KNOWLEDGE, ATTITUDES AND PRACTICES ON EARLY BREASTFEEDING AMONG MOTHERS DELIVERING AT MOI TEACHING AND REFERRAL HOSPITAL IN UASIN-GISHU COUNTY, KENYA

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H60/CTY/PT/27608/2013

A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE (FOOD, NUTRITION AND DIETETICS) IN THE SCHOOL OF APPLIED HUMAN SCIENCES OF KENYATTA UNIVERSITY

MAY 2017
DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

To God, the giver of life and health to work and make wealth.

To my mother Jane violet Boor:

For believing in me and nurturing my dreams;

To my wife Elyne Kirui:

For your love and moral support;

To my son Ted and niece Mabel:

May this inspire you to achieve greater in academics early in life;

and

To my sisters Mildah and Mercy:

For your love and encouragement which has propelled me to achieve my goals.
ACKNOWLEDGEMENT

I thank the almighty God who has been my anchor and my strength in this journey, in everything I have done He has seen me through. Special gratitude goes to my supervisors Prof. Judith Kimiywe and Dr. Irene Ogada for their dedication, moral support and guidance throughout the study. I have learnt more in life than just the academics from them.

I wish to acknowledge the following for playing very important roles in the course of the study: the study participants for allowing me to interview them, Mr. Dominic Ruto and his team for assisting in data collection, and Mr. Timothy Makori for conducting the statistical analyses. The Moi Teaching and Referral Hospital’s (MTRH), Mother and Baby Hospital section; the nutritionist Ms. Christine Ohanga and her team who played a key role in ensuring I obtained the data required. I thank my classmates with whom we walked this path together; they are such a great team.

A very special gratitude goes to my wife, Elyne Kirui, son Ted Toroitich, mum Jane violet Boor, sisters Mildah Chebet and Mercy Beryl Jepkosgei and niece Mabel Cheptanui; you have been an inspiration and the reason for my struggle every day. I also thank Prof. Mueni Ndiku, my mentor for her guidance and concern. I cannot forget to thank all of my friends for their encouragement. Thank you for always believing in me.
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DEFINITION OF TERMS

Colostrum: Thick yellowish secretion from the breast within the first three days of the infant's life (WHO, 2008).

Exclusive breastfeeding: Giving breastmilk only to a baby after it has been born, and nothing else except vitamins, or other medicines and mineral supplements (UNICEF, 2007).

Post-lacteals: Food given to a new born after initiation of breastfeeding, within three days of delivery (WHO, 2008).

Pre-lacteals: Food given to a newborn before initiation of breastfeeding hence before colostrum; for instance milk, honey, or sugar water (WHO, 2008).

Rooming-in: A method for the care of newborn infants in which the baby stays in the same room with the mother, for her to take care of the baby with the help of the nurses and doctors (WHO, 2008).

Skin-to-skin: Holding the baby on the mother’s bare chest with their skins coming into contact. It is done immediately after birth and also a few days after birth (WHO, 2008).

Timely initiation of breastfeeding: It is when a baby is put to the breast within one hour of birth according to (WHO, 2008), and within half an hour according to the Kenya MOH (MOH, 2013).
**OPERATIONAL DEFINITION OF TERMS**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Early breastfeeding attitudes:</td>
<td>A mother’s way of thinking or feeling towards recommended early breastfeeding practices such as timely initiation to breastfeeding, giving colostrum and not giving pre and post-lacteals.</td>
</tr>
<tr>
<td>Early breastfeeding knowledge:</td>
<td>The information a mother has regarding early breastfeeding and breastfeeding options.</td>
</tr>
<tr>
<td>Early breastfeeding practices:</td>
<td>What a mother does during the first few days after birth in regard to giving colostrum, time of initiation to breastfeeding, use of pre-lacteals or not, first feed after delivery, and use of post-lacteals or not. This is made effective by introducing skin-to-skin and rooming-in immediately after birth.</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>--------------</td>
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</tr>
<tr>
<td>BFH</td>
<td>Baby Friendly Hospital</td>
</tr>
<tr>
<td>BFHI</td>
<td>Baby Friendly Hospital Initiative</td>
</tr>
<tr>
<td>CBO’s</td>
<td>Community Based Organizations</td>
</tr>
<tr>
<td>C.I.</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>DHS</td>
<td>Demographic and Health Survey</td>
</tr>
<tr>
<td>EBF</td>
<td>Exclusive Breast Feeding</td>
</tr>
<tr>
<td>FFI</td>
<td>Face to face interview</td>
</tr>
<tr>
<td>KDHS</td>
<td>Kenya Demographic and Health Survey</td>
</tr>
<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>KII₁</td>
<td>Key Informant Interview number one</td>
</tr>
<tr>
<td>KII₂</td>
<td>Key Informant Interview number two</td>
</tr>
<tr>
<td>KBS</td>
<td>Kenya National Bureau of Statistics</td>
</tr>
<tr>
<td>KUERC</td>
<td>Kenyatta University Ethical Review Committee</td>
</tr>
<tr>
<td>LBW</td>
<td>Low birth weight</td>
</tr>
<tr>
<td>MTRH</td>
<td>Moi Teaching and Referral Hospital</td>
</tr>
<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
</tr>
<tr>
<td>NGO’s</td>
<td>Non-governmental Organizations</td>
</tr>
<tr>
<td>OR</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>SDG’s</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Emergency Fund</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
ABSTRACT

The prevalence of timely initiation of breastfeeding within 1 hour of birth is 43% globally, 48% in Sub-Saharan Africa, 62% in Kenya, and 69.4% in Rift Valley province. The World Health Organization (WHO) and United Nations International Children’s Emergency Fund (UNICEF) recommends initiation of breastfeeding within 30-60 minutes of birth, giving colostrum, not giving pre and post-lacteals and also exclusive breastfeeding (EBF) for first six months. Early breastfeeding practices are still suboptimal in most settings because much of the focus of breastfeeding advocacy and research has been on exclusive breastfeeding. Few studies have however investigated early maternal breastfeeding knowledge, attitudes and practices. Hence, there is limited literature in Kenya and Uasin Gishu County. The purpose of this study, therefore, was to determine the knowledge, attitudes, and practices on early breastfeeding among mothers who deliver at Moi Teaching and Referral Hospital (MTRH), in Uasin-Gishu County. This study adapted the cross-sectional analytical study design with qualitative and quantitative techniques in data collection, analysis, and presentation. A sample size of 283 women who had delivered in the last 72 hours at MTRH participated in the study. The researcher administered a questionnaire to mothers of newborn babies. Key Informant Interviews (KII) were also conducted with the nutritionist and the nurse in charge of the labour ward. The Statistical Package for Social Sciences version 23.0 was used to analyze quantitative data. Maternal attitudes was measured using a five-point Likert scale. Mean scores were calculated for maternal knowledge and attitude. The association between categorical data such as the early breastfeeding knowledge, attitudes, and practices was determined using the odds ratio. Pearson’s correlation was used to test the association between knowledge scores and attitude scores. Statistical significance was set at p<0.05. Content analysis was conducted on qualitative data from the questionnaires and KII and categorized into key themes. The majority of the mothers (74.2%) were knowledgeable on timely initiation of breastfeeding, 91.9% knew that colostrum should be given, while 99.6% and 91.2% knew that pre and post-lacteals should not be given respectively. Most mothers had a positive attitude towards aspects of early breastfeeding: timely initiation of breastfeeding (80.6%); giving colostrum (95.0%) not giving pre and post-lacteals (83.4% and 72.8% respectively), and practicing exclusive breastfeeding (91.8%). The mothers who practiced timely initiation of breastfeeding were 96.5%. About 98.2% gave breast milk only as the first feed, 90.5% did not give post-lacteal, while 94% gave colostrum. There were positive associations between knowledge scores and attitude scores (r=0.389, N=283, p<0.05), other associations were knowledge and practices, and attitudes and practices of mothers on early breastfeeding. Challenges to early breastfeeding were breast problems, low milk production, not being able to position and attach the baby correctly. In conclusion, mothers had good knowledge and positive attitudes towards early breastfeeding, and practiced early breastfeeding as recommended by WHO and Kenya’s MoH. Based on the findings of the study, it is recommended that the Ministry of Health in Kenya develop a policy targeting the mothers on the continuation of breastfeeding education after discharge from hospital as it has proven to be have a positive outcome towards early breastfeeding.
CHAPTER ONE: INTRODUCTION

1.1 Background to the study

The World Health Organization (WHO) and United Nations International Children’s Emergency Fund (UNICEF) recommended that after delivery, optimal early breastfeeding practices should be encouraged. These optimal practices include initiating breastfeeding within 30 minutes to an hour of birth, giving colostrum, not giving pre-lacteals or post-lacteals and exclusive breastfeeding (EBF) of infants. This is because these practices have been proven to provide significant benefits for the overall development and survival of children (WHO & UNICEF, 2009). The international Baby-Friendly Hospital Initiative (BFHI), which was launched in 1991 by UNICEF and WHO promotes and protects maternal and child health. This is achieved by ensuring that mothers are supported and helped with breastfeeding in maternity care facilities. It has been proved that the Baby Friendly Hospital Initiative (BFHI) affects the early initiation and EBF breastfeeding rates directly at the hospital level (Abrahams & Labbok, 2009).

Timely initiation of breastfeeding is when a baby is put to the breast within an hour of birth according to WHO (2008), and within half an hour in Kenya (MOH, 2013). According to UNICEF (2014), the prevalence of timely initiation of children breastfeeding (within 1 hour) is 43% globally, 48% in Sub-Saharan Africa, and 58% in Eastern and Southern Africa. In Kenya the rate of breastfeeding is reported to be 97%. It is also reported that 86% of Kenyan mothers initiated breastfeeding within one day of birth while 62% initiated breastfeeding within 1 hour of birth. In the Rift Valley region, the rate of timely initiation has been reported to be 69.4% (Kenya National Bureau of Statistics ICF Macro, 2014). Studies report that early initiation of breastfeeding is a
strategy that can be used to reduce neonatal morbidity and mortality (Shwetal, Pooja, Neha, Amit, & Rahul, 2012).

Giving colostrum to a baby is another optimal early breastfeeding practice that should be encouraged after initiating breastfeeding successfully. Colostrum is the first thick, yellow milk that contains antibodies which protect the baby from illness (MOH, 2013). According to recommendations, children should be fed on colostrum within one hour or immediately after birth and should continue to be breastfed exclusively even if regular milk has not yet started to flow (Kenya National Bureau of Statistics ICF Macro, 2014). In a study in Southern Ethiopia by Adugna, (2014) some women considered colostrum as expired milk and gave pre-lacteal feeds instead and discarded the colostrum.

