3	5.7
	<b>Total</b>	<b>53</b>	<b>100.0</b>

**Theme: Low awareness of human breast milk donation**

Low awareness of human breast milk donation emerged as the first theme in relation to respondents’ awareness of human breast milk donation and milk banking. This theme signified that the respondents had inadequate knowledge/awareness of the concept of human breast milk donation and banking. Sentiments on the low awareness on human breast milk donation among the antenatal mothers attending Pumwani Maternity Hospital were also evident from the FGD responses as is enumerated in the ensuing few verbatim quotes;

“--- I have never heard of anything about that (*referring to human milk donation*). Are you sure that mothers can donate their own breast milk for other babies to take. Waoh, that’s new to me.” (Pa04)

“I am hearing about it (*referring to human milk donation*) here for the first time” (Pa07)

“I have never heard or even seen a mother donating her breast milk? I have never also seen a child being given human milk from someone else apart from their own mother.” (Pb01)

“Personally, I have also never heard nor seen any women donating their breast milk to a hospital or any organization for that matter. I am surprised to hear such an initiative exists” (Pb05)

“I have never heard about it, all I know is that, for mothers that die or for whatever reason are not able to breastfeed their newborns, the newborns are given fresh cow milk. I am hearing of it (*referring to human milk donation*) for the first time here from you.” (Pc03)

“I have never heard of it (*referring to donating of one’s breast milk*), I have heard it today as you were introducing it here.” Pb03)

“That’s new to me. I have not heard of it (*referring to donation of human breast milk*) previously. I am learning of it from you.” Pc02)

“Mothers donating their own breast milk to other mothers’ babies? No, I have never heard about that.” (Pc08)

However, some, albeit fewer, of the antenatal mothers participating in the FGDs indicated that they had heard about human milk donation as is illustrated in the following few verbatim excerpts;

“It is during my use of social media that I saw a human milk bank. In the video, nurses were helping a mother feed her child using donated human milk. That is how I came to know of it.” (Pa03)

“I was told about existence of donated human milk which is available for babies whose mothers are not able to breastfeed when my baby was admitted here in the newborn unit” (Pb02)

#### **4.3.2 Respondents’ Awareness on Human Milk Banking**

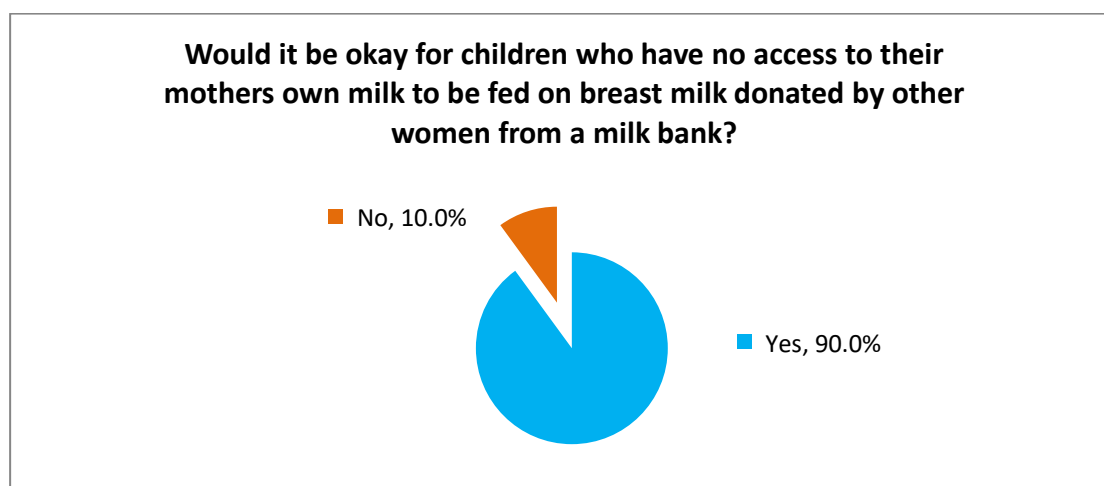
The respondents were asked whether they had ever heard of a human breast milk bank. From the findings, a significant proportion of the mothers indicated that they had never heard of a human breast milk bank (64.4%, n = 141). However, of the 78 mothers who indicated as having heard of a human breast milk bank, most had learnt of it from hospital (52.6%, n = 41) or from a friend (32.1%, n = 25). This is illustrated in Table 4.4.

**Table 4.4: Respondents' awareness on human milk banking**

		<b>Frequency</b>	<b>Percent</b>
Ever heard of a human breast milk bank?	Yes	78	35.6
	No	141	64.4
	<b>Total</b>	<b>219</b>	<b>100.0</b>
If yes, learnt about human milk banking from?	Hospital	41	52.6
	A friend	25	32.1
	Social media	6	7.7
	Mass media (TV or Radio)	6	7.7
	<b>Total</b>	<b>78</b>	<b>100.0</b>

#### **4.3.3 Respondents' View on Appropriateness of Human Breast Milk Donation**

The respondents were asked their opinion on whether it would be okay for children who had no access to their mothers' own milk to be fed on breast milk donated by other women from a milk bank. From the findings, majority (90%, n = 197) of the mothers said it was okay while 10% (n = 22) held contrary opinion, as shown in Figure 4.1.



**Figure 4.1: Respondents' view on appropriateness of human milk donation**

Further, the respondents were asked to highlight circumstances under which they thought it would be okay for children to be fed on donated human milk from a milk bank.

From the findings, the two most prevalent circumstances identified as being appropriate for a child to be fed on donated human milk from a milk bank, according to the participants, were when the baby was orphaned or abandoned cited by 75.8% (n = 166) of the respondents and when the baby was born premature and the mother did not have enough milk as cited by 54.3% (n = 119) of the respondents. Results are shown in Table 4.5.

**Table 4.5: Respondents’ views regarding circumstances on when a child should be fed on donated human milk from a milk bank**

<b>Circumstances highlighted</b>	<b>Frequency</b>	<b>Percent</b>
When the baby is born premature and mother do not have enough milk	119	54.3
When the mother is sick	66	30.1
When the mother is unavailable to breastfeed	63	28.8
When the baby is orphaned or abandoned	166	75.8

***NB: Multiple responses were allowed for the question***

**Theme: Appropriate circumstances for use of donated human milk**

Appropriate circumstances for use of donated human milk emerged as the second theme in relation to respondents’ awareness of human breast milk donation and milk banking. This theme signified the participants’ views as to the circumstances when a baby should be fed on donated human milk. From the findings, the study participants were in support for children not able to benefit from their own mothers’ breast milk, such as the orphaned and those whose mothers had severe difficulties producing sufficient milk, to be fed with donated human milk as is outlined in the ensuing verbatim quotes;

“I think it (meaning use of donated human breast milk) is appropriate especially for babies whose moms die during child birth or those abandoned by their mothers after birth.” (Pb07)

“I also agree that use of donated human milk can be considered a good way of feeding newborns and young children whose mothers have serious breastfeeding challenges.” (Pa03)

“I think it makes sense (*referring to a child being fed with donated*

*human milk*) more so for those whose mothers die and hence are left orphaned.” (Pb04)

“I support the view that feeding a newborn with donated human milk is not a bad thing provided it is done in a safe environment and for the right reasons such as when a child’s mother is not available for purposes of breastfeeding the child.” (Pb02)

“Definitely, if a child’s mom dies or for whichever reason is not able to breastfeed the child, i think I am okay with such a child being fed with donated human milk if it’s available.” (Pb03)

“Why not, as long as it is done for the right reasons, I think it is okay. But women should not abuse this initiative. You know some women are very lazy that even breastfeeding their own child becomes a problem. Such should not be allowed to benefit from this program.” (Pc05)

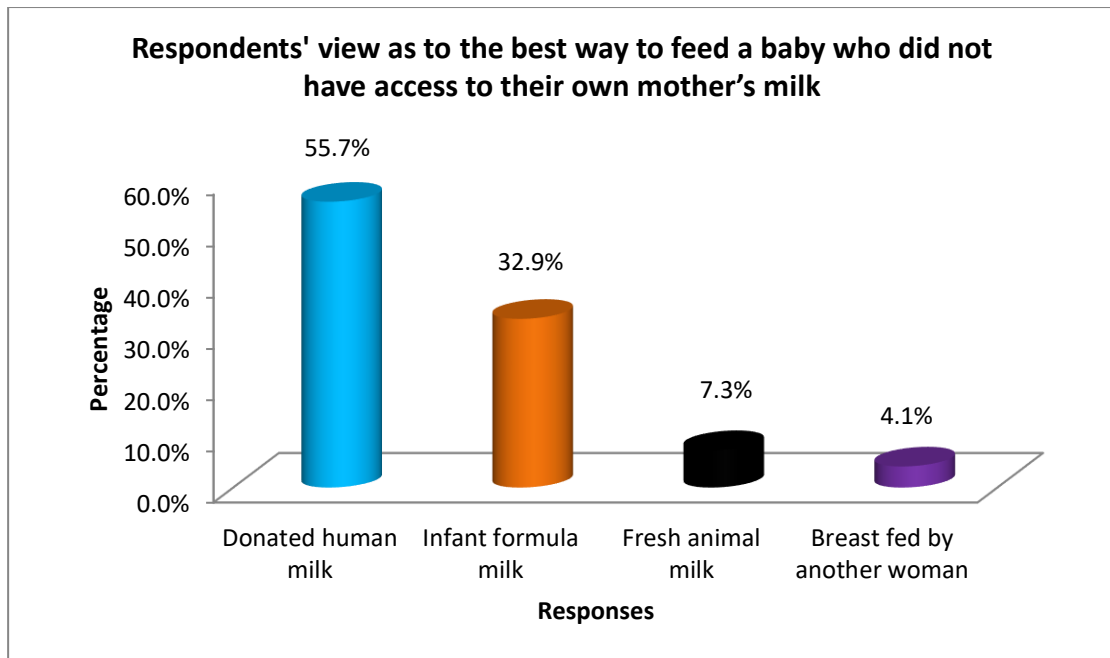
“As a mother myself, anything that improves the wellbeing of my child and all children in general is welcome. So, I do not see any problem with babies using donated human milk provided all measures are taken to ensure it is safe for their consumption.” (Pc05)

“I also agree that feeding babies with donated human milk is appropriate particularly for babies who are orphaned by their mothers or those whose mothers have difficulties producing sufficient milk for them. I think I would support its use in such situations.” (Pc04)

#### **4.3.4 Respondents’ Views on the Most Appropriate Way to Feed a Baby Who Had No Access to their Own Mother’s Milk**

The respondents’ opinion as to the best way to feed a baby who did not have access to their own mother’s milk was sought.

From the findings, the mothers’ response as to the best way to feed a baby who did not have access to their own mother’s milk included using donated human milk (55.7%, n = 122); using infant formula milk (32.9%, n = 72); using fresh animal milk (7.3%, n = 16) and being breastfed by another women (4.1%, n = 9). The results are demonstrated in Figure 4.2.



**Figure 4.2: Respondents' view on the most appropriate way to feed a baby who did not have access to their own mother's milk**

#### **4.4 Willingness to Donate Human Breast Milk among the Respondents**

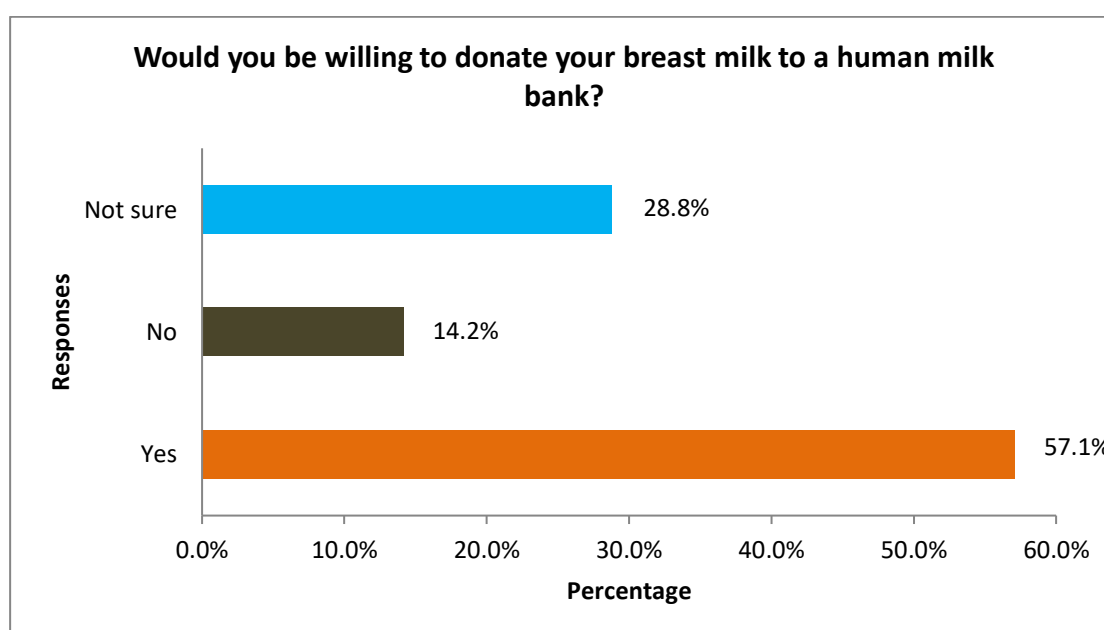
The study assessed the willingness to donate human breast milk among antenatal mothers at Pumwani Maternity Hospital. Results are described in the subsequent subsections.