Mothers are encouraged to avoid the use of pre-lacteals so as to protect the babies against infections. Pre-lacteals are any feed that is given to a newborn before it is initiated to breastfeeding, usually on the first day of delivery (Dawal, Inamdar, Saleem, Priyanka, & Doibale, 2014). Exclusive breastfeeding rate is at 84.1% in Kenya, while the rate of giving pre-lacteal is 15.4%. In Rift Valley region, the rate of giving pre-lacteals is at 18.6% of Kenya (Kenya National Bureau of Statistics ICF Macro, 2014). Pre-lacteal feeding has been linked to adverse neonatal health outcomes, including increased risk of morbidity, mortality, and immunological decline for newborns, thus increasing their susceptibility to infection. A study by Nguyen et al., (2013) indicates that pre-lacteal feeding is highly prevalent in Vietnam (73.3%), 14% in Nepal (Chandrashekhar et al.,
2007) and 45% in India (Lohkare, 2009). According to El-Gilany, Sarraf, and Al-Wehady (2012), about 60% of infants in Egypt were pre-lacteally fed sugar-water, tea or both. In Ethiopia, a study by (Setegn, Gerbaba, & Belachew, 2011) in Goba Woreda reported pre-lacteal feeding rate to be 17.2%.

Among those women who gave pre-lacteal feeds, 41% of women considered the provision of water as a means of cleaning the infant’s stomach (Adugna, 2014). A misbelief that milk comes only on the second or third day after delivery is very common. Pre-lacteal feeds are often given to a newborn for fear that it may be hungry or may become dehydrated (Dawal et al., 2014). Some mothers cite cultural factors as reasons for giving pre-lacteal feeds. For instance among the Luo of Kenya, milk and other liquids are believed to clean the baby’s throat while solid foods are given to boys after they are born to make them healthy and strong (Nyanga, 2012). Mothers in Samburu, Kenya chew roots of medicinal trees and gives the pulp to the baby to make the babies stronger (Fratkin, 1996).

There is an association between pre-lacteal feeding and delayed breastfeeding. Optimal practices such as feeding colostrum, timely initiation, exclusive breastfeeding, skin-to-skin contact, and rooming-in can save up to 1.4 million mortalities of children under 5 years annually, and prevent about 10% of the annual disease burden (Stein, 2015). The WHO targets for early breastfeeding include initiation within one hour of birth, giving colostrum, and skin-to-skin contact for at least one hour after birth.
Rooming-in is a method where the mother stays with her baby in the same room, and she takes care of the baby assisted by the doctors and nurses (Ahn, Ko, Kim, Lee, & Shin, 2008). Rooming-in care improves maternal attachment, increases breastfeeding rates significantly and also reduces incidences of abuse, abandonment of the infant and failure to thrive (Ahn et al., 2008).

To encourage good early breastfeeding practices, correct knowledge and attitudes on initiating breastfeeding on time, not giving pre and post-lacteals, and giving colostrum are important. According to Ahn et al. (2008) the activities of the first three days after birth have a significant effect on breastfeeding. In Kenya, to encourage good knowledge, attitudes, and practices, the MoH has developed standard operating procedures (SOPs) guiding the healthcare personnel on early breastfeeding. These SOPs are recommended in all Kenyan health facilities. Maternal early breastfeeding knowledge and attitudes have an impact on their practices. Hence, there is a need to ensure that both the healthcare personnel and the breastfeeding mothers adhere to all the ten steps to successful breastfeeding (Table 1.1) during the first few days before discharge.
Table 1.1: Ten steps to successful breastfeeding

<table>
<thead>
<tr>
<th>TEN STEPS TO SUCCESSFUL BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every facility providing maternity services and care for newborn infants should:</td>
</tr>
<tr>
<td>1. Have a written breastfeeding policy that is routinely communicated to all health care staff.</td>
</tr>
<tr>
<td>2. Train all health care staff in skills necessary to implement this policy.</td>
</tr>
<tr>
<td>3. Inform all pregnant women about the benefits and management of breastfeeding.</td>
</tr>
<tr>
<td>4. Help mothers initiate breastfeeding within a half-hour of birth.</td>
</tr>
<tr>
<td>5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.</td>
</tr>
<tr>
<td>6. Give newborn infants no food or drink other than breastmilk unless medically indicated.</td>
</tr>
<tr>
<td>7. Practice rooming in - allow mothers and infants to remain together - 24 hours a day</td>
</tr>
<tr>
<td>8. Encourage breastfeeding on demand.</td>
</tr>
<tr>
<td>9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.</td>
</tr>
<tr>
<td>10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.</td>
</tr>
</tbody>
</table>

Source: (Unicef & WHO, 2009)

Al-Binali, (2012) points out that insufficient knowledge and improper practices of breastfeeding may adversely affect both the child and the mother. Further, Kornides and Kitsantas, (2013) reported that women with greater knowledge about breastfeeding benefits were more likely to initiate breastfeeding earlier than their counterparts.

Further, positive attitude among mothers is associated with longer breastfeeding duration (Mossman, Heaman, Dennis, & Morris, 2008). It is against this background that this study was conducted.

1.2 Problem statement

The Baby-Friendly Hospital Initiative (BFHI) was adopted by the Ministry of Health (MOH) in Kenya, based on the joint WHO/UNICEF global strategy for infant and young
child feeding developed in 2002 (APHRC, 2013). Early breastfeeding practices are still sub-optimal in most Kenyan settings because much of the focus of breastfeeding advocacy and research has been on exclusive breastfeeding with little or no attention to aspects such as timely initiation (Sallam, Babrs, Sadek, & Mostafa, 2012).

Despite the existence of the UNICEF and WHO BFHI campaign to promote exclusive breastfeeding and its universal acceptability, it is still a common practice in some cultures to introduce other drinks to babies within the first day of life before the actual commencement of breastfeeding (Ibadin, Ofili, Monday, & Nwajei, 2013). Early breastfeeding knowledge and practices have been found to be inadequate for instance in rural Punjab (Garg, Deepti, Padda, & Singh, 2010). Sallam et al., (2012) noted that little attention had been given to early initiation of breastfeeding despite the inclusion of timely initiation to breastfeeding in international child feeding recommendations. Poor early breastfeeding practices have been associated with poor brain development, poor cognitive performance, exposure to diseases and poor growth. Early breastfeeding practices determine success in later breastfeeding practices.

The Kenya National Bureau of Statistics ICF Macro (2014), cites the rate of initiating breastfeeding within 1 hour in Kenya as 62% of children ever breastfed, and the rate of giving pre-lacteals as 15.4%. In Rift Valley province, 69.4% of children ever breastfed are initiated to breastfeeding within 1 hour. This indicates that good early breastfeeding practices are still sub-optimal in Kenya, specifically in Uasin-Gishu County, and this presents a challenge to meeting goal three of the Sustainable Development Goals (SDGs), and the second pillar of Kenya Vision 2030. According to Shommo, Sohair, and Shubrumi, (2014); and Garg et al., (2010) there is limited maternal knowledge about
early breastfeeding, and an attitude gap with regards to early breastfeeding which could impede optimal practice. There is limited literature on the early breastfeeding knowledge, practices, and attitudes of mothers who deliver in a hospital, and no study has been conducted in MTRH or in Uasin-Gishu County to determine the knowledge, attitudes and practices on early breastfeeding.

This study seeks to establish the knowledge, attitudes, and practices on early breastfeeding among mothers who deliver at the Moi Teaching and Referral Hospital (MTRH), in Uasin-Gishu County. The MTRH being a the largest facility in the region serving the entire north rift, Nyanza, western Kenya and also part of eastern Uganda.

1.3 Purpose of the study

The purpose of this study was to establish the knowledge, attitudes, and practices on early breastfeeding among mothers who deliver at the Moi Teaching and Referral Hospital (MTRH), in Uasin-Gishu County.

1.4 Objectives of study

The objectives of the study were to:

1. Determine the mother’s knowledge on early breastfeeding at Moi Teaching and Referral Hospital (MTRH).
2. Assess the mother’s attitudes towards early breastfeeding practices at MTRH.
3. Establish the early breastfeeding practices among mothers who deliver at MTRH.
4. Evaluate the challenges experienced by mothers during early breastfeeding at MTRH.
5. Establish relationships between early breastfeeding knowledge, attitudes, and practices of mothers who deliver at MTRH.

1.5 Hypotheses

H01: There is no significant association between early breastfeeding knowledge and practices of mothers who deliver at Moi Teaching and Referral Hospital (MTRH).

H02: There is no significant association between the early breastfeeding attitudes and practices of mothers who deliver at MTRH.

H03: There is no significant association between the early breastfeeding knowledge and attitudes of mothers who deliver at MTRH.

1.6 Significance of the study

The findings of this study will contribute to the knowledge generated in future studies. The findings may also benefit stakeholders such as the Ministries of Health (Division of Nutrition) at national and county levels, institutions such as the MTRH and other health facilities in Uasin Gishu and Kenya by providing a reference, which may inform policies. Non-governmental organizations (NGOs), community-based organizations (CBOs) and other institutions, which are concerned with infant and young child health can also benefit from this study. The study highlights the gaps in early breastfeeding knowledge, attitude, and practices among mothers delivering at health facilities.

1.7 Delimitations

The study sought to assess the early breastfeeding knowledge, attitudes and practices of mother’s who deliver in a hospital as determined by rooming in, skin to skin contact, giving/not giving pre-lacteals, exclusive breastfeeding, timely initiation of breastfeeding,
and giving/not giving post lacteals. The study was conducted at MTRH in Uasin-Gishu County, and therefore findings can only be generalized to health facilities and populations of similar characteristics.

1.8 Limitation

The study did not observe all the practices e.g. timely initiation of breastfeeding, giving colostrum, and skin to skin contact but information was reported by mothers. Probing and collecting the data within 72 hours of delivery was done to minimize recall bias.

1.9 Conceptual framework

This study adopted a conceptual framework developed by the researcher from literature.

![Conceptual Framework Diagram]

**Figure 1.1: A conceptual framework for early breastfeeding knowledge, attitudes and practices’ of mothers**
A mother’s knowledge on early breastfeeding may influence her attitudes and practices. This includes giving colostrum, early initiation breastfeeding, baby’s first feed, not giving post lacteals and practicing exclusive breastfeeding, which are promoted by skin-to-skin contact and rooming-in. Challenges such as breast problems, lack of sufficient milk, fatigue, the effect of drugs after cesarean section; might have an influence on a mothers early breastfeeding practices despite having the knowledge and a positive attitude. Lack of knowledge and poor attitudes can also be barriers to optimal early breastfeeding. This study focused on establishing on knowledge, attitudes and practices on early breastfeeding and challenges mothers experience during the first few days before being discharged from the hospital (0-72 hours).
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction to early breastfeeding

Hospitals and birthing centers are an integral part of the total continuum of health care of the mother and her infant(s) (Baby Friendly USA, 2010). The Baby Friendly initiative launched in 1991 by the WHO/UNICEF as a follow-up to the Innocenti Declaration of 1990, uses ‘‘Ten steps to successful breastfeeding’’, with an intention of promoting and supporting breastfeeding, (Broadfoot, Britten, Tappin, & MacKenzie, 2005). This is achieved by ensuring that mothers are given support and help with breastfeeding in maternity care facilities. It has been proved that the Baby Friendly Hospital Initiative (BFHI) affects the early initiation and EBF breastfeeding rates directly at the hospital level (Abrahams & Labbok, 2009). BFHI protects, promotes and supports breastfeeding among mothers (Oluwatosin, 2007).

Other practices that promote optimal early breastfeeding practices include timely initiation, giving colostrum to a baby, not giving pre and post-lacteals to infants, and rooming-in. Timely initiation has the potential of promoting the health of infants (Vieira et al., 2010). Colostrum contains antibodies, which protect the baby from illness (MOH, 2013), while pre and post-lacteal feeding have been linked to negative neonatal health outcomes, including increased risk of morbidity, mortality, and immunological decline for newborns, thus increasing their susceptibility to infection. Rooming-in care improves maternal attachment, increases breastfeeding rates, it reduces incidences of abuse and abandonment of the infant and failure to thrive (Ahn et al., 2008).
2.2 Maternal knowledge of early breastfeeding

Adequate maternal knowledge is one of the factors that can influence breastfeeding intentions but may not have much effect by itself. Thus giving mothers information about the benefits of breastfeeding might affect those who have not already made a decision, or those whose decision is not final. Increasing social support may also be useful in enabling women to decide to breastfeed and to actually carry out their decision (WHO, 1998). Maternal knowledge on early breastfeeding is vital as it has a direct influence on the maternal attitudes and practices. Globally it has been observed that increased maternal knowledge on breastfeeding benefits and support may help boost breastfeeding rates including early initiation of breastfeeding. A recent study revealed that early breastfeeding knowledge was inadequate among mothers in rural Punjab (Garg et al., 2010).

According to Shommo, Sohair, and Shubrumi, (2014), in a study conducted in Saudi Arabia, adverse effects in infants may result due to limited maternal knowledge about breastfeeding. The study, which did not focus on early breastfeeding, reported that participant’s general knowledge of breastfeeding was inadequate. This is in spite of the well-documented advantages of breastfeeding. Another study in Saudi Arabia by Al-Binali, (2012) points out that insufficient knowledge and improper practices of breastfeeding may adversely affect the health of both the child and the mother, for instance a study by Kornides and Kitsantas, (2013) in USA discovered that women with greater knowledge about breastfeeding benefits were more likely to initiate breastfeeding earlier than their counterparts. Garg et al., (2010) observed a huge knowledge gap concerning early breastfeeding in Punjab. Nguyen et al., (2013), in a study conducted in
Vietnam, pointed out that lack of awareness among mothers and absence of supportive milieu could contribute to poor breastfeeding practices.

In Africa, a study in El-Mina University Hospital in Egypt documented that most (more than 80%) of the pregnant women and mothers were knowledgeable about the importance of colostrum and lactation (Sallam et al., 2012). While in Kenya a study by Ogada, (2014), in Nyando district, reported that women in their third trimester were knowledgeable on early breastfeeding. The majority (95.7%) of the mothers knew that breast milk should be baby’s first food, while 87.4% knew that a baby should be put to the breast within 1 hour after delivery, and 76.6% knew that colostrum should be given to the baby.

From the researches above it is concluded that this issue requires due attention for effective promotion of breastfeeding because there is limited literature on early breastfeeding knowledge among mothers in Sub-Saharan Africa, Kenya, and Uasin Gishu County.

2.3 Maternal attitudes towards early breastfeeding

Maternal attitudes towards early breastfeeding have a direct effect on the maternal practices. The positive attitude among mothers is associated with longer breastfeeding duration (Mossman et al., 2008). A study conducted in Papua New Guinea revealed that maternal attitude towards breastfeeding was good (87.9%) (Kuzma, 2013). Another study in Saudi Arabia by Shommo and Al-Shubrumi, (2014) revealed that most (88.3%) of the participants had good attitudes towards adoption of breastfeeding, while (Garg et al., 2010) observed a huge attitude gap with regards to early breastfeeding in Punjab.
Garg et al. (2010) reported that some mothers in some rural parts of India viewed colostrum as pus. Mbada et al. (2013) revealed that close to 60% of African mothers had positive attitudes towards breastfeeding and that negative attitudes of mothers towards breastfeeding may adversely affect practice. Among the factors that may influence breastfeeding decisions and practices include caregivers attitudes (Ogunba & Agwo, 2014).

In Kenya’s Nyando district, Ogada, (2014) reported that 76.6% of mothers in their third trimester were of the opinion that colostrum should be given to the baby and 95.7% felt that breast milk should be baby’s first food. Mucheru, Waudo, & Chege (2016) also reported that 19.2% of women in Kibera knew the benefits of colostrum.

There is limited literature on early breastfeeding attitudes among mothers in sub-Saharan Africa, Kenya, and Uasin Gishu County.

2.4 Maternal early breastfeeding practices

The recommended early breastfeeding practices include timely initiation of breastfeeding, giving colostrum and not giving pre and post-lacteals. Timely initiation of breastfeeding is a strategy that can be used to reduce neonatal morbidity and mortality (Shwetal et al., 2012) and should be encouraged among mothers (Will et al., 2013). Reduction of neonatal mortality through early initiation of breastfeeding may lead to the attainment of the infant and mortality rate targets of the sustainable development goals (Shwetal et al., 2012). According to Black (2013) 49% of women practice early initiation of breastfeeding in Africa as compared to 58% in Latin America, 50% in Asia and 36% in
Europe. In countries like Vietnam and Indonesia, rates of early initiation of breastfeeding in the early 2000s were 46% and 32% respectively.

Shommo & Al-Shubrumi (2014) reported that 70% of Saudi Arabian women in Hail District initiated breastfeeding within the first 48 hours. Al-Binali (2012) reported that 100% of the infants were breastfed within the first 48 hours after birth, which was similar to a study of healthcare workers in the same area. Despite the potential of breastfeeding to promote the health of infants, a study in Brazil revealed that the rate of breastfeeding initiation within the first hour of life was 47.1% (Vieira et al., 2010). Another study in Brazil indicated that the rates of breastfeeding initiation within the first hour of life was 35% (Silveira et al., 2008).

In some rural parts of India where colostrum is viewed as pus, breastfeeding was commenced after 3 – 6 days (Garg et al., 2010). Evidence shows a correlation between skin-to-skin contact and early commencement of breastfeeding (Sallam et al., 2012). According to Dawal et al., (2014) the education of the mother is significantly associated with the pre-lacteal feeding practices. Offering pre-lacteals to the newborns is more common despite the initiation of breast milk to the newborns (Giridhar & Lakshmi, 2012). Exclusively breastfed infants can experience extra benefits if breastfeeding starts within an hour of birth (Garg et al., 2010).

In Africa Ogunba and Agwo, (2014) agreed that early breastfeeding has the potential to foster successful establishment and duration of breastfeeding. A cross-sectional study conducted in Nairobi revealed that most (more than 60%) of the participants initiated breastfeeding within one hour of birth (Muchina & Waithaka, 2010). The study cited
inadequate milk production, maternal fatigue, and the baby’s incapability to breastfeed as the major reasons for failure to initiate early breastfeeding.

Skills such as appropriate positioning, efficient latching and right solutions for breastfeeding problems are critical to successful breastfeeding practices (Aboud & Singla, 2012). After birth, mothers who placed their babies close to their bodies prevented the babies from crying during the first 90 minutes postpartum (Ahn et al., 2008). Virtually all mothers can breastfeed from birth provided they get practical help, which can help to build their confidence, improve the feeding technique, and prevent or resolve breastfeeding problems (MOH, 2013). Hence, neonatal staff should encourage and empower parents to care for and form an attachment with their new baby. This will not only boost parents' confidence in handling their babies while in hospital but will also increase their competence when the baby is discharged (Bennett & Sheridan, 2005).

In Kenya Muchuru et al. (2016) reported that the rate of timely initiation of breastfeeding (within one hour of birth) was 73.4%, those who gave pre were 4.8%, they also reported that post-lacteal feeds were still given to infants.

There is limited literature on early breastfeeding practices among mothers in sub-Saharan Africa, and Kenya in particular.

2.5 Early breastfeeding challenges faced by mothers

Maternal challenges on early breastfeeding do not only have a negative impact on early breastfeeding practices but also influence the maternal attitudes. In some studies done in the Middle East, demographic and socio-economic factors such as age, employment status, and level of education of the participants has an influence on early breastfeeding
A study in Lebanon reported that race, insufficient milk supply, lifestyle issues like smoking, and method of delivery, were also factors that influence breastfeeding (Nabulsi, 2011; Thulier & Mercer, 2009). In India, some studies have shown that psychosocial and cultural barriers to early breastfeeding still exist in some communities, in spite of the fact that breastfeeding in that country is universal (Garg et al., 2010).

Factors such as skin-to-skin contact between mother and baby, age of mother, lower education level, lower family income, and mode of delivery also affect successful early initiation of breastfeeding in Brazil (Silveira et al., 2008; Vieira et al., 2010). Hauck et al. (2011) reported that most Australian mothers cited perceived insufficient breast milk supply as the biggest challenge to breastfeeding. According to afore mentioned authors Infant-related reasons, (an unsettled baby, inadequate weight gain, attachment problems, reflux, troublesome sleeping patterns and poor interest from the baby) were second biggest challenges to breastfeeding. Hauck et al. (2011) also reported that pain and discomfort associated with breastfeeding for the mother as another challenge. In Africa, Ogunba and Agwo, (2014) pointed out maternal/caregivers knowledge, attitudes, social, cultural and physiological factors as other challenges affecting Nigerian mothers during early breastfeeding. A study conducted in India by Shwetal et al. (2012) reported that early breastfeeding practices could be affected by limited information, the level of education and socio-economic factors.

Cherop, Keverenge-Ettyang, & Mbagaya (2009) in a study conducted in Eldoret, Kenya they reported that mothers had several barriers to breastfeeding which included breast milk unsatisfying to the infant (64%. 4), not producing enough milk (14.4%), giving food
so as children could add weight (7.4%) while 7.7% of the mothers just wanted their children to familiarize with the taste of food.

### 2.6 Associations between knowledge, attitudes and practices on early breastfeeding


Adugna, (2014) further reported that maternal knowledge about the duration of exclusive breastfeeding for six months had a significant role in the promotion of early initiation of breastfeeding among mothers in Ethiopia. According to Kornides and Kitsantas, (2013), in the USA, there is a significant relationship between maternal prenatal knowledge of breastfeeding benefits and subsequent breastfeeding initiation and continuation. Tuan et al., (2014), in Vietnam, reported that breastfeeding support given by a health practitioner had a minimal benefit to early breastfeeding and EBF prevalence. Muchina and Waithaka (2010) in Nairobi, Kenya, found that there was a significant association between time of initiation of breastfeeding after childbirth and stunting.

Tuan et al., (2014), stated that there was a gap between awareness and practice with regards to early initiation of breastfeeding and the gap was smaller when mothers received breastfeeding support by a health worker. According to afore mentioned authors breastfeeding awareness will not necessarily be translated into practice without strengthening breastfeeding support and minimizing barriers. The infant’s gender had no
significant association with the breastfeeding attitudes (Mohammad & Shosha, 2015). A significant association between skin-to-skin contact and early breastfeeding initiation was reported by Sallam et al., (2012).