##### **4.4.1 Whether the Respondents had ever donated their Breast Milk**

The respondents were asked whether they had ever donated their breast milk. From the findings, (99%) of the participants indicated that they had never donated their breast milk. The major reasons cited by the respondents for having not donated their breast milk included having never heard about human breast milk donation, being opposed to the concept of human milk donation, having not being given the chance to donate, having never come across or seen a mother donating her breast milk, not having excess milk for donation, considering it as being inappropriate due to health concerns and this being their first pregnancy. However, one participant out of the 22 from the FGD said she had donated milk once when her child was admitted at the new born unit at Pumwani Maternity Hospital.

#### 4.4.2 Respondents' Willingness to Donate their Breast Milk

The respondents were asked whether they would be willing to donate their breast milk to a human milk bank. From the findings, most (57.1%, n = 125) of the mothers indicated that they would be willing to donate their breast milk to a human milk bank. However, 28.8% (n = 63) said they were unsure while 14.2% (n = 31) were certain they would not be willing to donate their breast milk to a human milk bank, as is demonstrated in Figure 4.3.



**Figure 4.3: Whether the respondents would be willing to donate their own breast milk**

#### **Theme: Open to donating own breast milk**

Being open to donating one's own breast milk emerged as the overarching theme in relation to the respondents' willingness to donate human breast milk. Findings from the focus group discussions demonstrated that a significant proportion of the antenatal mothers at Pumwani Maternity Hospital would be willing to donate their own breast milk to a milk bank as evident in the following verbatim excerpts;

“I would be willing to donate my breast milk if called upon, any time.” (Pa04)

“I also agree that I would donate my breast milk to support a child in need. I would gladly donate for such a worthy cause” (Pc06)

“If I have more than enough for my baby, why not. I would give my own milk for use on other babies not able to receive it from their own mothers.” (Pa06)

“Given the chance and if am able to, I would happily volunteer myself to donate my own breast milk. It is even more fulfilling if by so doing you save the life of another child or make the child’s growth and development better than it would have been without the milk.” (Pc06)

“I too would be happy to offer my own breast for use by other babies. Why not, especially if I have more than my child requires...” (Pc02)

“I think it is a noble cause. I would be happy to help in that way.” (Pb06)

“Sure, any time, as long as I am in a position to, I would donate my milk. What gain is there to have excess supply of milk for your child when others are suffering for lack of a mother’s breast milk?” (Pb05)

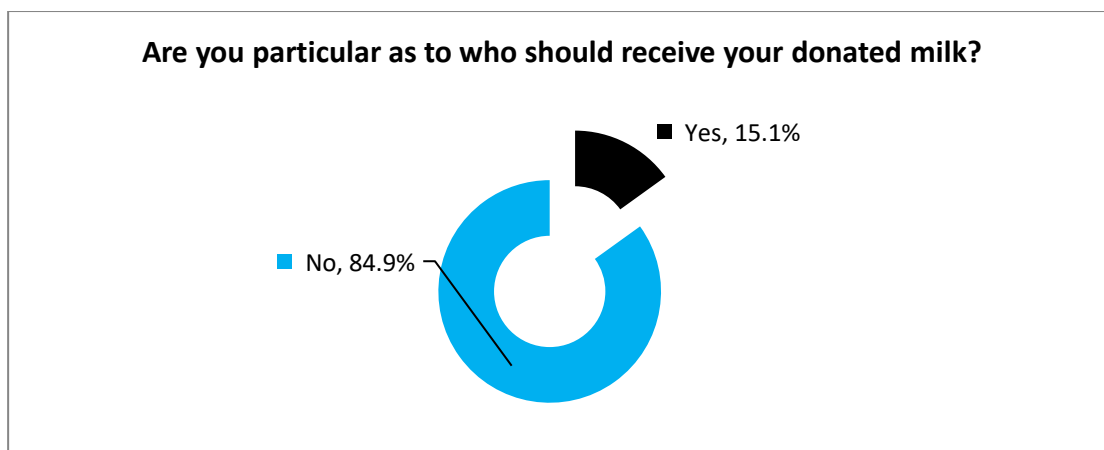
“If I am healthy and have more than enough for my baby, I would gladly donate the excess milk. You never know, it could save a life of another child.” (Pc07)

“I would be happy to donate only that I do not know how my spouse and other family members would react if they heard that I am donating my own breast milk to a milk bank.” (Pc03)

#### **4.4.3 Preference over Persons to Benefit or Not from Donated Breast Milk**

The respondents were asked whether they were particular as to who should receive their donated milk. From the findings, a significant proportion (84.9%, n = 186) of the mothers said that they were not particular as to who should receive their donated milk. Figure 4.4 illustrates the findings.





**Figure 4.4: Whether respondents were particular as to who should receive their donated milk**

Further, the respondents were requested to indicate who they would prefer to receive their donated breast milk. From the findings, it was apparent that an overwhelming majority (85.8%, n = 188) of the mothers would prefer any children who were in need of the donated human milk to be the recipients of their donated breast milk, as is illustrated in Table 4.6.

**Table 4.6: Who would you prefer to receive your donated breast milk?**

<b>Persons highlighted</b>	<b>Frequency</b>	<b>Percent</b>
A relative	38	17.4
A friend	28	12.8
People that I know	25	11.4
Any child who is in need of the donated human milk	188	85.8
People that I don't know	22	10.0
Members of my religion	19	8.7

Further, the respondents were requested to indicate who they would not want to receive their donated breast milk. From the findings, it was apparent that most (68.9%, n = 151) of the mothers had no reservations as to who should receive their donated breast milk as they indicated that anybody could receive their milk, as is depicted in Table 4.7.

**Table 4.7: Who would you not want to receive your donated breast Milk?**

<b>Persons highlighted</b>	<b>Frequency</b>	<b>Percent</b>
Anybody can receive my milk	151	68.9
People that I know	16	7.3
People that I don't know	41	18.7
Friends	9	4.1
Members of my religion	3	1.4

#### **4.4.4 Respondents' opinion as to which mothers should not be allowed to donate breast milk to a milk bank**

The respondents' opinion as to which mothers should not be allowed to donate breast milk to a milk bank was sought. According to the respondents, the mothers that should not be allowed to donate breast milk to a milk bank include those who were sick as cited by 51.6% (n = 113) of the respondents; with risky behavior (smoking, prostitution, alcohol) as cited by 70.3% (n = 154) of the respondents; those who were very old as cited by 34.2% (n = 75) of the respondents and those women with HIV as cited by 63% (n = 138) of the respondents. Table 4.8 illustrates the findings.

**Table 4.8: Respondents opinion on mothers that should not be allowed to donate breast milk to a milk bank**

<b>Persons highlighted</b>	<b>Frequency</b>	<b>Percent</b>
Women who are sick	113	51.6
Women with risky behavior (smoking, prostitution, alcohol)	154	70.3
Very young Women	12	5.5
Very old women	75	34.2
Women with HIV	138	63.0

*NB: Multiple responses were allowed for this question*

#### **4.5 Willingness to Use Donated Human Breast Milk on their Babies**

The study assessed the willingness to use donated human breast milk on their babies

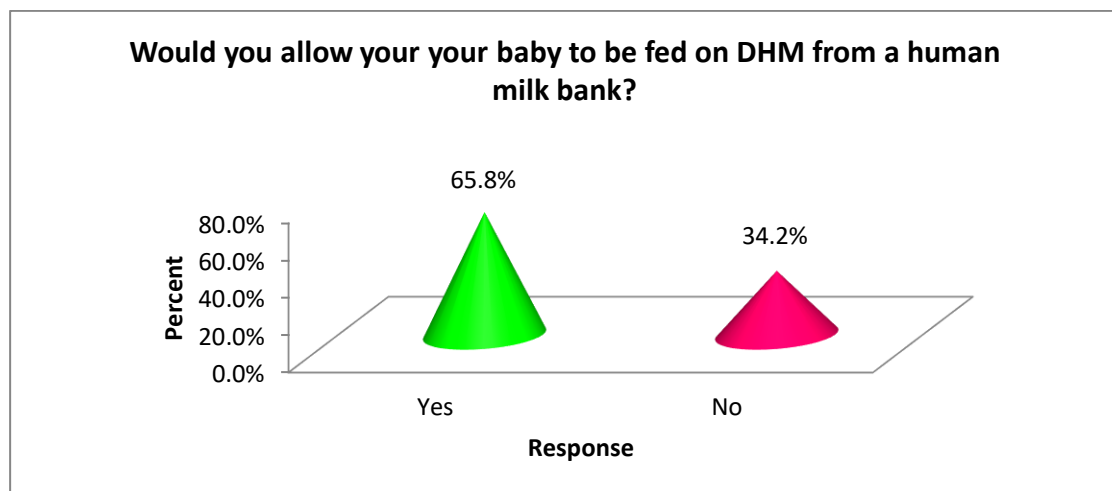
among antenatal mothers at Pumwani Maternity Hospital. Results are as described in the subsequent sub-sections.

#### **4.5.1 Whether the Respondents' Babies had ever Received Donated Breast Milk from a Milk Bank**

The respondents were asked whether their babies had ever received donated breast milk from a milk bank. From the findings, all (100%, n = 219) of the mothers indicated that their babies had never received donated breast milk from a milk bank.

#### **4.5.2 Whether the Respondents would allow their Babies to be Fed on Donated Human Milk from a Human Milk Bank**

The respondents were asked whether they would allow their babies to be fed on donated human milk from a human milk bank. From the findings, most (65.8%, n = 144) of the mothers indicated that they would allow their babies to be fed on donated human milk from a human milk bank as is depicted in Figure 4.5.



**Figure 4.5: Whether the mothers would allow their babies to be fed on donated human milk from a human milk bank**

The respondents were also queried as to which circumstances, they would allow their babies to be fed on donated breast milk. From the results, some of the circumstances in which some of the respondents would allow their babies to be fed on donated breast milk included if they were very sick as cited by 40.2% (n = 88) of the respondents; if

the doctor advised as cited by 51.1% (n = 112) of the respondents; if they were on medications that restricted breastfeeding as cited by 53% (n = 116) of the respondents; if they did not have enough milk for the baby as cited by 38.4% (n = 84) of the respondents and if they were not available as cited by 24.2% (n = 53) of the respondents. The findings are shown in Table 4.9.