There is limited literature on the knowledge, attitudes and practices on early breastfeeding among mothers in sub-Saharan Africa, and Kenya in particular

2.7 Summary of literature review

The literature indicates that maternal knowledge, attitudes, and practices on early breastfeeding are suboptimal in most settings because much of the focus of breastfeeding advocacy and research has been on exclusive breastfeeding with little or no attention to aspects such as timely initiation. Most of the early breastfeeding indicators were found to be below the WHO recommendations and targets. It is still a common practice in some cultures to introduce other drinks to babies within the first day of life before the actual commencement of breastfeeding. From the literature review it has been noted that early breastfeeding knowledge and practices have been found to be inadequate since there is little attention being given to early initiation of breastfeeding despite the inclusion of timely initiation to breastfeeding in international child feeding recommendations.

Challenges to early breastfeeding practices were found to be the type of delivery, insufficient milk supply syndrome, maternal age and level of education, employment status, race, and lifestyle practices such as smoking. The caregivers’ knowledge and attitude are also a major challenge to early breastfeeding practices. There is limited literature on early breastfeeding practices in health facilities in Sub-Saharan Africa, and Kenya. This study addresses the literature gap by establishing the maternal knowledge,
attitudes, and practices on early breastfeeding in a hospital in a Kenyan county, Uasin Gishu.
CHAPTER THREE: METHODOLOGY

3.1 Research design

This study adopted a cross-sectional analytical design as data was collected at only one point in time. This design was suitable for testing the associations among variables e.g. timely initiation, not giving pre and post-lacteal and giving colostrum (Mugenda & Mugenda, 2003). Mixed methods (qualitative and quantitative techniques) were applied in data collection, analysis, and presentation. The qualitative data has been used to complement and triangulate the quantitative findings.

3.2 Study variables

Table 3.1: Study variables

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Maternal early breastfeeding practices as determined by:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Giving colostrum</td>
</tr>
<tr>
<td></td>
<td>- Timely initiation</td>
</tr>
<tr>
<td></td>
<td>- Use of pre-lacteals</td>
</tr>
<tr>
<td></td>
<td>- Use of post-lacteals</td>
</tr>
<tr>
<td></td>
<td>- Exclusive breastfeeding in the first 72 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Maternal early breastfeeding knowledge as determined by mean maternal knowledge scores on aspects of early breastfeeding.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maternal early breastfeeding attitudes as determined by mean maternal attitude scores on aspects of early breastfeeding.</td>
</tr>
<tr>
<td></td>
<td>Maternal challenges as determined from emerging themes from the KII’s and face-to-face interviews.</td>
</tr>
</tbody>
</table>
3.3 Study area

This study was carried out at the Moi Teaching and Referral Hospital (MTRH) in Uasin-Gishu County. The hospital was selected as the area for the study because of its location in the region. Being the second largest referral hospital in Kenya it serves a wide population the central and north rift region, Nyanza and western Kenya regions and also some parts of Uganda. It has a well-established maternity facility (The Riley Mother and Baby Hospital), with a bed capacity of 500 beds and conducts up to 12,000 deliveries per year (30 daily) according to the hospital records. The MTRH has operating rooms for cesarean deliveries, and a neonatal intensive care unit which can care for 100 babies at any given time (Indiana Institute for Global Health, 2015).

3.4 Target population

The study targeted mothers 15-49 years of age who had delivered at MTRH but had not been discharged from the hospital after delivery. The mothers were comprised of housewives, business ladies and working class mothers, from different ethnic communities in the north rift, western Kenya and Nyanza regions. The average number of births per day in MTRH is 30, with an average of 900 per month (Indiana Institute for Global Health, 2015).

3.4.1 Inclusion criteria

The study included women 15-49 years of age, with newborns 0-72 hours of age that were delivered at MTRH, and not yet discharged.
3.4.2 Exclusion criteria

Mothers who had delivered through cesarean section and were too weak to respond to questions were excluded from the study. Mothers who declined to give informed consent were also excluded from the study.

3.5 Sampling techniques

Moi Teaching and Referral Hospital (MTRH) was purposively sampled because it has a well-established maternity facility, (The Riley Mother and Baby Hospital) and serves a wide population in the North Rift region of Kenya. Cluster sampling was used when selecting the mothers to be interviewed. Mothers’ dormitories were divided into clusters, then the clusters were randomly selected. All mothers in the randomly selected cluster were interviewed to participate in the study until the sample size was achieved.

3.6 Sample size

The sample size was calculated using a Fisher’s formula by cited by Mugenda & Mugenda (1999);

\[
n = \frac{Z^2pq}{e^2}
\]

n = the desired sample size

Z = the standard normal deviate at 95% confidence level (1.96)

P = the estimated proportion of the target population who initiated breastfeeding within one hour. The Rift Valley prevalence rate is 69.4% (Kenya National Bureau of Statistics ICF Macro, 2014)

q = 1 - p

e = desired level of precision (0.05)

\[
n = \frac{(1.96)^2(0.694)(0.306)}{0.05} = 326.4
\]
\[(0.05)^2\]
\[n = 327\] mothers and their children.

Since the target population was less than 10,000, and finite in nature; 900 deliveries per month, a final sample estimate was calculated using the formula:

\[
n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}\]

Where \(n\) is the sample size, \(N\) is the population size and \(n_0\) is the calculated sample size for infinite population.

\[
n = \frac{327}{1 + \frac{(327 - 1)}{327}} = 163.7 (164)\text{ participants}\]

A ten percent of the calculated sample size was added to cater for non-response i.e.

\[
10\% \text{ of } 164 = 16.4
\]
\[
164 + 16.4 = 180.4
\]

Thus, the total sample size was 181 participants.

3.7 Recruitment and training of research assistants

The researcher recruited two research assistants with a minimum of a Diploma in nutrition. They were required to have had previous experience in nutrition surveys and be fluent in both English and Kiswahili languages. Training of the research assistants was conducted for four days. The training focused on interview techniques, completing the questionnaires, research ethics, and storage and tracking of questionnaires. The training was conducted through lectures, demonstrations and role plays.
3.8 Research instruments

3.8.1 Researcher-administered questionnaire

A researcher-administered questionnaire (Appendix H) was used to collect data from mothers on their early breastfeeding knowledge, attitudes, and practices. The questionnaire had six sections:

Section A: This was for collecting data on socio-demographic characteristics of mothers (age, marital status, parity, religion, ethnic group, the level of education, occupation, assets) and infant characteristics (age, sex).

Section B: This section elicited early breastfeeding information (the sources and time of receiving the information) and the level of early maternal breastfeeding knowledge (importance of breastfeeding, timely initiation, colostrum, pre-lacteals, post-lacteals, mother’s anticipated time of introducing other feeds, when to breastfeed the baby and duration to breastfeed).

Section C: Data on maternal attitudes measured using a five-point likert scale. This included attitudes towards the use of pre and post-lacteals, timely initiation, colostrum, the importance of breastfeeding knowledge. A five-point Likert scale had the following ranges (5 = strongly agree, 4 = agree, 3 = uncertain, 2 = disagree, and 1 = strongly disagree for positive statements and 5 = strongly disagree, 4 = disagree, 3 = uncertain, 2 = agree, and 1 = strongly agree for negative statements).

Sections D and E were used to elicit information on early breastfeeding practices (timely initiation, giving colostrum, pre-lacteal feeds, post-lacteal feeds, skin-to-skin contact, and rooming-in).
Section F drew information on the challenges faced by mothers during early breastfeeding.

Section G elicited information on the follow-up advice that the mothers were given before they were discharged from the hospital.

3.8.2 Key Informant Interview (KII) guide

A Key informant interview (KII) guide (Appendix I) was used to collect data from the healthcare staff on their view on the prevalence of early breastfeeding practices and the practices the hospital has put in place to encourage optimal early breastfeeding. The policies, standard operating procedures of promoting early breastfeeding, and the challenges they encountered by the healthcare staff as they work with the mothers’ were also evaluated. The KII guide also elicited information on the challenges faced by mothers.

3.9 Pre-testing

The research instruments were pre-tested on a selected sample (10% of the sample size) of 28 mothers in Uasin-Gishu County hospital that were assured to have similar characteristics as mothers in MTRH. The pre-test participants were not included in the main study. All the procedures expected in the main study were followed in the pre-testing. One question was added to the questionnaire after pre-testing.

3.10 Validity and reliability

3.10.1 Validity of the instruments

Previously validated questionnaires (Ochola, 2008 and Ogada, 2014) were modified accordingly and used in this study. Content validity in this study was established by
working closely with the supervisors and other professionals in the Baby Friendly Hospital initiative, where they were requested to provide technical guidance and to assess the relevance of the content in the questionnaires.

3.10.2 Reliability of the instruments
Data was collected twice at an interval of two days from the same participants in the pre-test. A comparison was then made between the responses obtained from both interviews and necessary adjustments made to the research tools. A test-retest method was used to ensure that the instruments were reliable. The questionnaires yielded a correlation coefficient of 0.90 (0.80-0.99; 95% CI), which was considered adequate as it is above 0.70 recommended by Murphy and Davidshofer (2005).

3.11 Data collection procedures and techniques
Data was collected for three weeks (from 12th March, 2016 to 2nd April, 2016), every day of the week. A formal self-introduction by the researcher was done, followed by informed consent and then data collection. The data collection techniques that were adopted were face to face interviews and KIIIs.

3.11.1 Face to face interviews
Guided by the questionnaires these were conducted once with mothers at the hospital by the researcher assisted by research assistants and lasted for about 20-30 minutes. Responses were recorded as the mother provided them. During the interviews, mothers were asked to recall what they had given the baby after delivery to the time of the interview.
3.11.2 Key Informant Interviews (KII)

Key informant interviews were conducted with the nutritionist in her office and the nurse in charge of the labor ward at the nurse’s station. The interviews were conducted by the researcher and were audio tape recorded. The audiotaping was done using two different devices (a tape recorder and a mobile phone recorder) concurrently, and each session lasted between 45-60 minutes. The purpose of audio recording was to ensure no data was lost and clear information was recorded during transcribing.

3.12 Data quality control

Several measures were taken to ensure high data quality. These included: careful evaluation, selection and training of research assistants, cross checking of all questionnaires to ensure that all questions had been answered before terminating the interviews; safe keeping of questionnaires in a locked safe by the researcher. Others were daily submission and cleaning of questionnaires used and cleaning of data after entry. Audio taping was also done using two different recorders to ensure no loss of data as well as clarity of the records. Voices were altered during recording to ensure confidentiality of the information provided.

3.13 Data analysis and presentation

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0 (Table 3.1). Descriptive statistics including means, frequencies, percentages, and standard deviation were generated for demographic and socio-economic characteristics of the study participants.
Table 3.2: Data analysis matrix

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Variable and indicators</th>
<th>Nature of the variable</th>
<th>Methods/ instruments of data collection</th>
<th>Statistical tests and data presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine the early breastfeeding knowledge among mothers</td>
<td>Maternal knowledge on: Timely initiation of breastfeeding, Pre-lacteal, Post- lacteal, Giving colostrum, Skin-to-skin contact, Rooming-in</td>
<td>Categorical, Continuous</td>
<td>Researcher-administered questionnaire, Face to face interview, Key Informant Interviews</td>
<td>Percentages, Mean scores, Frequencies, Standard Deviations</td>
</tr>
<tr>
<td>To determine the attitudes towards the recommended practices of mothers</td>
<td>Attitudes towards: Timely initiation of breastfeeding, Pre-lacteal, Post- lacteal, Giving colostrum, Skin-to-skin contact, Rooming-in</td>
<td>Categorical, Continuous</td>
<td>Researcher-administered questionnaire, Face to face interview, Likert scale</td>
<td>Percentages, Mean scores, Frequencies, Standard Deviations</td>
</tr>
<tr>
<td>To determine early breastfeeding practices of mothers</td>
<td>Maternal practices: Timely initiation of breastfeeding, Pre-lacteal, Post- lacteal, Giving colostrum, Skin-to-skin contact, Rooming-in</td>
<td>Continuous, Categorical</td>
<td>Researcher-administered questionnaire, Face to face interview</td>
<td>Percentages, Mean, Frequencies, Standard deviation</td>
</tr>
<tr>
<td>To determine the early breastfeeding challenges faced by mothers</td>
<td>Emerging themes from KII’s and questionnaires</td>
<td>Qualitative, Quantitative (Categorical)</td>
<td>Key Informant Interviews, Questionnaires</td>
<td>Content analysis, Percentages, Frequencies</td>
</tr>
<tr>
<td>To establish the relationships between early breastfeeding knowledge, attitudes, and practices of mothers</td>
<td>Likelihood of practices being associated with maternal knowledge and attitudes</td>
<td>Continuous, Categorical</td>
<td>Researcher-administered questionnaire, Key Informant Interviews</td>
<td>Logistic regression (Odds ratio), Pearson correlation</td>
</tr>
</tbody>
</table>

Mean scores were calculated for maternal knowledge and attitudes. Total scores were first calculated for each mother then the mean for the group was calculated for both
maternal knowledge and attitudes. The odds ratio was used to determine the association between categorical data such as the early breastfeeding knowledge, attitudes, and practices. Pearson’s correlation test was used to determine the association between knowledge scores and attitude scores. Statistical significance was set at $p<0.05$. For qualitative data, recordings from the KII’s were transcribed verbatim. Content analysis was then conducted by categorizing into key themes; challenges encountered by both the mothers and the health care personnel in early breastfeeding, the presence of brochures and policies on early breastfeeding practices and the time of conducting the breastfeeding education. The data was then coded and inference made. On challenges objective, additional content was derived from the questionnaires. Data has been presented in form of tables, figures and bar graphs.

3.14 Logistical and ethical considerations

Research clearance was granted by Kenyatta University graduate school (Appendix A) while ethical clearance was obtained from the Kenyatta University Ethical Review Committee (KUERC) (Appendix B). The Institutional Research and Ethics Committee (IREC) of Moi University and MTRH also gave authority to conduct this study at MTRH (Appendix C and D). A research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI) (Appendix E). Voluntary, informed consent in the form of signatures or thumb prints, was solicited from all participants (Appendix F and G). Those who declined to participate were excluded from the study. The participants were guaranteed of confidentiality and anonymity by use of codes as identification rather than names.
CHAPTER FOUR: RESULTS

4.1 Chapter overview
Three hundred and fifteen (315) mothers were eligible to participate in the study. Out of these, 285 mothers consented to participate, while 30 declined to participate because they were expecting material compensation they were therefore excluded (Figure 4.1).

Figure 4.1: Recruitment of participants

The questionnaire was administered to all 285 mothers who were recruited to participate in the study after consent. Out of the 285 questionnaires, 2 were incomplete, and as a result, 283 questionnaires were analyzed. The response rate was therefore, 99.3%. A response rate of more than 60% is considered adequate by Fincham, (2008). For the qualitative data, 2 key informants were interviewed using the KII guide. Both key informants consented and responded to the questions adequately.

4.2 Demographic and socioeconomic characteristics of the participants

4.2.1 Maternal demographic characteristics
The mean age of the mothers was 28.89±6.67 years, with the youngest and the oldest mother being 15 years and 47 years respectively (Table 4.1).
Table 4.1: Maternal demographic characteristics

<table>
<thead>
<tr>
<th>Maternal demographic characteristics</th>
<th>N=283</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of mother in complete years</td>
<td>n</td>
<td>%</td>
<td>Mean±SD</td>
</tr>
<tr>
<td>15 – 24</td>
<td>81</td>
<td>28.7</td>
<td>28.89±6.67</td>
</tr>
<tr>
<td>25 – 34</td>
<td>145</td>
<td>51.2</td>
<td></td>
</tr>
<tr>
<td>35 – 44</td>
<td>55</td>
<td>19.4</td>
<td></td>
</tr>
<tr>
<td>45 – 49</td>
<td>2</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Marital Status of Mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>156</td>
<td>55.1</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>123</td>
<td>43.5</td>
<td></td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 – 2</td>
<td>181</td>
<td>64.0</td>
<td>2.38±1.51</td>
</tr>
<tr>
<td>3 – 4</td>
<td>69</td>
<td>24.4</td>
<td></td>
</tr>
<tr>
<td>More than 5</td>
<td>33</td>
<td>11.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Religion of mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>203</td>
<td>71.7</td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>37</td>
<td>13.1</td>
<td></td>
</tr>
<tr>
<td>Tradition African</td>
<td>5</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>None/no religion</td>
<td>38</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Ethnicity of Mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalenjin</td>
<td>96</td>
<td>33.9</td>
<td></td>
</tr>
<tr>
<td>Luo</td>
<td>29</td>
<td>10.2</td>
<td></td>
</tr>
<tr>
<td>Kikuyu</td>
<td>29</td>
<td>10.2</td>
<td></td>
</tr>
<tr>
<td>Kamba</td>
<td>25</td>
<td>8.8</td>
<td></td>
</tr>
<tr>
<td>Kisii</td>
<td>18</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>Luhyia</td>
<td>18</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>68</td>
<td>24.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Slightly more than half (51.2%) of the mothers were between 25-34 years of age, followed by those aged between 15-24 years old (28.7%). Slightly more than half (55.1%) were married and 43.5% were single. The mean parity was 2.38±1.51 children, with the minimum and the maximum being one child and seven children respectively.
Majority of the mothers (64.0%) had 1 or 2 children, 24.4% had 3 or 4 children while 11.6% mothers had more than five children. Christian mothers were the majority (71.7%) followed by those who were not affiliated with any religion (13.4%). Kalenjin women formed about a third of the study sample (33.9%), while Kisii and Luhya tribes formed the minority at 6.4% each. Other tribes included Luo, Kikuyu, and Kamba.

4.2.2 Maternal socio-economic characteristics

About 39% of the study participants had college or university level of education, 29.4% had secondary education, while 11% did not have any formal education (Table 4.2).

Table 4.2: Maternal socio-economic characteristics

<table>
<thead>
<tr>
<th>Maternal socio-economic characteristics</th>
<th>N=283</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
</tr>
<tr>
<td>Completed college/university</td>
<td>109</td>
</tr>
<tr>
<td>Completed Secondary</td>
<td>83</td>
</tr>
<tr>
<td>Completed primary</td>
<td>59</td>
</tr>
<tr>
<td>None</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
</tr>
<tr>
<td>Occupation of mother</td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>101</td>
</tr>
<tr>
<td>Self-employed</td>
<td>74</td>
</tr>
<tr>
<td>Professional</td>
<td>54</td>
</tr>
<tr>
<td>Student</td>
<td>45</td>
</tr>
<tr>
<td>Farmer</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
</tr>
<tr>
<td>Asset ownership*</td>
<td></td>
</tr>
<tr>
<td>Land</td>
<td>75</td>
</tr>
<tr>
<td>Cows</td>
<td>37</td>
</tr>
<tr>
<td>Chicken</td>
<td>32</td>
</tr>
<tr>
<td>Goats</td>
<td>23</td>
</tr>
<tr>
<td>Sheep</td>
<td>19</td>
</tr>
</tbody>
</table>

*Multiple responses

About a third (35.7%) of the women were housewives, a quarter (26.1%) were self-employed, 19.1% were professionals (teachers, social workers, lawyers), 15.9% were students and 3.2% were farmers. The majority of the women’s families (40.3%) owned land, 19.9% owned cows, and only 10.2% owned sheep.
4.2.3 Infant demographic characteristics

The ages of the infants were determined in hours since delivery, with the mean age being 45.30±18.70. Half of the infants (51.9%) were 49-72 hours of age, 35.4% were 25-48 hours of age while 12.7% were less than 24 hours of age. There were more male infants (57.6%), than females (42.4%) (Table 4.3).

Table 4.3: Infant demographic characteristics

<table>
<thead>
<tr>
<th>Infant characteristics</th>
<th>N=283</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in hours</strong></td>
<td></td>
</tr>
<tr>
<td>0-24 hours</td>
<td>36</td>
</tr>
<tr>
<td>25-48 hours</td>
<td>100</td>
</tr>
<tr>
<td>49-72 hours</td>
<td>147</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
</tr>
<tr>
<td>Mean age in hours</td>
<td>45.30±18.70</td>
</tr>
<tr>
<td><strong>Sex of infants</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>163</td>
</tr>
<tr>
<td>Female</td>
<td>120</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
</tr>
</tbody>
</table>

4.3 Maternal receipt of information on breastfeeding

A majority (64.7%) of the mothers had received information on breastfeeding (Table 4.4). Health workers were the main source of information on early breastfeeding as 92.0% of those who had received information reported having received it from them, 7.4% received from family members and friends while 0.5% had received information from the media. The mothers received the information from the health worker at different times, with three-quarters of them (75.7%) receiving it during the antenatal period. Slightly over half of the mothers (57.6%) reported that they were advised to breastfeed the baby as often as the baby wants to breastfeed. The mothers had also received information on what to do to get help after being discharged. Most (95.6%) were advised to call or visit a health facility, 3.3% had been advised to ask for help from a community
health worker, while 1.1% were advised to seek help from a mother support group near them.