**Table 4.9: Circumstances under which the respondents would allow their babies to be fed on breast milk donated by another mother**

<b>Circumstances highlighted</b>	<b>Frequency</b>	<b>Percent</b>
If I am very sick	88	40.2
If the doctor advises	112	51.1
If I am on medications that restricts breastfeeding	116	53.0
If I do not have enough milk for the baby	84	38.4
If I am not available	53	24.2

***NB: Multiple responses were allowed for this question***

**Theme: Hesitant to use donated human milk**

Hesitancy to use donated human milk emerged as the overarching theme in relation to the respondents’ willingness to use the donated human breast milk on their babies. This theme signified that the participants had hesitations over allowing their babies to use the donated human breast milk from the human milk banks. Findings from the participants in the focus group discussions showed hesitancy among the antenatal mothers with respect to allowing their babies to be fed with donated human milk from human milk banks for varied reasons as is enumerated in the following verbatim quotes;

“I think I would be very hesitant to allow my child to be fed with donated human milk. May be if I am very sick and cannot help it.” (Pa03)

“Personally, it is a no. why would I allow my child to be offered breast milk from another woman. Honestly, I do not see that working with me.” (Pb05)

“That (*referring to allowing her child feed on another woman’s donated breast milk*) would only happen in very exceptional circumstances such as if I was critically ill or I completely have no milk to breast feed my baby.” (Pa07)

“That is a no for me. Under no circumstance would I allow my child to be fed with another person’s breast milk” (Pa03)

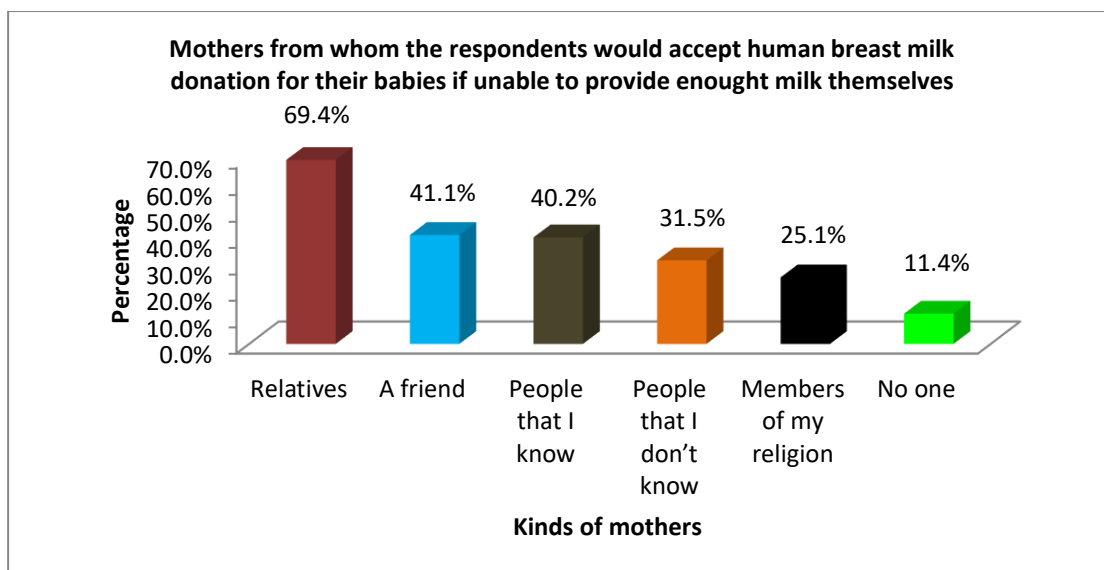
“For me, it would take a lot of persuasion to allow my child to be fed with breast milk from a human milk bank. It is hard to trust people, you know. So, I have my own reservations about it.” (Pb04)

“... only if I am very sick, under doctor’s strong recommendation or if I am unable to completely breastfeed. Maybe in only those circumstances can I see it happen with my child, else, it is a no.” (Pa03).

#### **4.5.3 Mothers from which the Respondents Would Accept Breast Milk from If Unable to Provide Enough Milk to their Babies**

The respondents were asked to identify the mothers from which they would accept breast milk from in case they were unable to provide enough milk or were unavailable to feed their own babies.

According to the results, the groups of women from which the respondents indicated they would be open to receive or accept breast milk from in case they were unable to provide enough milk or were unavailable to feed their own babies included relatives as cited by 69.4% (n = 152) of the respondents; a friend as cited by 41.1% (n = 90) of the respondents; people that they knew as cited by 40.2% (n = 88) of the respondents; people that they did not know as cited by 31.5% (n = 69) of the respondents and members of their religion as cited by 25.1% (n = 55) of the respondents. However, 11.4% (n = 25) of the respondents indicated that they would never accept human milk from any other woman for their babies under any circumstances (Figure 4.6).



**Figure 4.6: Kinds of mothers from which the respondents would accept breast milk from in case they were unable to provide enough milk for their own baby**

#### **4.6 Hindrances to Donation and Use of the Donated Human Breast Milk among the Respondents**

The study sought to identify the hindrances to donation and the use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital. Findings are as presented in the subsequent subsections.

##### **4.6.1 Hindrances to the Respondents Donating their Breast Milk to the Human Milk Banks**

The respondents were requested to highlight aspects that would prevent them from donating their breast milk to the human milk banks.

From the findings, the most prominent hindrances to donating human breast milk to the human milk banks among the study respondents were fear that their own babies won't have enough as cited by 60.3% (n = 132) of the respondents; being sick or in poor health status as cited by 50.2% (n = 110) of the respondents and personal dislike for human milk donation as cited by 23.3% (n = 51) of the respondents. Less prominent hindrances included the respondents' culture not allowing donation of breast milk as cited by 8.2% (n = 18) of the respondents and the respondents' religion not allowing milk donation as

cited by 5.9% (n = 13) of the respondents. The results are summarized in Table 4.10.

**Table 4.10: Hindrances to the respondents donating their breast milk to the human milk banks**

<b>Highlighted hindrances</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Fear that your own baby won't have enough	132	60.3
Your culture does not allow donation of breast milk	18	8.2
Personal dislike for human milk donation	51	23.3
Being sick/poor health status	110	50.2
Your religion does not allow milk donation	13	5.9

*NB: Multiple responses were allowed for this question*

#### **4.6.2 Hindrances to the Respondents Allowing their Child to Use Donated Human Breast Milk**

The respondents were requested to highlight attributes that would prevent them from allowing their babies to be fed with donated breast milk in case they were unable to provide their own breast milk to the babies.

From the findings, the most prominent hindrances to donating human breast milk to the human milk banks among the study respondents were fear of HIV transmission as cited by 67.1% (n = 147) of the respondents; fear of familial diseases as cited by 74.4% (n = 163) of the respondents; personal dislike as cited by 18.7% (n = 41) of the respondents; fear of negative influence on bonding between child and the biological mother as cited by 47% (n = 103) of the respondents; hygiene concerns as cited by 29.2% (n = 64) of the respondents; fear of transfer of genetic traits as cited by 31.5% (n = 69) of the respondents; members of the family opposing use of donated breast milk as cited by 33.8% (n = 74) of the respondents; it being against the respondents' religious beliefs as cited by 8.2% (n = 18) of the respondents and it being a culturally unacceptable practice as cited by 7.3% (n = 16) of the respondents (Table 4.11).

**Table 4.11: Hindrances to the respondents allowing their child to use donated breast milk**

<b>Highlighted hindrances</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Fear of HIV transmission	147	67.1
Fear of familial diseases	163	74.4
Personal dislike	41	18.7
Fear of negative influence on bonding between child and biological mother	103	47.0
Hygiene concerns	64	29.2
Fear of transfer of genetic traits	69	31.5
It is against religious beliefs	18	8.2
It is culturally unacceptable practice	16	7.3
Members of the family opposing use of donated breast milk	74	33.8

*NB: Multiple responses were allowed for this question*

**Theme: Obstructs to donation and use of donated human breast milk**

This theme signified the various attributes that impeded donation and the use of the donated human breast milk among the study participants. The same factors, as identified through the study questionnaire, were also reported by the FGD participants as hindering the mothers’ donation of their own breast milk and use of the donated human breast milk as is enumerated in the following select verbatim excerpts;

“I would be reluctant to donate my own breast milk because if fear my baby will not get enough to take once I donate.” (Pa6)

“I fear this whole thing about donating one’s own breast milk for other babies especially thinking of the discomfort pumping out milk” (Pa03)

“I strongly oppose the idea that a child should be fed with another woman’s own milk. What if the donor woman had serious ailments such as HIV and other blood line/hereditary conditions? I feel it is too risky a thing to do.” (Pc08)

“What would limit my willingness to donate my own breast milk to a human milk bank is being in poor health and when I am sure that if I give out my milk, my child will be left with inadequate supply.” (Pc04)



“I fear that my child would possibly get other diseases which were present in the milk’s donor mother.” (Pc04)

“For me, fear of HIV transmission to my baby or any other serious ailments would be major concern. Lack of support from my spouse and other family members would also discourage me from allowing my child to be fed with donated human milk.” (Pc03)

#### **4.7 Factors That Would Promote Donation and Use of the Donated Human Milk**

The study sought to identify the factors that would promote donation and use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital. Findings are as presented in the subsequent subsections.

##### **4.7.1 Factors That Would Promote Donation of Human Milk to the Milk Banks**

The respondents were requested to highlight attributes that would make them to be more willing to donate breast milk to the human milk banks.

From the findings, the factors that would promote mothers’ donation of breast milk to the human milk banks as highlighted by the respondents were educating mothers on the importance of donated human milk as cited by 96.8% (n = 212) of the respondents; if there was a form of compensation to the donors as cited by 30.1% (n = 66) of the respondents; if it was endorsed by the government as cited by 21% (n = 46) of the respondents and if it was endorsed by religious leaders as cited by 7.8% (n = 17) of the respondents. The results are presented in Table 4.12.

**Table 4.12: Factors that would promote donation of human milk to the milk banks**

<b>Identified factors</b>	<b>Frequency (n)</b>	<b>Percent (%)</b>
Educating mothers on the importance of donated human milk	212	96.8
If there was a form of compensation to the donors	66	30.1
If it is endorsed by religious leaders	17	7.8
If it was endorsed by the government	46	21.0

***NB: Multiple responses were allowed for this question***

#### 4.7.2 Factors That Would Promote Mothers' Willingness to Use Donated Human Milk from the Milk Banks

The respondents were requested to highlight attributes that would promote mothers' willingness to use donated human milk from the human milk banks for their babies.

From the findings, the factors that would promote mothers' willingness to use donated human milk from the human milk banks on their babies as highlighted by the respondents were if it was endorsed by health professionals as cited by 58.9% (n = 129) of the respondents; if mothers understood well the processes involved in human milk banking as cited by 72.1% (n = 129) of the respondents; if the family members supported the mothers on the idea as cited by 17.8% (n = 39) of the respondents and if it was endorsed by the community leaders as cited by 5.9% (n = 13) of the respondents. Table 4.13 outlines the findings.

**Table 4.13: Factors that would promote mothers willingness to use donated human milk from the milk banks**

Identified factors	Frequency (n)	Percent (%)
If it is endorsed by health professionals	129	58.9
If the family members supported the mothers on the idea	39	17.8
If mothers understood well the processes involved in human milk banking	158	72.1
If it was endorsed by the community leaders	13	5.9

*NB: Multiple responses were allowed for this question*

#### **Theme: Promoters of donation and use of donated human breast milk**

Being offered education about human milk donation and milk banking, having good understanding of the human milk donation and banking processes and the practice being endorsed by significant parties including the government, health care workers and family were the major highlights of factors that would promote mothers' willingness to donate and/or use donated human milk from the milk banks as is illustrated in the

following selected verbatim excerpts;

“They need to educate us more about donation of one’s own breast milk. Why it is needed and what are its benefits.” (Pc01)

“I would be happy to learn more about human milk donation and banking. This would enable me make an informed decision as to whether to donate my own breast milk as well as whether to allow my child use donated human milk if need be.” (Pc04)

“I would only consider it if it is approved by the health workers” (Pa03)

“If there was a form of compensation, like donors being given a card to show that they have donated, it may motivate others” (Pb02)

A summary of the identified themes is presented in Table 4.14.

**Table 4.14: Summary of identified themes**

<b>Research objectives</b>	<b>Codes [3 top ranked codes]</b>	<b>Themes</b>
To assess the awareness of the antenatal mothers at Pumwani Maternity Hospital on human breast milk donation and milk banking.	<ul style="list-style-type: none"> <li>▪ Never heard of it (n=16)</li> <li>▪ Not seen a mother donating breast milk (n=18)</li> <li>▪ Not seen a child being fed on it (n=17)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low awareness of human breast milk donation</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Orphaned child (n=21)</li> <li>▪ Abandoned child (n=19)</li> <li>▪ Mother not having enough milk (n=18)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appropriate circumstances for use of donated human milk</li> </ul>
To assess the willingness of the antenatal mothers at Pumwani Maternity Hospital to donate human breast milk	<ul style="list-style-type: none"> <li>▪ Would be happy to offer my milk if I have excess (n = 17)</li> <li>▪ Would not mind to donate (n = 17)</li> <li>▪ Would gladly help in that way (n = 16)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Open to donating own breast milk</li> </ul>
To assess the willingness of the antenatal mothers at Pumwani Maternity Hospital to use the donated human breast milk on their babies.	<ul style="list-style-type: none"> <li>▪ Have reservations about it (n = 16)</li> <li>▪ Only under extreme or special cases (n = 11)</li> <li>▪ Not to my child (n = 10)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hesitant to use donated human milk</li> </ul>
To identify the hindrances to donation and the use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital.	<ul style="list-style-type: none"> <li>▪ Fear of diseases (n = 20)</li> <li>▪ Fear that their child won't have enough (n=18)</li> <li>▪ Hygiene concerns (n = 15)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Obstructs to donation and use of donated human breast milk</li> </ul>
To identify the factors that would promote donation and use of the donated human breast milk among antenatal mothers at Pumwani Maternity Hospital.	<ul style="list-style-type: none"> <li>▪ Being educated about human milk donation and banking (n = 19)</li> <li>▪ If it is endorsed by health workers (n = 16)</li> <li>▪ If there was a form of appreciation (n = 12)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Promoters of donation and use of donated human breast milk</li> </ul>

#### **4.8 Association of the Various Attributes with Willingness to Donate Human Breast Milk among the Respondents**

Bivariate logistic regression, at 5% significance level, was utilized to assess the association between the various identified attributes and the willingness to donate human breast milk among the respondents.