Table 4.4: Maternal receipt of information on breastfeeding

<table>
<thead>
<tr>
<th>Early breastfeeding information</th>
<th>N=283</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Had received Information on early breastfeeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>183</td>
<td>64.7</td>
</tr>
<tr>
<td>No</td>
<td>100</td>
<td>35.3</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Sources of Information on early breastfeeding*(N=183)

<table>
<thead>
<tr>
<th>Sources of Information</th>
<th>N=183</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health workers</td>
<td>173</td>
<td>92.0</td>
</tr>
<tr>
<td>Family and friends</td>
<td>15</td>
<td>7.4</td>
</tr>
<tr>
<td>Media</td>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Time of reception of Information*(N=183)

<table>
<thead>
<tr>
<th>Time of reception</th>
<th>N=183</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>During antenatal period</td>
<td>130</td>
<td>75.7</td>
</tr>
<tr>
<td>During post-natal period</td>
<td>32</td>
<td>17.4</td>
</tr>
<tr>
<td>Delivery time for past babies</td>
<td>16</td>
<td>8.7</td>
</tr>
<tr>
<td>Delivery time for this baby</td>
<td>6</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Information received* (N=183)

<table>
<thead>
<tr>
<th>Information received</th>
<th>N=183</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breastfeed as often as the baby wants to</td>
<td>163</td>
<td>57.6</td>
</tr>
<tr>
<td>Breastfeed by routine</td>
<td>120</td>
<td>42.4</td>
</tr>
<tr>
<td>Call or visit this or another facility to get help</td>
<td>174</td>
<td>95.6</td>
</tr>
<tr>
<td>Ask for help from a community health worker to get help</td>
<td>6</td>
<td>3.3</td>
</tr>
<tr>
<td>Ask for help from a mother-support group</td>
<td>2</td>
<td>1.1</td>
</tr>
</tbody>
</table>

*Multiple responses were given

From the KIIIs, it was pointed out that mothers receive information from the healthcare personnel. “There are manuals used to educate mothers. We also provide brochures and the Mother and child health (MCH) booklets to the mothers. At the back of the MCH booklets, there are short well-written instructions on how to breastfeed, the positioning of the baby to the breast and what to do to enable them to produce enough breast milk” (KI1, 2016). The information is given both at antenatal and postnatal clinics. “We educate mothers verbally during prenatal and post-natal visits in groups and one on one when the need arises” (KI1, 2016).
4.4 Maternal knowledge on early breastfeeding

4.4.1 Maternal knowledge on aspects of early breastfeeding

Mothers breastfeeding knowledge was measured by asking 8 questions (Table 4.5).

Table 4.5: Maternal knowledge on aspects of early breastfeeding

<table>
<thead>
<tr>
<th>Aspects of knowledge</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Importance of breastfeeding*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knew that breastmilk is nutritious</td>
<td>208</td>
<td>74.6</td>
</tr>
<tr>
<td>Knew that breastmilk protects against infections</td>
<td>64</td>
<td>22.9</td>
</tr>
<tr>
<td>Knew that it prevents pregnancy</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Do not know</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>2. Maternal knowledge on baby’s first feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knew that breast milk only is the first feed</td>
<td>281</td>
<td>99.6</td>
</tr>
<tr>
<td>Do not know</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>3. Time of initiation of breastfeeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 30 minutes</td>
<td>204</td>
<td>72.1</td>
</tr>
<tr>
<td>Within 1 hour</td>
<td>6</td>
<td>2.1</td>
</tr>
<tr>
<td>More than 1 hour</td>
<td>73</td>
<td>25.8</td>
</tr>
<tr>
<td>4. Give colostrum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>260</td>
<td>91.9</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>8.1</td>
</tr>
<tr>
<td>5. Give Post-lacteal feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25</td>
<td>8.8</td>
</tr>
<tr>
<td>No</td>
<td>257</td>
<td>91.2</td>
</tr>
<tr>
<td>6. Appropriate age to introduce other foods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct (at 6 Months)</td>
<td>236</td>
<td>83.4</td>
</tr>
<tr>
<td>Incorrect</td>
<td>47</td>
<td>16.6</td>
</tr>
<tr>
<td>7. How often to breastfeed the baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On demand</td>
<td>164</td>
<td>58.0</td>
</tr>
<tr>
<td>At specific times</td>
<td>119</td>
<td>42</td>
</tr>
<tr>
<td>8. Exclusive breastfeeding is recommended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>258</td>
<td>91.2</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>8.8</td>
</tr>
</tbody>
</table>

*Multiple responses were given

The mothers knew the importance of breastfeeding, with 74.6% knowing that breast milk is nutritious, and the minority (1.1%) knew that it prevents pregnancy. Almost all mothers (99.6%) knew that breast milk is the only recommended feed for the baby after a safe delivery.

In regard to timely initiation of breastfeeding, most of the mothers (72.1%) knew that breastfeeding should be initiated within 30 minutes after birth, while 25.8% did not know
the appropriate time to initiate breastfeeding. The majority of the mothers (91.9%) knew that a baby should be fed on colostrum while 8.1% reported that colostrum was not important.

In regard to giving post-lacteals, a majority of the mothers (91.2%) knew that they should not be given to infants, while 8.8% thought that post-lacteals could be given to the infant after initiation of breastfeeding. In this study 91.2% of the mothers knew that exclusive breastfeeding was the recommended practice.

4.4.2 Maternal knowledge scores on early breastfeeding

In reference to Mucheru et al. (2016) where low knowledge ranged between 0 – 40%, average knowledge 50-70% and high knowledge 80-100%, the knowledge score was calculated for all mothers on aspects of early breastfeeding (Figure 4.2).

![Maternal Knowledge Scores](image)

Figure 4.2: Maternal knowledge scores on early breastfeeding

Mothers were scored on the 8 questions as shown in Table 4.5. Each correct response scored one point while an incorrect response was not awarded any score. A total score was calculated for each participant based on the right answers. Therefore, each mother
could score a maximum of 8 points and a minimum of 0 points. Most mothers had a high knowledge on recommended breastfeeding practices as 73.9% scored a total of 7-8 points out of the possible maximum of 8. The mean maternal knowledge score for all mothers’ based on individual mother’s total score was high at 6.75 with a standard deviation of ±1.26 (Figure 4.2).

4.5 Maternal attitudes towards early breastfeeding

4.5.1 Maternal attitudes towards aspects of early breastfeeding

Most mothers had a positive attitude towards the recommended early breastfeeding practices (Table 4.6).

Table 4.6: Maternal attitudes towards aspects of early breastfeeding

<table>
<thead>
<tr>
<th>Aspects of maternal attitudes (N=283)</th>
<th>Strongly disagree / disagree</th>
<th>Uncertain</th>
<th>Strongly agree / agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td><strong>Positive statement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Baby should be breastfed within an hour after delivery</td>
<td>28(9.9)</td>
<td>27(9.5)</td>
<td>228(80.6)</td>
</tr>
<tr>
<td><strong>Negative statements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Necessary to give pre-lacteals.</td>
<td>236(83.4)</td>
<td>28(9.9)</td>
<td>19(6.7)</td>
</tr>
<tr>
<td>3. Necessary to give post-lacteals.</td>
<td>206(72.8)</td>
<td>55(19.4)</td>
<td>22(7.8)</td>
</tr>
<tr>
<td>4. Colostrum is not important</td>
<td>269(95.0)</td>
<td>5(1.8)</td>
<td>9(3.2)</td>
</tr>
<tr>
<td>5. Baby should not be feed on breast milk only (EBF)</td>
<td>260(91.8)</td>
<td>10(3.5)</td>
<td>13(4.6)</td>
</tr>
<tr>
<td>6. Early breastfeeding knowledge is not necessary</td>
<td>270(95.4)</td>
<td>6(2.1)</td>
<td>7(2.5)</td>
</tr>
</tbody>
</table>

Most mothers (80.6%) had a positive attitude towards initiating breastfeeding within an hour after delivery. Similarly, most mothers had a negative attitude towards statements that encourage giving of pre-lacteals (83.4%), giving of post-lacteals (72.8%), colostrum
is not being important (95%), breastmilk not being the only food for the baby (91.8%), and early breastfeeding knowledge not being necessary (95.4%).

Findings from the KIIIs concurred with those of the maternal attitudes as the key informants reported that, “Concerning the nutrition education, most of them feel very positive about initiating breastmilk on time, not giving pre and post-lacteals, and giving of colostrum,” (KI2, 2016).

4.5.2 Maternal attitude scores on early breastfeeding

The attitude score was calculated for all mothers on the early breastfeeding practices (Figure 4.3).

![Maternal Attitude Score](image)

Figure 4.3: Maternal attitude scores on early breastfeeding practices

Mothers were scored on a total of 6 questions as shown in Table 4.6. Each question had a maximum score of 5 points and a minimum score of 1 point. A response of strongly agree/disagree scored 5 points, agree/disagree scored 4, uncertain 3, disagree/agree 2 and strongly disagree/agree was awarded 1 point. Each mother could therefore, score a maximum of 30 points and a minimum of 6 points based on the correct answers.
The mothers’ has a positive attitude towards early breastfeeding practices, as almost all of them (92.2%) scored a total of between 19-30 points out of the possible maximum of 30. The mean maternal attitude score was positive at 24.21 with a standard deviation of ±3.14, while the median score was 25.0[6-30].

4.6 Maternal early breastfeeding practices

The early breastfeeding practices (Table 4.7) of most mothers were established.

Table 4.7: Maternal early breastfeeding practices

<table>
<thead>
<tr>
<th>Maternal early breastfeeding practices</th>
<th>N=283</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Time of breastfeeding initiation after delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-30 minutes</td>
<td>84</td>
<td>29.7</td>
</tr>
<tr>
<td>31-60 minutes</td>
<td>189</td>
<td>66.8</td>
</tr>
<tr>
<td>After one hour</td>
<td>10</td>
<td>3.5</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>First feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast milk</td>
<td>278</td>
<td>98.2</td>
</tr>
<tr>
<td>Non-breast milk (pre-lacteal)</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Baby fed colostrum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>266</td>
<td>94.0</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>6.0</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Post-lacteal feeds given</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>9.5</td>
</tr>
<tr>
<td>No</td>
<td>256</td>
<td>90.5</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Bottle Fed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19</td>
<td>6.7</td>
</tr>
<tr>
<td>No</td>
<td>264</td>
<td>93.3</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Skin-to-skin contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>276</td>
<td>97.5</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Rooming-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within one hour</td>
<td>262</td>
<td>92.6</td>
</tr>
<tr>
<td>After one hour</td>
<td>21</td>
<td>7.4</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Exclusive breastfeeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>256</td>
<td>90.5</td>
</tr>
<tr>
<td>No</td>
<td>27</td>
<td>9.5</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
<tr>
<td>Mother skill on positioning and attaching the baby to the breast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct</td>
<td>254</td>
<td>89.7</td>
</tr>
<tr>
<td>Incorrect</td>
<td>29</td>
<td>10.3</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Almost all mothers (96.5%), initiated breastfeeding within one hour of birth, gave breastmilk as the first feed (98.2%), fed the baby on colostrum (94.0%) and did not give post-lacteals (90.5%).

### 4.7 Challenges faced by mothers on early breastfeeding

The face-to-face interviews showed that about a quarter (24.0%) of the mothers reported having encountered challenges related to early breastfeeding (Figure 4.2).

![Bar Chart: Challenges encountered by mothers during early breastfeeding](image)

**Figure 4.4: Challenges encountered by mothers during early breastfeeding**

Among the 68 (24.0%) mothers who encountered challenges, breast problems were reported by most (52.5%). These breast problems included blocked nipples, pain in one breast, and lack of milk in one breast. Other challenges included low milk production (23.7%), inability to position and attach the baby (10.2%), maternal illness (8.5%), baby crying while breastfeeding (3.4%), with a few (1.7%) women reporting challenges with pumping breast milk. A mother during the face-to-face interviews reported “when I
breastfeed my baby there is no milk coming from my breast”. Another mother said that “when my baby breastfeeds from my right breast it is very painful”, while another reported “I don’t have milk in both my breasts” (FFI, 2016).