From the findings, the attributes found to have a statistically significant and positive association with willingness to donate human breast milk among the respondents included being aware of human milk donation ( $\beta = 0.542$ ,  $p = 0.007$ ); being educated on importance of donated human milk ( $\beta = 0.681$ ,  $p = 0.000$ ) and being compensated for donating human breast milk ( $\beta = 0.474$ ,  $p = 0.029$ ).

In addition, the attributes established to have a statistically significant and negative association with willingness to donate human breast milk among the respondents included fear that their own baby won't have enough ( $\beta = -0.636$ ,  $p = 0.000$ ); personal dislike for human milk donation ( $\beta = -0.515$ ,  $p = 0.016$ ) and being sick or in poor health ( $\beta = -0.580$ ,  $p = 0.002$ ).

However, no statistically significant relationship was established between the respondents' willingness to donate their own breast milk and attributes which included human milk donation being endorsed by the government; being particular on persons to benefit from the donated human milk; human milk donation supported by culture and human milk donation supported by religion as they yielded  $p$  values  $> 0.05$ .

Further, higher odds of willingness to donate human breast milk among the respondents were associated with attributes including being aware of human milk donation (OR = 1.86); being educated on importance of donated human milk (OR = 2.13); being compensated for donating human breast milk (OR = 1.49); human milk donation being endorsed by the government (OR = 1.11); human milk donation being supported by culture (OR = 1.18) and to a lesser extent with human milk donation being supported by religion (OR = 1.06).

However, lower odds of willingness to donate human breast milk among the

respondents were associated with attributes including being particular on persons to benefit (OR = 0.86); fear that their own baby won't have enough (OR = 0.37); personal dislike for human milk donation (OR = 0.81) and being sick or in poor health (OR = 0.72). Table 4.15 illustrates the findings.

**Table 4.15: Association of the various attributes with willingness to donate human breast milk among the respondents**

			$\beta$ coefficients	S.E	Sig.	Adjusted OR (95% CI)
Step 1 <sup>a</sup>	x1	Being aware of human milk donation	.542	.143	.007	1.86 (1.41 - 2.29)
	x2	Being educated on importance of donated human milk	.681	.117	.000	2.13 (1.36 - 2.70)
	x3	Being compensated for donating human breast milk	.474	.206	.029	1.49 (1.16 - 1.73)
	x4	Human milk donation is endorsed by the government	.219	.163	.115	1.11 (.74 - 1.30)
	x5	Being particular on persons to benefit	.108	.251	.375	.86 (.39 - 1.41)
	x6	Fear that their own baby won't have enough	-.636	-.181	.000	.37 (.18-1.09)
	x7	Personal dislike for human milk donation	-.515	-.139	.016	.81 (.49 - 1.36)
	x8	Being sick or in poor health	-.580	-.095	.002	.72 (.31 - 1.25)
	x9	Human milk donation supported by culture	.133	.172	.226	1.18 (.66 - 1.53)
	X10	Human milk donation supported by religion	.117	.194	.181	1.06 (.58 - 1.24)
Constant			1.147	.208	.000	

a. Variable(s) entered on step 1: x1, x2, x3, x4, x5, x6, x7, x8, x9, x10.

#### **4.9 Association of the Various Attributes with Willingness to Use Donated Human Breast Milk among the Respondents**

Bivariate logistic regression, at 5% significance level, was utilized to assess the association between the various identified attributes and the willingness of the respondents to allow their babies to use donated human breast milk from human milk banks.

From the findings, the attributes found to have a statistically significant and positive association with willingness to use donated human breast milk among the respondents included if the practice were endorsed by health professionals ( $\beta = 0.620$ ,  $p = 0.005$ ); if the mothers understood it and its benefits ( $\beta = 0.673$ ,  $p = 0.000$ ) and if the practice were supported by other family members ( $\beta = 0.428$ ,  $p = 0.031$ ).

In addition, the attributes established to have a statistically significant and negative association with willingness to use donated human breast milk among the respondents included fear of HIV transmission ( $\beta = -0.718$ ,  $p = 0.000$ ); fear of familial diseases ( $\beta = -0.729$ ,  $p = 0.000$ ); personal dislike for use of donated human milk ( $\beta = -0.416$ ,  $p = 0.037$ ); fear of negative influence on bonding between child and biological mother ( $\beta = -0.641$ ,  $p = 0.000$ ); hygiene concerns ( $\beta = -0.527$ ,  $p = 0.016$ ) and fear of transfer of genetic traits ( $\beta = -0.583$ ,  $p = 0.012$ ).

However, no statistically significant relationship was established between the respondents' willingness to use donated human breast milk and attributes which included if the practice were endorsed by community leaders; if the practice were supported by culture and if the practice were supported by religion as they yielded  $p$  values  $> 0.05$ .

Further, higher odds of willingness to use donated human breast milk among the respondents were associated with attributes including if the practice were endorsed by health professionals (OR = 2.01); if the mothers understood it and its benefits (OR = 2.29); if the practice were supported by other family members (OR = 1.31); if the practice were supported by culture (OR = 1.13) and to a lesser extent by if the practice were endorsed by community leaders (OR = 1.09) and if the practice were supported

by religion (OR = 1.04).

However, lower odds of willingness to use donated human breast milk among the respondents were associated with attributes including fear of HIV transmission (OR = 0.22); fear of familial diseases (OR = 0.29); personal dislike for use of donated human milk (OR = 0.77); fear of negative influence on bonding between child and biological mother (OR = 0.36); hygiene concerns (OR = 0.74) and fear of transfer of genetic traits (OR = 0.61). Table 4.16 contains the findings.

**Table 4.16: Association of the various attributes with willingness to use donated human breast milk among the respondents**

			$\beta$ coefficients	S.E	Sig.	Adjusted OR (95% CI)
Step 1 <sup>a</sup>	x1	If endorsed by health professionals	.620	.205	.005	2.01 (1.17 - 2.63)
	x2	If she understands it and its benefits	.673	.177	.000	2.29 (1.51 - 2.84)
	x3	If supported by other family members	.428	.190	.031	1.31 (1.04 - 1.65)
	x4	If endorsed by community leaders	.125	.109	.111	1.09 (.57 - 1.32)
	x5	Fear of HIV transmission	-.718	-.212	.000	.22 (.05 - .58)
	x6	Fear of familial diseases	-.729	-.147	.000	.29 (.09 - .63)
	x7	Personal dislike for use of donated human milk	-.416	-.126	.037	.77 (.35 - 1.19)
	x8	Fear of negative influence on bonding between child and biological mother	-.641	-.208	.000	.36 (.11 - .97)
	x9	Hygiene concerns	-.527	-.161	.016	.74 (.33 - 1.06)
	X10	Fear of transfer of genetic traits	-.583	-.172	.012	.61 (.21 - 1.12)
	X11	If supported by culture	.184	.210	.139	1.13 (.75 - 1.40)
	X12	If supported by religion	.096	.247	.281	1.04 (.69 - 1.18)
Constant			1.388	.184	.000	



a. Variable(s) entered on step 1: x1, x2, x3, x4, x5, x6, x7, x8, x9, x10, x11, x12.

## **CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents discussion of findings, conclusions and recommendations of the study in line with the study objectives. The study examined the perceptions and practices on human breast milk donation and milk banking amongst antenatal mothers at Pumwani Maternity Hospital.

### **5.2 Discussion**

#### **5.2.1 Awareness of Human Breast Milk Donation and Milk Banking among the Respondents**

This study established that there was sub-optimal awareness of human breast milk donation and milk banking among the study participants. This is given that a significant proportion about 54.3% of the surveyed antenatal mothers in the hospital indicated that they had never heard of mothers who donated milk to be fed on another mother's child. Further, majority 75.8% of the surveyed mothers indicated that they had never seen a child or children who were fed on donated human milk. Similarly, a significant proportion 64.4% of the mothers participating in this study indicated that they had never heard of a human breast milk bank. In addition, a significant proportion 40% of the mothers also held the belief that use of infant formula milk or use of fresh animal milk was the best way to feed a baby who did not have access to their own mother's milk. These findings therefore clearly illustrated that there was low awareness of human breast milk donation and milk banking among the antenatal mothers at Pumwani Maternity Hospital.

This concurred with Kimani-Murage (2019) who in a study on human milk donation and banking in Kenya noted that there was low awareness of this concept among most of the women of child-bearing age in the country only 23% of the participants had heard of human milk banking. In China a study by Zhang (2020) on postpartum women

reported that only 20% of the respondents had prior knowledge of human milk banks and milk donation. Likewise, In their study, Tran et al. (2020) also reported significant gaps in antenatal mothers' awareness of human breast milk donation and milk banking which they established impeded efforts to increase the usage of human donor milk. In their study, Ahmed et al. (2022) in Uganda reported that 50.2% of the interviewed women were found to be aware of human milk donation and human milk banking. Though the current awareness has improved, studies point to the need to create more awareness on human breast milk donation and milk banking among potential mothers.

For the mothers who had heard about human milk donation and human milk banking, the most significant source of the information about human milk donation and banking was health workers or healthcare institutions from (50 %) of the respondents, though others indicated as having heard of this concept from friends, social media as well as mass media. This is different from the study by Kimani-Murage (2019) which showed the major source of information was internet (55%), followed by friends (23%) and mass media. Further, it was established that the two most prevalent circumstances identified as being appropriate for a child to be fed on donated human milk from a milk bank, according to the participants, were when the baby was orphaned or abandoned and when the baby was born prematurely and the mother did not have enough milk. This showed that there was appreciation among the surveyed antenatal mothers of unique circumstances where an infant could be fed with donated human milk. Similarly, Gelano et al. (2018) also identified through the FGDs that premature births with the mother having insufficient milk and/or the death of the mother as key instances where the use of donated human milk was more acceptable among mothers in eastern Ethiopia. In studies by Reimers et al. (2018) and Zhang *et al.* (2020) health workers and health facilities were also identified as being the primary sources of information about human breast milk donation and human milk banking for most of the mothers found to be aware of the concept. These studies therefore point to the centrality of health workers in awareness creation about human milk donation and human milk banking among all potential women and mothers.

### 5.2.2 Willingness to Donate Human Breast Milk among the Respondents

This study established that most of the antenatal mothers at Pumwani Maternity Hospital had the willingness to donate their breast milk for use by babies in need. This is given that more than half (57.1%) of the surveyed antenatal mothers indicated that they would be willing to donate their breast milk to a human milk bank. Further, a significant proportion of the mothers (84.9%) indicated they had no reservations as to who should receive their donated breast milk indeed indicating that anybody could receive their milk. However, majority of the mothers shared the view that they would prefer their donated breast milk to be offered to any child who was in need of the donated human milk. The study however noted that only one participant from the FDG had donated their breast milk, which the participants attributed to reasons For not donating as having never heard about human breast milk donation, being opposed to the concept of human milk donation, having not being given the chance to donate, having never come across or seen a mother donating her breast milk, not having excess milk for donation, considering it as being inappropriate due to health concerns and this being their first pregnancy. However in general, the study established that a significant proportion of the mothers were open to donating their breast milk.

The findings agreed with those of Kimani-Murage (2019), who established that majority (91%) of the surveyed mothers had a positive attitude towards donating their breast milk to a human milk bank. On a personal level 79% were willing to donate the milk to a milk bank. Similarly, in studies by Ogundele et al. (2022) in Nigeria exploring the acceptability of human breast milk donation among women of child bearing age, a significant proportion (62.1%) of the women showed willingness to donate their breast milk to human milk banks particularly if they had more than what they baby needed. Iloh et al. (2018) noted that, in most instances, mothers who donate their surplus milk to newborns in need through human milk banks often do so freely to benefit others - they just feel good about helping another baby's wellbeing.

In contrast, Gelano et al. (2018) reported low willingness to donate human breast milk among surveyed women in Eastern Ethiopia. Only 11% of the respondents were willing to donate their breast milk. Likewise in china in their study Zhang *et al.* (2020) revealed

that only 23% were willing to donate their breast milk consistently.

### **5.2.3 Willingness to Use Donated Human Breast Milk on their Babies**

This study established that there was general reluctance towards use of donated human breast milk on their babies among the study participants. According to the findings, all of the surveyed antenatal mothers at Pumwani Maternity Hospital indicated that their babies had never received donated breast milk from a milk bank. Further, though most (65.8%) of the surveyed antenatal mothers indicated that they would be open to allowing their baby to be fed with donated human milk from a human milk bank, a significant proportion (34.2%) of the mothers also indicated that they would not allow their babies to be fed on donated human milk from a human milk bank. Further, only in specific circumstances would the mothers allow their babies to be fed on donated breast milk. These included if they were very sick; if the doctor advised; if they were on medications that restricted breastfeeding; if they did not have enough milk for the baby and to a less extent if they were not available. The categories of mothers from which the participants would accept breast milk from in case they were unable to provide enough milk or were unavailable to feed their own babies included relatives; a friend and people that they knew and to a lesser extent from people that they did not know or members of their religion.

The findings collaborated those of Kimani-Murage (2019) who noted that though a majority (87%) of women would be willing to donate their breast milk for other babies in need, fewer (59%) would accept their babies to be fed with donated human milk from human milk banks. Similar views were expressed by Gelano et al. (2018) who noted very low acceptability levels of use of donated human milk among mothers in eastern Ethiopia, only 15.2% would be willing to use the donated milk to feed their babies. Similarly, in a study conducted in Nigeria, Iloh et al. (2018) also reported high levels of reluctance to utilization of donated human milk among mothers drawn from a developing community in the country's south-east. Though in Uganda as reported by Namuddu et al. (2023), majority (61.5%) of the mothers were willing to give the donated milk to their babies. According to a cross-sectional study carried out in China, Zhang et al. (2020) did also report that a majority of surveyed postpartum women were

more willing to provide milk rather than to receive it.

#### **5.2.4 Hindrances to Donation and Use of the Donated Human Breast Milk among the Respondents**

The study established that there were several hindrances to donation and use of donated human breast milk among the study participants. Based on the logistic regression analysis findings, the most prominent hindrances to donating human breast milk to the human milk banks among the study respondents were fear that their own babies won't have enough; being sick or in poor health and personal dislike for human milk donation. Further, based on the logistic regression analysis findings, the most prominent hindrances to use of donated human breast milk among the study respondents were fear of HIV transmission; fear of familial diseases; personal dislike for use of donated human milk; fear of negative influence on bonding between child and the biological mother; hygiene concerns and fear of transfer of genetic traits. However, it being against the respondents' religious beliefs and it being a culturally unacceptable practice or it being supported by community leaders were found not to be significant hindrances to use of the donated human breast milk among the respondents. It was therefore evident that a wide range of different factors acted as impediments to donation and use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital.

Zhang et al. (2020) attributed low willingness to receive donated human milk for their infants among mothers in China to a lack of understanding about human milk banks and safety concerns observed to ensure that the human milk is safe for consumption. In a study performed in India by Mondkar et al. (2018), majority of the surveyed mothers, though accepting of human breast milk donations, were worried about the donors' health and hygiene. Others were worried about the safeguards in place to ensure the safety of the milk. Similarly, in studies by Goodfellow et al. (2016) and Varer Akpinar et al. (2022) did also report that low awareness of human milk donation and human milk banking, fear of transmission of illnesses including HIV, cultural beliefs, religion and safety of breast milk in Human Milk Banks affected perceptions towards acceptability of the donated human milk among women across many settings. Namuddu et al. (2023)

did also identify low awareness of human milk donation and human milk banks, women's personal dislike of human milk donation and/or use hygiene concerns and fear of contracting diseases were major barriers to women's acceptance of donation or use of human breast milk. Gelanoet al. (2018) therefore argues that awareness is required to inform about the benefits of donated human milk and dispel any misconceptions about its safety.

### **5.2.5 Factors That Would Promote Donation and Use of the Donated Human Milk**

Based on the study findings, a number of factors that would promote donation and use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital were identified. Based on the logistic regression analysis findings, the factors established to have a statistically significant positive association with the respondents' willingness to donate human breast milk were being aware of human milk donation, educating the mothers on the importance of donated human milk and there being a form of compensation to the human milk donors. Similarly, based on the logistic regression analysis findings, the factors that would promote mothers' willingness to use donated human milk from the human milk banks on their babies were if it was endorsed by health professionals; if the mothers understood it and its benefits well and if the family members supported the mothers on the idea.

Similarly, Doshmangir et al. (2019) argued that, to spur increased acceptability of human milk donation and banking, promotion of human milk banks and the benefits of donated human milk needed to be publicized to encourage recruitment of donor mothers. Mogwan et al. (2020) also argued that health care professional involvement in terms of education and attitude towards human milk donation and human milk banking could potentially have far reaching positive influences on increasing the number of human milk donors and its users. In addition, for effective implementation of human milk donation and banking, there is need to educate mothers about the whole concept on human milk donation and banking argued Ogundele et al. (2022).

### 5.3 Conclusions

Based on the findings of the study, the following conclusions were drawn:

There was inadequate or low awareness of human breast milk donation and human milk banking among the antenatal mothers at Pumwani Maternity Hospital.

Most of the antenatal mothers at Pumwani Maternity Hospital showed willingness to donate their breast milk for use by babies in need. However, less inclined to allowing their babies to be fed with donated human milk safe for when extremely necessary or unavoidable. The practice on milk donation was low.

Being ill or in poor health, fear that their own babies would be left with inadequate milk supply after donating, fear of diseases transmission, personal dislike for human milk donation and use of donated human milk, fear of a compromised child-mother bonding, fear of transfer of genetic traits and hygiene concerns constituted the leading hindrances to donation and use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital.

Being aware of human milk donation, educating the mothers on the importance of donated human milk, existence of forms of compensation for the human milk donors, its endorsement by health professionals and family support for the practice constituted the leading factors that would promote donation and use of the donated human breast milk among the antenatal mothers at Pumwani Maternity Hospital.

#### **5.4 Recommendations**

Healthcare workers at Pumwani Maternity Hospital's antenatal care clinics should create more awareness on human breast milk donation and human milk banking among antenatal mothers attending the clinics through educating them about this existing intervention.

Healthcare workers can improve antenatal mothers' willingness to donate their breast milk to human milk banks through enlightening them on the significance of donated human milk to the survival and overall wellbeing of babies not able to benefit from their own mothers' milk.

Healthcare workers can improve antenatal mothers' willingness to use donated human breast milk for their babies through allaying any fears, concerns and misconceptions that the mothers may have regarding the safety or effects of the donated human milk to their babies.

The management of Pumwani Maternity Hospital should ensure it provides all necessary material and non-material support to health care workers and antenatal mothers to enhance donation and use of donated human breast milk among all interested and eligible mothers in the hospital. Efforts should be made to address any hindrances to the mothers' donation and use of the donated human breast milk.

#### **5.5 Suggested Areas for Further Studies**

An investigation on the challenges experienced by postnatal mothers at Pumwani Maternity Hospital in relation to human breast milk donation and milk banking would equally be illuminating. A long-term comparative study on the outcomes of use of donated human milk against other alternative infant feeding practices such as use of infant formula milk or fresh animal milk on babies would also be quite informative. Also, findings on lived experiences of mothers who have donated milk and babies who have received the donated human milk may help in motivating the donation and use of donated human milk.





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## APPENDICES

### Appendix 1: Questionnaire (English)

STUDY TITLE: PERCEPTIONS AND PRACTICES ON HUMAN MILK DONATION AND MILK BANKING AMONGST ANTENATAL MOTHERS AT PUMWANI MATERNITY HOSPITAL.

Questionnaire number-

Code No:

Date .....

Please Tick [ ] In the Appropriate Box

#### Section A: Socio-Demographic Data

1. What is your Age?

- A. < or equal to 20 years [ ]
- B. 21-30 [ ]
- C. 31-39 [ ]
- D. 40 and Above [ ]

2. What is your marital Status

- A. Single [ ]
- B. Married [ ]
- C. Separated [ ]
- D. Divorced [ ]
- E. Widowed [ ]

3. What is your highest Level of education?

- A. Primary [ ]
- B. Secondary [ ]
- C. College/ University [ ]
- D. Have no formal Education [ ]

4. What is your Religion?

- A. Christian [ ]
- B. Muslim [ ]
- C. Hindu [ ]
- D. Others.....

5. What is your main occupation currently?

- A. Self- employed [ ]
- B. Employed [ ]
- C. Casual [ ]
- D. Employed- Salaried/formal [ ]
- E. Unemployed [ ]
- F. Others (Specify).....

6. How many pregnancies have you had before including the current one?

- A. One [ ]
- B. Two [ ]
- C. Three [ ]
- D. Four [ ]
- E. Five and above [ ]

7. How many Children do you have?

- A. None [ ]
- B. One [ ]
- C. Two [ ]
- D. Three [ ]
- E. Four and above [ ]

8. How many times have you attended the Antenatal clinic including this visit?

- A, Once [ ]
- B. Twice [ ]
- C. Three times [ ]
- D. Four times [ ]
- E. Five times and Above [ ]

**SECTION B: AWARENESS ON HUMAN MILK DONATION AND MILK BANKING.**

9a. Have you ever heard of mothers who donate milk to be fed on another mothers child?

- A. Yes [ ]
- B. No [ ]

9b. If yes, where did you hear about it from?

- A. A health worker from this facility [ ]
- B. A health worker from another facility [ ]
- C. From a friend [ ]
- D. D. social media (Specify) [ ]
- E. Others, Specify.....

10a. Have you ever heard/ seen children who were fed on donated human milk?

- A. Yes [ ]
- B. NO [ ]

10b. If yes, why was the child fed on DHM?

- A. Mother was sick [ ]
- B. Mother died [ ]
- C. Mother was not available to breastfeed [ ]
- D. Do not know [ ]
- E. Other reasons (Specify).....

11a. Have you ever heard of a Human breast milk bank?

- A. YES [ ]
- B. NO [ ]

11b. If yes, where did you hear/ learn about human milk banking?

- A. Television [ ]
- B. Hospital [ ]
- C. From a friend [ ]
- D. Radio [ ]
- E. Others,  
Specify.....

12a. In your own opinion, would it be okay for children who have no access to their mother's own milk to be fed on breast milk donated by other women from a milk bank?

- A. Yes [ ]
- B. B. No [ ]



12b. Under what conditions do you think it is okay for children to be fed on DHM from a milk bank? (Multiple options allowed)

- A. When a mother does not want to breastfeed?
- B. When the baby is born premature and mother do not have enough milk
- C. When the mother is sick
- D. When the mother is unavailable to breastfeed
- E. When the baby is orphaned or abandoned
- F. Others (Specify).....

13. In your own opinion, which is the best way to feed a baby who does not have access to their own mother's milk?

- A. Donated human milk
- B. Infant formula milk
- C. Breast fed by another woman
- D. Fresh animal milk
- E. Others (Specify).....

**Section C: Mothers Views and Practice on Donation and Use of the Donated Human Milk**

14a. Have you ever donated your breast milk?

- A. Yes [ ]
- B. No [ ]

14b. Give reasons for your answer above

.....

15. Would you be willing to donate your breast milk to a Human Milk bank?

- A. Yes [ ]
- B. No [ ]
- C. Not sure [ ]

16. Are you particular as to who should receive your donated milk?

- A. Yes [ ]
- B. No [ ]

17. Who would you prefer to receive your donated breast milk?

- A. A relative [ ]
- B. A friend [ ]
- C. People that I know [ ]
- D. Any child who is in need of the DHM [ ]
- E. People that I don't know [ ]
- F. Members of my religion [ ]

G. Others (Specify).....

18. Who would you not want to receive, your donated breast milk?

- A. People that I know
- B. Friends
- C. People that I do not know
- D. Members of my Religion
- E. Others, Specify.....

19. In your Opinion, which mothers should not be allowed to donate breast milk to a milk bank?

(Multiple choices allowed)

- A. Women who are sick
- B. Women with Risky behavior (smoking, prostitution, alcohol)
- C. Very young Women
- D. Very old women
- E. Women with HIV
- F. Others, specify.....

20a. Has your baby ever received donated breast milk from a milk bank?