Findings from the KIIIs explained some of the challenges reported by mothers. “If there was a problem during the labour process and complications develop, breastfeeding initiation may be delayed. Mothers who deliver via caesarean section experience delays in the initiation of breastfeeding due to the effect of the anesthetic drugs, which require them to recover from surgery before breastfeeding is initiated. Sometimes, anesthetic drugs hinder milk production, hence delaying the initiation of breastfeeding while others do not have milk at all” (KII2, 2016).

Culture played a role in influencing the use of pre and post lacteals by mothers in early breastfeeding stages. According to (KII2, 2016), “There is a belief that when a baby has been delivered, they have to be given a local herb or local concoction after birth. Mothers believe that it washes the digestive system of the baby. Usually, the mother-in-law comes after the baby has been delivered and secretly gives the concoction”.

Cultural beliefs and HIV status were also reported as challenges for the use of colostrum. “Some mothers think that colostrum is dirty and therefore not safe for the baby and so they discard it. In fact, it is the mother-in-law or the mother’s mother who encourage them to express the colostrum and discard it” (KII1, 2016). “When the mother has breast problems or is HIV positive, she feels it is dangerous to breastfeed during the early days because the baby might get infected. So, she avoids breastfeeding despite being advised by the nurse or nutritionist on what to do” (KII1, 2016).
Lack of knowledge among some mothers was another reason reported for the use of pre and post-lacteals, “if the mother has challenges in milk production, and the baby cries a lot she perceives the crying of the baby as hunger. It becomes a challenge trying to educate them against giving pre or post-lacteals feeds. Because some women attending the hospital may not have attained high school education, and some only have primary school level of education, they may not understand why a baby should be given breast milk only, despite the nutrition education we give them” (KI2, 2016).

“The first time mothers are very receptive to the education on the importance of exclusive breastfeeding” (KI1, 2016). Other problems, however, were reported to be prevalent among first-time mothers, “the first time mothers are vulnerable to the influence of their mothers/mother-in-laws, who tells them that it is not possible to breastfeed the baby exclusively for six months” (KI2, 2016).

4.8 Associations between early breastfeeding knowledge, attitudes, and practices among mothers

4.8.1 Association between maternal knowledge on early breastfeeding and their practices

The likelihood for mothers practicing what they knew was tested using logistic regression (Table 4.8). The correct knowledge of timely initiation of breastfeeding was not significantly associated with the recommended practice (OR=1.457; 95% CI 0.355-5.982; p=0.599). In contrast, those who knew that breastmilk should be infant’s first feed were less likely to give other feeds (OR=0.014; 95% CI 0.005-0.038; p=0.001). Similarly, those who knew that post-lacteals should not be given to the infant were eight
times more likely not to give post-lacteals to their children (OR=7.993; 95% CI 3.158-19.929; p=0.001).

Table 4.8: The likelihood of mothers practicing what they knew

<table>
<thead>
<tr>
<th>Aspects of knowledge and practices</th>
<th>Odds ratio (OR)</th>
<th>N=283</th>
<th>C.I. (95%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
<td>Lower limit</td>
<td>Upper limit</td>
</tr>
<tr>
<td>Time of initiation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 1 hour</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than one hour</td>
<td>1.457</td>
<td>0.355</td>
<td>5.982</td>
<td>0.599</td>
</tr>
<tr>
<td>First feed is breast milk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other feeds</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breastfed</td>
<td>0.014</td>
<td>0.005</td>
<td>0.038</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Post-lacteals should not be given</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave post-lacteals</td>
<td>7.933</td>
<td>3.158</td>
<td>19.929</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Did not give post-lacteals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give colostrum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not give colostrum</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave colostrum</td>
<td>55.636</td>
<td>16.669</td>
<td>85.667</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Exclusive breastfeeding (EBF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not practice EBF</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practiced EBF</td>
<td>7.50</td>
<td>2.91</td>
<td>19.33</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

*Significant at p<0.05

Those who knew that colostrum should be given to the baby were 56 times more likely to give their children colostrum (OR=55.636; 95% CI 16.699-85.667; p=0.001), while those who knew that a baby should be exclusively breastfed were 8 times more likely to practice exclusive breastfeeding (OR=7.50; 95% CI 2.91-19.33; p=0.001). The hypothesis (H_{01}) which stated that there is no significant association between early breastfeeding knowledge and practices of mothers was, therefore, rejected.

4.8.2 Association between maternal attitudes on early breastfeeding and their practices

The likelihood of mothers’ attitudes affecting their practice was also tested using logistic regression (Table 4.9).
Table 4.9: The likelihood that a mother practiced what they believed in.

<table>
<thead>
<tr>
<th>Aspects of attitudes and practices</th>
<th>N=283</th>
<th>Odds ratio (OR)</th>
<th>Lower limit</th>
<th>Upper limit</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timely initiation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiated after 1 hour</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiated within an hour</td>
<td>3.584</td>
<td>0.929</td>
<td>13.826</td>
<td></td>
<td>0.049*</td>
</tr>
<tr>
<td>First feed after delivery should be breastmilk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave pre-lacteals</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave breast milk only</td>
<td>1.125</td>
<td>1.015</td>
<td>1.247</td>
<td>&lt;0.001*</td>
<td></td>
</tr>
<tr>
<td>Post-lacteals should not be given</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave post-lacteal</td>
<td>1</td>
<td>0.332</td>
<td>0.716</td>
<td>&lt;0.001*</td>
<td></td>
</tr>
<tr>
<td>Did not give post-lacteal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give colostrum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did not give colostrum</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave colostrum</td>
<td>7.877</td>
<td>2.176</td>
<td>28.514</td>
<td>&lt;0.001*</td>
<td></td>
</tr>
<tr>
<td>Exclusive breastfeeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didn’t breastfeed exclusively</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breastfed exclusively</td>
<td>1.782</td>
<td>0.374</td>
<td>8.495</td>
<td>0.463</td>
<td></td>
</tr>
<tr>
<td>*Significant at p&lt;0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mothers who had a positive attitude towards timely initiation were four times likely to initiate breastfeeding within the recommended one hour (OR=3.584; 95% CI 0.929-13.826; p=0.049). Similarly, those who had a positive attitude towards breastmilk being infant’s first feed were more likely to give breastmilk as the first feed (OR=1.125; 95% CI 1.015-1.247; p=0.001). Those who had a negative attitude towards post-lacteals were less likely give post-lacteals to their children (OR=0.332; 95% CI 0.153-0.716; p=0.001). Those who had a positive attitude towards giving colostrum were eight times more likely to give their children colostrum (OR=7.877; 95% CI 2.176-28.514; p=0.001), while the attitude towards exclusive breastfeeding was not significantly associated with recommended practice (OR=1.782; 95% CI 0.374-8.495; p=0.463). The hypothesis (H₀₂), which stated that there is no significant association between early breastfeeding attitudes and practices of mothers, was therefore, rejected.
4.8.3 Association between maternal knowledge on early breastfeeding and their attitudes

The association between mothers’ attitudes and knowledge was also tested using logistic regression (Table 4.10).

Table 4.10: Likelihood of a mothers’ attitude affecting her practices

<table>
<thead>
<tr>
<th>Aspects of Knowledge and attitudes</th>
<th>N=283</th>
<th>C.I. (95%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds ratio (OR)</td>
<td>Lower limit</td>
<td>Upper limit</td>
</tr>
<tr>
<td>Timely initiation of breastfeeding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didn’t know</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knew the recommended</td>
<td>2.939</td>
<td>1.577</td>
<td>5.478</td>
</tr>
<tr>
<td>Pre-lacteal should be given</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didn’t know pre-lacteals not recommended</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knew not recommended</td>
<td>0.156</td>
<td>0.119</td>
<td>0.205</td>
</tr>
<tr>
<td>Post-lacteals should be given</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didn’t know not recommended</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knew not recommended</td>
<td>0.215</td>
<td>0.092</td>
<td>0.503</td>
</tr>
<tr>
<td>Give colostrum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didn’t know</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended practice</td>
<td>15.813</td>
<td>4.942</td>
<td>50.598</td>
</tr>
<tr>
<td>Exclusive breastfeeding is good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didn’t know</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended practice</td>
<td>11.323</td>
<td>3.459</td>
<td>37.072</td>
</tr>
</tbody>
</table>

*Significant at p<0.05

Mothers who had a positive attitude towards timely initiation were three times more likely to have known that timely initiation was recommended (OR=2.939; 95% CI 1.577-5.478; p=0.001). Those who had a positive attitude towards giving pre-lacteals were less likely to know that pre-lacteals are not recommended (OR=0.156; 95% CI 0.119-0.205; p=0.021). Similarly, those with a positive attitude towards giving post-lacteals were less likely to know that post-lacteals are not recommended (OR=0.215; 95% CI 0.092-0.503; p=0.001). Those who had a positive attitude towards giving colostrum were 16 times more likely to know that giving colostrum is the recommended practice (OR=15.813;
95% CI 4.942-50.598; p=0.001), while those who had a positive attitude towards practicing exclusive breastfeeding were 11 times more likely to know that it is the recommended practice (OR=11.323; 95% CI 3.459-37.072; p=0.001). The hypothesis (H_03), which stated that there is no significant association between early breastfeeding knowledge and attitudes of mothers, was therefore, rejected.

### 4.8.4 Association by knowledge scores and attitude scores

A Pearson’s correlation was done to determine the association between knowledge scores and attitude scores (Table 4.11).

<table>
<thead>
<tr>
<th>Pearson’s correlation test</th>
<th>N=283</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>r^2</td>
<td>P-value</td>
</tr>
<tr>
<td>Knowledge scores and attitude scores</td>
<td>0.389</td>
<td>0.51</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

*Significant at p<0.05

There was a moderate, positive correlation between maternal knowledge score and attitude score (r=0.389, N=283, p<0.05). The more a mother knew, the more positive her attitudes were towards the recommended early breastfeeding practices.
CHAPTER FIVE: DISCUSSION

5.1 Maternal knowledge on early breastfeeding

The international Baby-Friendly Hospital Initiative (BFHI) aims to promote and protect maternal and child health by ensuring that mothers are supported and helped with breastfeeding in maternity care facilities (Abrahams & Labbok, 2009). Giving mothers information regarding the merits of breastfeeding might influence those who have not already made a decision, or those whose decision is not final. Increasing social support would further enable women to decide to breastfeed and to carry out their decision (WHO, 1998). Women with greater knowledge about the benefits of breastfeeding are more likely to initiate breastfeeding earlier than their counterparts (Kornides & Kitsantas, 2013).

The findings of the current study in which women were knowledgeable on most aspects of early breastfeeding are in agreement with those of Ogada (2014) in Nyando district-Kenya, where mothers were also knowledgeable at their third trimester on early breastfeeding. These findings, however, differ from studies conducted among mothers in rural Punjab and Saudi Arabia, which found that their knowledge on early breastfeeding was inadequate (Garg et al., 2010; Shommo et al., 2014).