- A. Yes
- B. No

21. Would you allow your baby to be fed on DHM from a human milk bank?

- A. Yes
- B. No

21b. Under what circumstances would you allow your baby to be fed on breast milk donated by another mother? (Multiple choices allowed)

- A. If I am very sick
- B. If the doctor advises
- C. If I am on medications that restricts breastfeeding
- D. If I do not have enough milk for the baby
- E. If I am not available
- F. Others, specify.....

22. Which mothers would you accept breast milk from in case you were not able to provide enough milk/ unavailable to feed your own baby?

- A. Relatives
- B. People that I know
- C. A friend

- D. People that I don't Know
- E. Members of my religion
- F. Others, Specify.....

23. Why would you not allow your baby to be fed on DHM from a milk bank, in case you were not able to feed her your own milk?

- A. Risk of HIV Transmission
- B. Fear of Familial diseases
- C. It is culturally unacceptable practice
- D. Personal dislike
- E. Negative influence on bonding between child and biological mother
- F. Hygiene concerns
- G. Others, specify.....

**Section D: Hindrances to Milk Donation and Use of the Donated Human Breast Milk at The Milk Banks**

24. What would prevent you from donating your breast milk to the human milk banks?

- A. Fear that your own baby won't have enough?
- B. Your culture do not allow donation of breast milk
- C. Personal dislike
- D. Your religion does not allow milk donation
- E. Others specify.....

25. What would prevent you from allowing your child to be fed with donated breast milk, in case you were not able to provide your own breast milk?

- A. Fear of the Risk of disease transmission
- B. Fear of poor hygiene from the donors
- C. Fear of transfer of genetic traits
- D. It is against Religious beliefs
- E. Others, specify.....

**26.** Tick the appropriate boxes for your response. The numbers indicate how you agree or disagree with the following statements. **1= (Strongly Agree), 2= (Agree) 3= (Neutral), 4=( Strongly Disagree), 5= ( Disagree)**

		<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
<b>26a.</b>	It is a taboo to donate your breast milk					
<b>26b.</b>	Mothers who donate breast milk may later have complications					
<b>26c.</b>	DHM may have some side effects on babies who use it?					
<b>26d.</b>	It is a taboo to use donated breast milk					
<b>26e.</b>	Members of the family's opinions may have an effect on milk donation and use.					
<b>26f.</b>	Religious and cultural beliefs have an effect on milk donation and use of the DHM?					

**Section E: Factors That Would Promote Donation and Use of the Donated Human Milk.**

27. In your own opinion, what would make mothers be more willing to donate milk to the milk banks?

- A. Educating mothers on the importance of Donated human milk [ ]
- B. If there was a form of compensation to the donors [ ]
- C. if it is endorsed by religious leaders [ ]
- D. if it was endorsed by the government [ ]
- E. Others, Specify.....

28. In your own opinion what would promote the willingness of the mothers to use donated milk from the milk banks on their babies?

- A. If it is endorsed by health professionals [ ]
- B. If the family members supported the mothers on the idea [ ]
- C. If mothers understood well the processes involved in milk banking. [ ]
- D. if it was endorsed by the community leaders [ ]
- E. Others, specify .....

## **Appendix II: Focused Group Discussion Guide (English)**

### **STUDY TOPIC: PERCEPTION AND PRACTICE ON HUMAN MILK DONATION AND MILK BANKING AMONG ANTENATAL MOTHERS AT PUMWANI MATERNITY HOSPITAL**

**Opening remarks:** Thanking all the participants for accepting to be part of this discussion.

**Ice breaker question** -How are you and how is the pregnancy journey?

-How many visits have you attended the antenatal clinic so far?

1. What have you heard or seen regarding donating and receiving donated human milk?  
Probe: could you please tell me of such a case that you have heard or seen.
2. What beliefs or myths have you heard about donated human milk, donating human milk and feeding babies on the donated human milk?
3. What is your opinion on women donating their breast milk to be fed to other babies who have no access to their mother's breast milk? Tell me more.....  
Probe: - in your views what do you think would be the benefits and risks of donating breast milk? (Probe for benefits then the risks)  
-who do you think should donate milk and who shouldn't?
4. What are your views on feeding babies on donated human milk? Tell me more.....  
Probe: - in your views what do you think would be the benefits and risks of feeding babies on donated breast milk? (Probe for the benefits then for the risks)
5. If needed, would you donate your breast milk to be used to feed other babies? Why?  
Probe: - Under what circumstances would you consider donating milk?  
-What would motivate you to donate your breast milk?  
-Which mothers / babies would you prefer to donate your milk to and why?  
- How do you think your family members would react to you donating milk and why?  
- What would prevent you from donating your breast milk?
6. If for some reason your baby did not have sufficient amounts of your own milk, would you be willing to feed your baby on the donated human milk?  
Probe: What would make you accept the use of DHM on your baby?  
-From whom would you accept the donated breast milk and why?  
-What would be your concerns in your baby receiving the donated human milk?  
-How would your family members (mother-in-law, husband, and other relatives) react to you using donated human milk for your baby? (Probe: would they support or not support and why?)

7. Have you ever heard about Human milk banks? Please Tell me more.....
8. In your view, who should donate milk at the human milk bank and why?
  - Do you see yourself potentially donating your milk to a milk bank? Tell me more.....
  - What would encourage you or prevent you from donating your breast milk to the milk bank?
  - In your view how can other mothers be encouraged to donate breast milk to the milk banks?
9. Would you allow your baby to receive milk from a milk bank?  
Probe: -What would encourage you to accept/ allow your baby to be fed on milk from a milk bank?
  - What would prevent you from allowing your baby to be fed on milk from the milk bank?
10. If you/ your friend donates breast milk that could save lives of vulnerable babies, should something be given to recognize your / their efforts? Why?  
Probe: What would be some ways to recognize / appreciate donation of breast milk? (Probe for both monetary and non-monetary ways)
11. What else would you like to tell me about the issues that we have discussed?
12. Do you have any questions regarding what we have just discussed?

**Thank You for the Good Participation!**

### **Appendix III: Consent Form for Participation in the Study (English)**

**Study Title:** Perceptions and practice on Human milk donation and milk banking among Antenatal mothers at Pumwani Maternity Hospital.

**Name of the Researcher:** Jane Kamau

I am a postgraduate student at the University of Nairobi pursuing a Master of Science degree in Nursing- Midwifery and Obstetrics.

I am conducting this study to find out what are the mothers' views/ perceptions and practice on Human milk donation and milk banking. The purpose of this consent form is to give information that will help you decide whether or not you should participate in the study.

Donated human milk is the best alternative when the mother's own milk is not available for feeding the infants. Your participation in the study will help me Assess the awareness, views on milk donation and banking, the hindrances to milk donation and its use, and also find out factors that would promote milk donation and its use.

Human milk provides optimal nutrition, promotes growth and reduces the risk of illnesses. The results from this study will help us identify gaps and be able to address them appropriately hence improve the nutrition of the newborns.

**Please understand the following:**

**Participation:** decision to participate in this study is voluntary. Refusal to participate will not attract any penalties. You will still get the due services at the Antenatal clinic.

**Confidentiality** shall be maintained. Your name will not be included anywhere in the study and all information you give shall be confidential.

**Benefits:** Education and any information required regarding Milk donation and banking will be provided.

**Compensation:** there is no compensation for participating in this study

**Risks:** There are very minimal risks associated with your participation in this study

**Withdrawal:** you are free to withdraw from participation at any time without any fear and no services will be denied. Just inform the study staff and your participation will be stopped.

If you have further questions or concerns about the study, feel free to call or send a text message to the number provided below.



**Principal Researcher:**

**Jane Kamau**

Mobile No: 0725603203

Email, [wanguikamau2021@gmail.com](mailto:wanguikamau2021@gmail.com)

**Supervisors:**

**Dr. Mary Kamau**

Email: [kwanjira@uonbi.ac.ke](mailto:kwanjira@uonbi.ac.ke)

**Dr. Lucy Bitok**

Email: [lukibitok@uonbi.ac.ke](mailto:lukibitok@uonbi.ac.ke)

**Or**

Kenyatta National Hospital- University of Nairobi Ethics and Research committee

Email: uonknh [erc@uonbi.ac.ke](mailto:erc@uonbi.ac.ke)

**Participants' Statement**

I have read this consent form or had the information read to me. I have had a chance to discuss the study with the researcher and any questions I had have been addressed. The risks and benefits have been explained to me and I understand that participation is voluntary and there is no compensation and that i may also choose to withdraw at any time. I have also been reassured that the information given shall be kept confidential therefore freely agree to participate in this study research.

I agree to participate in this research study **Yes** [  ] **No** [  ]

**Participant's Signature/ Thumbprint**..... **Date**.....

**Researcher's Statement**

I, the undersigned, have fully explained the relevant details of this study to the participant and the participant has understood and has freely given her consent.

**Researcher's Signature**..... **Date**.....

**Thank you for your time**

## Appendix IV: Questionnaire (Kiswahili)

### Dodoso

**Kichwa Cha Masomo:** Mitazamo na desturi juu ya uchangaji wa maziwa ya binadamu na benki ya maziwa miongoni mwa akina mama wajawazito katika hospitali ya uzazi ya Pumwani. Nambari ya dodoso.....Tarehe.....

**Tafadhali Weka Alama Kwenye Kisanduku Kinachofaa.**

#### Sehemu A: Data Ya Kijamii -Demografia

1. Una umri gani?

- A. Miaka 20 au chini
- B. 21-30
- C. 31-39
- D. Miaka 40 au Zaidi

2. Hali yako ya ndoa ikoje?

- A. Single
- B. Kwenye ndoa
- C. Mmetengana
- D. Umepewa talaka
- E. Mjane

3. Elimu yako ya juu ni ipi?

- A. Chuo cha msingi
- B. Sekondari
- C. Chuo/ Chuo kikuu
- D. Hauna elimu rasmi

4. Wewe ni wa Dini gani?

- A. Mkristo
- B. B. Muislamu
- C. C. Kihindu
- D. D. Wengine (Fafanua).....

5. Kazi yako kuu Kwa sasa ni nini?

- A. Kujiajiri
- B. Kajiriwa-vibarua
- C. Kuajiriwa-mshahara

D. Wasio na ajira

E. Wengine.....

6. Umewahi pata mimba ngapi kabla ikiwemo hii ya sasa?

A. Moja

B. Mbili

C. Tatu

D. Nne

E. Tano na Zaidi

7. Una watoto wangapi?

A. Sina

B. Mmoja

C. Wawili

D. Watatu

E. Wanne na Zaidi

8. Umehudhuria kliniki ya wajawazito mara ngapi, ikiwa ni pammoja na ziara hii?

A. Moja

B. Mbili

C. Tatu

D. Nne

E. Tano na Zaidi

**Sehemu B:Uhamasishaji Juu ya Uchangaji wa Maziwa ya Binadamu na Benki va Maziwa**

9a. Umewahi kusikia akina mama wanaotoa maziwa Ili kulishwa Kwa mtoto wa mama mwingine?

A. Ndio

B. La

9b. Kama ndio, umeiskia wapi?

A. Mhudumu wa afya kutoka kituo hiki

B. Mhudumu wa afya kutoka kituo kingine

C. Kutoka kwa rafiki

D. Mitandao ya kijamii (taja).....

E. Kwengine, taja.....

10a. umewahi kusikia/ kuona watoto waliolishwa maziwa ya binadamu yaliotolewa?

A. Ndio

B. La

10b. Kama ndio, Kwa nini mtoto alilishwa Kwa maziwa ya binadamu yaliotolewa?

A. Mama alikuwa mgonjwa

B. Mama alifariki

C. Mama hakupatikana kunyonyesha

D. Sijui

E. Sababu zingine (taja).....

11. Umewahi kusia kuhusu benki ya maziwa ya binadamu?

A. Ndio

B. La

11b. Kama ndio, uliskia wapi kuhusu benki ya maziwa ya binadamu?

A. Televisheni

B. Marafiki

C. Hospitalini

D. Redio

E. Kwengine, taja.....

12a. Kwa maoni yako mwenyewe, je itakuwa sawa Kwa watoto ambao hawawezi kupata maziwa ya mama Yao wenyewe, kulishwa Kwa maziwa yaliotolewa na wanawake wengine na kuwekwa kwenye benki?

A. Ndio

B. La

12b. Je, unadhani ni katika hali gani, ni sawa Kwa watoto kulishwa maziwa ya binadamu yaliotolewa kutoka kwa benki ya maziwa?

A. Wakati mama hataki kunyonyesha

B. Mtoto anapozaliwa kabla ya wakati na mama hana maziwa ya kutosha?

C. Mama akiwa mgonjwa

D. Wakati mama hapatikani anyonyeshe

E. Wakati mtoto ni yatima au kutelekezwa

F. Sababu zingine, taja.....

13. Kwa maoni yako mwenyewe, ni ipi njia bora ya kulisha mtoto ambaye, hawezi kupata maziwa ya mama yake mwenyewe?

A. Maziwa yaliotolewa na binadamu

- B. Maziwa ya formula ya watoto wachanga [ ]
- C. Kunyonyeshwa na mwanamke mwengine [ ]
- D. maziwa safi kutoka kwa mifugo [ ]
- E. Mbinu zingine, taja.....

**Sehemu C: Maoni na Mazoezi ya Akina Mama Kuhusu Uchangiaji na Matumizi ya Maziwa va Binadamu Yaliotolewa**

14a. Umwahi kuchanga maziwa yako?

- A. Ndio [ ]
- B. La [ ]

14b. Toa sababu za jibu lako hapo juu

.....

.....

.....

.....

.....

15. Unaweza kuwa tayari kutoa maziwa yako Kwa benki ya maziwa ya binadamu?

- A. Ndio [ ]
- B. La [ ]
- C. Sina uhakikia [ ]

16. Una mapendeleo kuhusu nani anayepaswa kupokea maziwa ulioyachanga?

- A. Ndio [ ]
- B. La [ ]

17. Nani ungependa ayapokee maziwa yako uliochanga?

- A. Jamaa [ ]
- B. Rafiki [ ]
- C. Watu ninaowajua [ ]
- D. Mtoto yeyote anaye hitaji maziwa ya kuchangwa [ ]
- E. watu nisiowajua [ ]
- F. Watu wa dini yangu [ ]
- G. Wengine, Taja.....

18. Watu wangani hungenda wapokee maziwa uliochanga?

- A. Watu ninaowajua [ ]
- B. Marafiki [ ]
- C. Watu nisiowajua [ ]
- D. Watu wa dini yangu [ ]
- E. Wengine, taja.....

19. Kwa maoni yako, ni akina mama wagani hawaruhusiwi kuchanga maziwa kwenye benki la maziwa? (Chaguzi nyingi zinaruhusiwa)

- A. mama aliyemgonjwa [ ]
- B. Wanawake wenye tabia hatarishi (uvutaji sigara, pombe na ukahaba) [ ]
- C. Mama Mwenye umri mdogo sana [ ]
- D. Wanawake wazee Sana [ ]
- E. Wanawake wanao ugua maradhi ya ukimwi [ ]
- F. Wengineo, taja.....

20. Mtoto wako amewahi kupokea maziwa ya mama kutoka benki la maziwa?

- A. Ndio [ ]
- B. La [ ]

21a. Ungemruhusu mtoto wako alishwe Kwa maziwa ya binadamu yalioletwa na kuwekwa kwenye benki?

- A. Ndio [ ]
- B. La [ ]

21b. Katika hali gani unaweza kuruhusu mtoto wako alishwe Kwa maziwa yalioleta Na mama mwengine?

- A. Nikiwa mgonjwa Sana [ ]
- B. Kama daktari ameshauri [ ]
- C. Ikiwa natumia dawa zinazozuia kunyonyesha [ ]
- D. Kama sina maziwa ya kutosha [ ]
- E. Ikiwa sipatikani [ ]
- F. Sababu zingine, taja.....

22. Je, ikiwa huwezi kutoa maziwa ya kutosha au haupatikani kulisha mtoto wako, ungependa alishwe na maziwa yaliochangwa kutoka Kwa akina nani?

- A. Jamaa [ ]
- B. Watu ninaowajua [ ]
- C. Marafiki [ ]

- D. Watu nisiowajua
- E. Watu wa dini yangu
- F. wengine, taja.....

23. Je, ukawa hauna maziwa ya kutosha, Ni sababu gani zitakazo fanya usikubali mtoto wako alishwe Na maziwa yaliochangwa na kuwekwa kwenye benki?

- A. Hatari ya maambukizi ya virusi vya ukimwi
- B. Hofu ya magonjwa ya kifamilia
- C. Ni mazoea yasiokubalika kiutamaduni
- D. Kutopenda kibinafsi
- E. Ushawishi mbaya juu ya uhusiano kati ya mtoto na mama wa kibiolojia
- F. Wasiwasi wa usafi
- G. Sababu zingine, taja.....

**Sehemu D: Vikwazo vya Uchangaji wa Maziwa na Matumizi ya Maziwa Yaliochangwa**

**Katika Benki za Maziwa.**

24. Ni sababu gani zinazoweza kuzuia kuchanga maziwa yako katika benki za maziwa?

- A. Hofu kwamba mtoto wako hatakuwa na maziwa ya kutosha
- B. Utamaduni wako hauruhusu uchangaji wa maziwa
- C. Kutopenda kibinafsi
- D. Dini yako hairuhusu uchangaji wa maziwa
- E. Sababu zingine, taja.....

25. Je, ikiwa huna maziwa ya kutosha, ni nini kingekuzuia kuruhusu mtoto wako kulishwa na maziwa yaliotolewa?

- A. Hofu ya hatari ya kuambukizwa magonjwa
- B. Hofu ya usafi duni kutoka Kwa wanochanga maziwa
- C. Hofu ya uhamisho wa sifa za maumbile
- D. Ni kinyume na Imani za kidini
- E. Sababu zingine, taja.....



Weka tiki kwenye visanduku vinayofaa Kwa majibu yako. Nambari zinaonyesha jinsi Unavyokubali Au Kutokubaliana Na Taarifa Zifuatazo. 1= Kukubaliana Sana, 2= Kukubaliana, 3=Upande Wowote, 4= Kutokubaliana , 5= Kutokubaliana kabisa

		Kukubal ianasana	kukubal iana	Upande wowote	Kutokubaliana	Kutokubali anakabisa
<b>26a.</b>	Ni mwiko kutoa maziwa yako ilishe mtoto mwingine					
<b>26b.</b>	Mama wanaochangamaziwa yao wanaweza kuwa na matatizo baadaye					
<b>26c.</b>	Maziwa yaliotolewa yanaweza kuwa na madhara kwa wototo wanoyatumia					
<b>26d.</b>	Ni mwiko kutumia maziwa ya mama yaliotolewa					
<b>26e.</b>	Maoni ya wanafamiliyanaweza kuadhiri utoaji na matumizi ya maziwa					
<b>26f.</b>	Imani za kidini na kitamaduni zina adhari katika utoajiwa maziwa na matumiziya maziwa yaliotolewa					

**Sehemu E: Mambo Ambayo Yanakuza Mchango Na Matumizi Ya Maziwa Yanayotolewa**

27. Kwa maoni yako ni nini kingefanya akina mama wawe tayari kutoa maziwa iwekwe kwenye benki?
- A. Kuelimisha akina mama umuhimu wa kuchanga maziwa yawekwe kwenye benki [ ]
  - B. Ikiwa kungekuwa na aina ya fidia kwa wafadhili [ ]
  - C. Ikiwa imeidhinishwa Na viongozi wa dini [ ]
  - D. Ikiwa imeidhinishwa na viongozi serikalini [ ]
  - E. Sababu zingine, taja.....
28. Kwa maoni yako, ni nini kingekuza utayari wa akina mama kutumia maziwa yaliotolewa kwa watoto wao?
- A. Ikiwa imeidhinishwa na wahudumu wa afya [ ]
  - B. Ikiwa wanafamilia wataunga mkono maoni ya mama juu ya wazo hilo [ ]
  - C. Ikiwa mama anaelewa vizuri hatua zinazohusika katika kuhifadhi maziwa hayo [ ]
  - D. Ikiwa imeidhinishwa na viongozi wa vijiji [ ]
  - E. Sababu zingine, taja.....

## **Appendix V: Focused Group Discussion Guide (Kiswahili)**

### **Mwongozo wa Majadiliano ya Kikundi**

**Mada ya utafiti: Mtazamo na mazoezi juu ya uchangaji wa maziwa ya binadamu na benki za maziwa, miongoni mwa akina mama wajawazito katika hospitali ya uzazi ya Pumwani.**

**Hotuba ya ufunguzi:** Shukrani kwa washiriki wote kwa kukubali kuwa sehemu ya mjadala huu.

**Ice breaker:** - Habari zenu? Safari ya uja uzito ikoje?

- Umehudhulia kliniki ya wajawazito mara ngapi hadi sasa?

1. Umesikia au kuona nini kuhusiana na kuchangia na kupokea maziwa ya binadamu yaliotolewa?

**Uchunguzi:** Tafadhali unaweza niambia kuhusu kesi kama hiyo ambayo umesikia au kuona?

2. Je, umewahi kusikia hadithi zipi kuhusu: maziwa ya binadamu yaliotolewa, kuchangia maziwa na kulisha watoto kwa maziwa yaliotolewa?

3. Una maoni gani kuhusu wanawake wanaotoa maziwa yao ili kulishwa kwa watoto wengine, ambao hawawezi kupata maziwa ya mama zao? Niambie Zaidi.....

**Uchunguzi:** Kwa maoni yako unadhani kuna faida zipi au hatari zipi, mama anapo changa maziwa?

-Unadhani nani anafaa kutoa/ kuchanga maziwa na nani asitoe?

4. Una maoni gani kuhusu kulisha watoto na maziwa yaliotolewa? Niambie Zaidi.....

**Uchunguzi:** Kwa maoni yako unadhani kuna faida au hatari zipi kulisha watoto na maziwa ya mama yaliotolewa?

5. Ikihitajika, unaweza kuchangia maziwa yako ili yatumike kuwalisha watoto wengine? Kwa nini?

**Uchunguzi:** Ni kwa wakati upi unaweza kufikiria kuchanga/ kutoa maziwa yako?

- Ni nini kingekuchochea kuchangia maziwa yako?
  - Ni akina mama/ watoto gani ungependa kuchangia maziwa yako na kwa nini?
  - Unafikiri wanafamilia wako wangeitikiaje ukitoa maziwa na kwa nini?
  - Ni nini kinaweza kuzuia kuchanga maziwa yako?
6. Ikiwa Kwa sababu Fulani mtoto wako hakuwa na kiasi cha kutosha cha maziwa yako mwenyewe, je ungekuwa tayari kumlisha Kwa maziwa yaliotolewa?
- **Uchunguzi:** Nini kinachoweza kufanya ukubali matumizi ya maziwa yaliotolewa kulishwa mtoto wako?
  - Utakubali kutoka Kwa nani maziwa yaliochangwa na ni kwa nini?
  - Nini wasiwasi wako katika mtoto wako kupokea maziwa ya mchango?
  - Wanafamilia wako wangekuchukulia aje kwa kutumia maziwa yaliotolewa kwa mtoto wako? (Wangukuunga mkono au la? na ni kwa nini?)
7. Umewahi kusia kuhusu benki za maziwa? Niambie Zaidi.....
8. Kwa maoni yako, nani anafaa kuchangia maziwa kwenye beki ya maziwa Na ni Kwa nini?
- Tafadhali nieleze, umewahi changa maziwa? Na ilikuwa kwa sababu gani?
  - Unaona uwezekano wa kutoa maziwa yako Kwa benki ya maziwa? Niambie Zaidi.....
  - Ni nini kitakachokuhumiza au kukuzuia kutoa maziwa yako Kwa benki ya maziwa?
  - Kwa mtazamo wako, Ni vipi akina mama wengine wanaweza kuhamasishwa kuchangia maziwa Yao kwenye benki za maziwa?
9. Ungemruhusu mtoto wako kupokea maziwa kutoka Kwa benki za maziwa?
- **Uchunguzi:** Ni nini kingekuhimiza kukubali/ kuruhusu mtoto wako alishwe Kwa maziwa kutoka Kwa benki?
  - Ni nini kingekuzuia kuruhusu mtoto wako kulishwa Kwa maziwa kutoka Kwa benki ya maziwa?
10. Rafiki yako ama wewe mwenyewe, ukitoa maziwa ambayo yanaweza kuokoa maisha ya watoto waliohitaji, je kuna kitu kinafaa kutolewa kutambua juhudi zako/ zao?

- **Uchunguzi:** Ni zipi zinaweza kuwa njia za kutambua wadhamini wa mchangohuu wa maziwa?

11. Nini kingine ungependa kuniambia kuhusu masuala ambayo tumeyajadili?
12. Una maswali yoyote kuhusiana Na tuliojadili leo?

**Asanteni Sana Kwa Kushiriki.**

## **Appendix VI: Consent Form for Participation in the Study (Kiswahili)**

Fomu ya Idhini ya Kushiriki Katika Utafiti

Jina la utafiti: **“Mtazamo na mazoezi juu ya uchangaji wa maziwa ya binadamu na benki ya maziwa miongoni mwa akina mama wajawazito katika hospitali ya uzazai ya Pumwani”**

**Jina la mtafiti:** Jane kamau

Mimi ni mwanafunzi wa shahada ya uzamili katika chuo kikuu cha nairobi, naitafuta shahada ya uzamili ya sayansi katika uuguzi-ukunga na uzazi.

Ninafanya utafiti huu ili kujua, nini maoni na utendaji wa akina mama kuhusu uchangaji wa maziwa Na maoni kuhusu benki za maziwa. Madhumuni ya fomu hii ya idhini ni kutoa taarifaambayo itakusaidia kuamua kama utashiriki Kwa utafiti huu au la.

Maziwa yalioletolewa ni mbadala bora wakati maziwa ya mama mwenyewe hayapatikani kwa kulisha watoto wachanga. Ushiriki wako katika utafiti huu utanisaidia kutathmini ufahamu, maoni juu ya mchango wa maziwa na benki, pammoja na vikwazo.

Maziwa ya binadamu hutoa lishe bora, kukuza ukuaji na kupunguza hatari ya magonjwa. Matokeo ya utafiti yatatusaidia kutambua mapungufu na kuweza kuyashughulikia ipasavyo. Hivyo basi kuboresha lishe ya watoto wanaozaliwa.

Tafadhali elewa yafuatayo:

**Ushiriki:** Uamuzi wa kushiriki katika utafiti huu ni wa hiari. Kukataa kushiriki hakutavutiaadhabu yoyote.

**Usiri utadumishwa,** Jina lako halitaandikwa popote na mambo utakayo tueleza usiri wa haliya juu utadumishwa.

**Faida:** Elimu na taarifa yoyote inayohitajika kuhusu mchango wa maziwa na benki za maziwaitatolewa.

**Fidia:** Hakuna fidia Kwa kushiriki katika utafiti huu

**Hatari:** Kuna hatari ndogo Sana kuhusiana na ushiriki wako katika utafitii huu.

**Kujiiondoa:** Uko huru kujiiondoa kutokana ushiriki huu wakati wowote bila uwoga na hakunahuduma zitakazokataliwa. Wajulishe tu wanafanyakazi wa utafiti na ushiriki wako utasitishwa. Kama kuna maswali Zaidi au wasiwasi kuhusu utafiti, ujiskie huru kupiga simu au kutuma ujumbe mfupi wa maandishi Kwa nambari iliyotolewa hapa chini.

Mtafiti Mkuu na wasimamizi:

Jane Kamau

**Nambari ya simu:** 0725603203

**Barua pepe:** [wanguikamau2021@gmail.com](mailto:wanguikamau2021@gmail.com)

Dr. Mary Kamau

Barua pepe: [kwanjira@uonbi.ac.ke](mailto:kwanjira@uonbi.ac.ke)

Dr. Lucy Bitok

Barua pepe: [lukibitok@uonbi.ac.ke](mailto:lukibitok@uonbi.ac.ke)

Au

Kenyatta National Hospital- University of Nairobi Ethics and Research committee

Email: uonknh [erc@uonbi.ac.ke](mailto:erc@uonbi.ac.ke)

### **Taarifa ya Washiriki**

Nimesoma fomu hii ya idhini au nimesomewa maelezo, nimepata nafasi ya kujadili utafiti huuna mtafiti na maswali yoyote niliyokuwa nayo yameshughulikiwa. Hatari na faida zimeelezewakwangu na ninaelewa kuwa ushiriki ni wa hiari na hakuna fidia na kwamba naweza kuchagua kujitoa kushiriki wakati wowote. Pia nimehakikishiwa kwamba maelezo yaliotolewa yatatunzwa kwa siri na kwa hivyo nakubali kushiriki katika utafiti huu kwa hiari yangu.

Nakubali kushiriki katika utafiti huu **Ndio** [ ] **La** [ ]

**Saini ya mshiriki/kidole gumba ..... Tarehe**

Taarifa ya Mtafiti

Mimi niliyetia sahihi hapa chini, nimeeleza kikamilifu maelezo muhimu ya utafiti huu wamshiriki na amelewa na kutoa ithini yake ya kushiriki kwa hiari yake.

Sahihi ya mtafiti..... Tarehe.....

**Asante Kwa Muda Wako!**



## **Appendix VII: A Letter to the Medical Superintendent, Pumwani Maternity Hospital**

Jane Wangui Kamau

University of Nairobi

College of Health Sciences

Department of Nursing

P.O Box, 23857-00100

Nairobi.

Tel: 0725603203

The Medical Superintendent

Pumwani Maternity Hospital

P.O Box, 42849-00100

Nairobi.

Through,

The Nursing Service Manager

Pumwani Maternity Hospital

Dear Sir/Madam

**RE: PERMISSION TO CONDUCT A STUDY AT PUMWANI MATERNITY HOSPITAL**

I am a second-year student at the University of Nairobi, Department of Nursing. I hereby request for your permission to carry out research on **“Perspective on human milk donation and milk banking, among Antenatal mothers attending clinic at Pumwani Maternity Hospital”**.

This is a requirement in partial fulfillment for the award of Master Degree of science in Nursing(Midwifery and Obstetrics). I look forward to your positive response.

Thanks in Advance.

Yours Faithfully,

Jane Kamau



## Appendix VIII: Approval Letter from KNH-UoN ERC



UNIVERSITY OF NAIROBI  
FACULTY OF HEALTH SCIENCES  
P O BOX 19676 Code 00202  
TELEGRAMS: varsity  
Tel: (254-020) 2726300 Ext 44355



KENYATTA NATIONAL HOSPITAL  
P O BOX 20723 Code 00202  
Tel: 726300-9  
Fax: 725272  
Telegrams: MEDSUP, Nairobi

KNH-UoN ERC  
Email: [uonknh\\_erc@uonbi.ac.ke](mailto:uonknh_erc@uonbi.ac.ke)  
Website: <http://www.erc.uonbi.ac.ke>  
Facebook: <https://www.facebook.com/uonknh.erc>  
Twitter: @UONKNH\_ERC [https://twitter.com/UONKNH\\_ERC](https://twitter.com/UONKNH_ERC)

18<sup>th</sup> September, 2023

Ref: KNH-ERC/A/484

Jane Wangui Kamau  
Reg. No. H56/40583/2021  
Dept. of Nursing Sciences  
Faculty of Health Sciences  
University of Nairobi



Dear Jane,

**ETHICAL APPROVAL-PERCEPTIONS AND PRACTICE ON HUMAN BREAST MILK DONATION AND MILK BANKING AMONGST ANTENATAL MOTHERS AT PUMWANI MATERNITY HOSPITAL: A MIXED METHODS STUDY (P533/06/2023)**

This is to inform you that KNH-UoN ERC has reviewed and approved your above research proposal. Your application approval number is P533/06/2023. The approval period is 18<sup>th</sup> September 2023 – 17<sup>th</sup> September 2024.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by KNH-UoN ERC.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KNH-UoN ERC 72 hours of notification.
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH-UoN ERC within 72 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to KNH-UoN ERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,



**PROF. BEATRICE K.M. AMUGUNE**  
**SECRETARY, KNH- UoN ERC**

- c.c.     The Dean, Faculty of Health Sciences, UoN  
          The Senior Director, CS, KNH  
          The Chairperson, KNH- UoN ERC  
          The Assistant Director, Health Information Dept., KNH  
          The Chair, Dept. of Nursing Sciences, UoN  
          Supervisor: Prof. Mriam C.A. Wagoro, Dept. of Nursing Sciences, UoN  
                  Dr. Mary Kamau, Dept. of Nursing Sciences, UoN.



REPUBLIC OF KENYA



NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 709489

Date of Issue: 19/October/2023

## RESEARCH LICENSE



This is to Certify that Ms.. JANE WANGUI KAMAU of University of Nairobi, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: PERCEPTION AND PRACTICE ON HUMAN MILK DONATION AND MILK BANKING AMONG ANTENATAL MOTHERS AT PUMWANI MATERNITY HOSPITAL for the period ending : 19/October/2024.

License No: NACOSTI/P/23/30578

709489

Applicant Identification Number

Director General  
NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY &  
INNOVATION

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See overleaf for conditions

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

#### CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of international treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way:
  - i. Endanger national security
  - ii. Adversely affect the lives of Kenyans
  - iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
  - iv. Result in exploitation of intellectual property rights of communities in Kenya
  - v. Adversely affect the environment
  - vi. Adversely affect the rights of communities
  - vii. Endanger public safety and national cohesion
  - viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and  
Innovation(NACOSTI),  
Off Waiyaki Way, Upper Kabete,  
P. O. Box 30623 - 00100 Nairobi, KENYA  
Telephone: 020 4007000, 0713788787, 0735404245  
E-mail: dg@nacosti.go.ke  
Website: www.nacosti.go.ke

## Appendix IX: Approval Letter from Pumwani Maternity Hospital

### INTERNAL MEMO

**TO** : INCHARGE MCH – PM&RH  
**REF** : PMH/CEO/76/0506/2023  
**DATE** : 25<sup>TH</sup> SEPTEMBER 2023

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### RE: APPROVAL TO CONDUCT RESEARCH BY JANE WANGUI KAMAU

This is to notify your department that the above named officer has been cleared to conduct research in Pumwani Maternity and Referral Hospital having submitted the research proposal and ethical approval from approved institution.

The title of the research is "Perceptions and practice on human milk donation and milk banking amongst Antenatal mothers attending clinic at Pumwani Maternity Hospital".

Please accord his necessary assistance.



**JUSTINE MANANI**  
**HEAD, MEDICAL SERVICES**



**Appendix X: Time Frame (Ghant Chart)**

<b>Duration in months/ Activity</b>	<b>Jan 2023</b>	<b>Feb 2023</b>	<b>March 2023</b>	<b>April 2023</b>	<b>May 2023</b>	<b>June 2023</b>	<b>July 2023</b>	<b>August 2023</b>	<b>September 2023</b>
Problem identification									
Proposal writing									
Submission to the ethical committee for approval									
Recruitment and Training of research Assistants,									
Data collection									
Data cleaning and Analysis									
Report writing and presentation									
Compilation of final report and Dissemination									



### Appendix XI: Study Budget

CATEGORY	ITEM	UNIT	QUANTITY	UNIT COST (Ksh)	TOTAL COST (Ksh)
<b>Materials and supplies</b>	Pens	1 dozen	12	120	120
	Pencils	1 dozen	12	200	200
	Erasers	1	3	10	30
	Sharpener	1	1	20	20
	Printing papers	2 reams	100	500	1000
	Full scaps	1 ream	50	100	100
	Folders	1	3	100	300
	Stapler and staple pins	1	1	500	500
	Paper punch	1	1	1000	1000
	Calculator	1	1	1000	1000
	Flash disk	1	1	1000	1000
	Audio recorder	1	1	5000	5000
<b>TOTAL</b>					<b>10270</b>
<b>Services</b>	Proposal printing	60pgs	1	10	600
	Proposal photocopy	60pgs	2	5	600
	Proposal binding	1	3	100	300
	ERC fee	1	1	2000	2000
	Project printing	100pgs	1	10	1000
	Project photocopy	100pgs	2	5	1000
	Statistician	1	1	30000	30000
	consultancy	1	3	100	300
	Project binding	1	1	20000	20000
	Publishing fee				
	Transport and lunch(PI)	1	10days	600	6000
	Research Assistants	2	10days	500	10000
				Total	71800
Contingency Cost					7180
<b>TOTAL</b>					<b>89,250</b>

## Appendix XII: Similarity Index Report

### Appendix XII: Similarity Index Report

#### Perceptions And Practice On Human Breast Milk Donation And Milk Banking Amongst Antenatal Mothers At Pumwani Maternity Hospital: A Mixed Methods Study

##### ORIGINALITY REPORT

**13%**

SIMILARITY INDEX

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6	Dexter T. Chagwena, Felistas Mugariri, Bhekimpilo Sithole, Steady Faith Mataga et al. "Acceptability of donor breastmilk banking among health workers: a cross-sectional survey in Zimbabwean urban settings", International Breastfeeding Journal, 2020 Publication	<1%

Prof. L. Kwasi-Biralo  
10/11/2023



Dr. E. Mathew  
09/11/2023  
C.O.D