In the current study it was observed that the mothers were knowledgeable on all aspects of early breastfeeding, as indicated by the knowledge scores where over three quarters scored between seven and eight out of the possible eight points. The similarities of this study findings with those of Ogada (2014); Kornides and Kitsantas (2013); Ali and Ayed (2014); and UNICEF (2014), may be the setting where both studies were conducted. The
contrast between this study and the afore mentioned studies may be as result of the other studies being conducted in a rural setting or did not focus on early breastfeeding. Findings that mothers were knowledgeable may be as a consequence of the fact that most mothers had received information on early breastfeeding. Nutrition education however, is more focused on the baby and little attention has been focused on the benefits for the mothers. There is need to improve the knowledge on early breastfeeding as some mothers did not know the importance of breastfeeding, the right age of introducing complementary feeds, and did not know that breastfeeding should be on demand.

On the specific aspects of early breastfeeding, this study concurred with Ogada, (2014); Kornides and Kitsantas (2013); and UNICEF (2014), about knowledge on timely initiation. Regarding giving of colostrum the study findings were in agreement with the results of Sallam et al., (2012), and Ogada, (2014), who found out that mothers were knowledgeable about the importance of colostrum and that it should be given to the infant. The findings however contrasted with Adugna, (2014) in a study conducted in southern Ethiopia where some women considered colostrum as expired milk and gave pre-lacteal feeds and discard the colostrum.

The findings of the current study indicated that the mothers knew that pre-lacteals should not be given to the baby. Findings of the current study were in agreement with thos of Adugna (2014), and Dawal et al. (2014), who reported that women knew that giving pre-lacteal was a means of cleaning the babies stomach and the belief that milk comes only on the second or third day of delivery.
5.2 Maternal attitudes towards early breastfeeding

According to Mossman et al. (2008), a positive attitude among mothers is associated with longer breastfeeding duration. The findings of the current study indicated that the maternal attitudes towards early breastfeeding were good, as evidenced by the maternal scores.

The findings of the current study are in agreement to those of (Kuzma, 2013) in Papua New Guinea, (Shommo et al., 2014) in Saudi Arabia, (Mohammad & Shosha, 2015), in Jordan, and (Mbada et al., 2013) in Nigeria. In contrast, Garg et al. (2010), found an attitude gap with regard to early breastfeeding, and that colostrum was viewed as pus by the mothers in Punjab-India.

The current study found that there was a positive attitude towards early breastfeeding practices by mothers in Uasin Gishu County and this could be attributed to the high maternal knowledge on early breastfeeding. The information that the mothers had received may have contributed to the positive attitudes and the fact that many mothers had received the information at the MCH clinic.

The mothers attitudes may have also been influenced by their level of education since the majority of the mothers had completed tertiary education. There were, however, gaps where some mothers whose attitude was low as some were uncertain or negative altogether on some aspects such as giving of colostrum and practicing timely initiation and agreed with giving pre and post-lacteals. This may have been influenced by the cultural beliefs as reported by some mothers and the key informants since some of them
thought that giving pre and post-lacteals like traditional concoctions and herbs had a benefit to the baby, such as cleaning the baby’s stomach.

Mossman et al. (2008) stated that positive attitude among mothers is associated with longer breastfeeding duration. Positive attitudes may also help mothers to observe all the recommended practices.

5.3 Maternal early breastfeeding practices

The benefits of the recommended early breastfeeding practices such as timely initiation, giving colostrum, and practicing rooming-in, include the reduction of neonatal morbidity and mortality FAO (2007) as cited by Shwetal et al. (2012). Exclusively breastfed infants can experience extra benefits if breastfeeding starts within an hour of birth (Garg et al., 2010). Ogunba and Agwo (2014) agree that early breastfeeding has the potential to foster successful establishment and duration of breastfeeding.

The findings of the current study concurred with the UNICEF (2014); Shommo et al. (2014), in Saudi Arabia, and Kenya National Bureau of Statistics ICF Macro (2014), on the aspect of timely initiation of breastfeeding. Another study by Muchina and Waithaka (2010) in Kenya, also indicated that most of the participants initiated breastfeeding within one hour. The KDHS however, covered data on children 0-1 month whereas this study covered the first 72 hours of birth. The findings of the current study however contrasted with those of Silveira et al. (2008) in Pelotas-Brazil which indicated that the rates of breastfeeding initiation within the first hour of life was lower than 50% in Africa. The higher rates of timely initiation in the current study can be attributed to the fact that the
mothers delivered at a health facility where the recommended practices are likely to be adopted.

The findings from the current study indicate that the use of pre-lacteals was very low among the mothers, despite the challenge of mother’s-in-law and caretakers bringing some concoctions to the hospital. However, they contrasts with the findings of others [Setegn et al. (2011) in Ethiopia; Nguyen et al. (2013) in Vietnam; El-Gilany, Sarraf, and Al-Wehady (2012) in Egypt; and Al-Binali (2012) in Saudi Arabia] who found that the prevalence of pre-lacteal feeding was highly prevalent, and mothers gave pre-lacteal feeds while still in hospital.

Colostrum is the first thick yellow milk that contains antibodies which protect the baby from illness (MOH, 2013). A hight rate of giving colostrum was observed in this study which concured with (El-Kariri and Kanoa, 2007), who found that most lactating mothers gave colostrum to their babies. However the findings of this study in regard to colostrum contrasted with studies in Southern Ethiopia, Nigeria and India by Adugna (2014), Oche et al. (2011) and Garg et al. (2010) respectively. In these studies some women considered colostrum as expired and dirty milk, gave pre-lacteal feeds and discarded the colostrum, some even viewed it as pus and therefore breastfeeding was commenced after 3 – 6 days.

Generally, from the study’s findings, the rate of early initiation of breastfeeding is high, and the use of post and pre-lacteal feeds is low possibly due to the maternal education conducted at the MCH clinics and the positive maternal attitudes. Another reason for the high rate of early initiation of breastfeeding could be due to a higher rate of women
practicing skin-to-skin contact and rooming-in. The findings of the current study contrasted with other study findings possibly due to the difference in contexts and time that the studies were conducted. The differing contexts imply differences in culture, health services as well as the study participants.

The provision of the brochures by the hospital to mothers on early breastfeeding practices may have also encouraged early initiation of breastfeeding in the current study. This may have influenced their practices on early breastfeeding, as the majority of mothers did not give pre and post-lacteals, gave colostrum and practiced timely initiation. The good maternal practices are expected to have positive nutrition and health outcome for the babies and their mothers.

5.4 Early breastfeeding challenges faced by mothers

Findings from this study indicated that majority of the mothers did not encounter challenges in early breastfeeding. The challenges experienced by minority of mothers in the current study were however not unique to this study. According to some studies conducted in the Middle East, demographic and socio-economic factors such as age, employment status, and level of education of the participants may influence breastfeeding (Nabulsi, 2011; Thulier & Mercer, 2009). In India, some studies have previously showed that psychosocial and cultural barriers to early breastfeeding still exist in some communities (Garg et al., 2010). Factors such as skin-to-skin contact between mother and baby, mothers age, lower education level, lower family income, and mode of delivery also affect successful early initiation of breastfeeding (Silveira et al., 2008; Vieira et al., 2010). In a study conducted in Australia, Hauck et al. (2011) found that insufficient breast milk supply was the most cited challenge among mothers, infant-related reasons
were the second, and this included an unsettled baby; inadequate weight gain; attachment problems; reflux, troublesome sleeping patterns and poor interest from the baby. He also reported that pain and discomfort associated with breastfeeding for the mother were also challenges to breastfeeding.

Maternal challenges on early breastfeeding may affect their attitudes and practices, which in turn can affect the breastfeeding babies negatively. The adverse effects may expose a baby to increased risk of morbidity and mortality. The infants may also be susceptible to infections due to a decline in immunity.

5.5 The association between early breastfeeding knowledge, attitudes, and practices
Maternal knowledge and attitudes towards early breastfeeding directly affect maternal practices. The findings of the current study in regard to there being an association between maternal knowledge and practices was in agreement with the findings of Adugna (2014) who recorded that maternal knowledge had a significant role in the promotion of early initiation of breastfeeding. Kornides and Kitsantas (2013), also found a significant relationship between maternal prenatal knowledge of breastfeeding benefits and subsequent breastfeeding initiation and continuation. In another study Tuan et al. (2014) reported that breastfeeding support given by a health practitioner had a minimal benefit to early breastfeeding and EBF prevalence in Vietnam.

The findings of the current study in regard to the attitudes of the mothers being directly related to the knowledge they have on early breastfeeding was in agreement with the findings of Dawal et al. (2014) who reported that the knowledge of the mother is significantly associated with the pre-lacteal feeding practices. According to Sallam et al.
(2012), some studies have noted that little attention has been given to early initiation of breastfeeding and that poor early breastfeeding practices have been associated with poor brain development, poor cognitive performance, exposure to diseases and inadequate growth. Early breastfeeding practices determine success in later breastfeeding practices.

The findings of this study where there was an association between attitudes and practices were in agreement with Hauck, Fenwick, Dhaliwal, and Butt (2011), revealed there was a significant difference between how women fed whilst in hospital and how they are fed at home and this will affect their attitudes and practices towards early breastfeeding. Since all the mothers had delivered in the hospital, there was a relationship between their attitudes and practices, as Tuan, Nguyen, Hajeebhoy, and Frongillo (2014) also found that delivery settings had a substantial influence on early initiation of breastfeeding.

The findings of this study supplements to the literature on the gaps in early breastfeeding as well as the areas that are optimally practiced. It contributes to knowledge by stakeholders such as the MoH, NGO’s, CBO’s and other institutions that are concerned with young child health in efforts to promote early breastfeeding and therefore optimal nutrition status and health among children. It further adds to existing literature, the knowledge, attitudes and practices are related.
CHAPTER SIX: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Summary

The purpose of this study was to establish the knowledge, attitudes, and practices on early breastfeeding among mothers who deliver at the Moi Teaching and Referral Hospital (MTRH), in Uasin-Gishu County. The findings indicate that most mothers were knowledgeable on the early breastfeeding practices and had positive attitudes towards maternal practices. This was proved by the maternal knowledge and attitude scores, which were 6.75±1.26 (Median=7.0) and 24.21±3.14 (Median=25.0) respectively. It was found that majority of the mothers knew the importance of breastfeeding, that giving pre and post-lacteals is not a recommended practice, and that giving colostrum to a baby was very important and necessary for the development of the baby. A higher percentage of the mothers’ also indicated that a baby should be breastfed within the first hour.

On the practices, majority of the mothers’ breastfed their babies within one hour of birth, gave breast milk only as the first feed, and did not give anything to the baby after breastmilk initiation apart from breastmilk. Findings also indicated that babies had been given colostrum within the first 72 hours of birth. A few mothers reported to have faced challenges when practicing early breastfeeding. These included problems with the breast (pain while breastfeeding, blocked nipples, etc.), low milk production, and not being able to position and attach the baby correctly, maternal illness, and baby crying while breastfeeding. Associations were found between knowledge, attitudes and practices.

6.2 Conclusions

Knowledge on early breastfeeding is high among mothers delivering at Moi Teaching and
Referral Hospital. Most mothers have positive attitudes towards the recommended early breastfeeding practices. Most mothers practiced what is recommended by the MoH, and WHO/UNICEF during early breastfeeding. The challenges encountered by the mothers are modifiable factors and were mainly cultural beliefs and practices, knowledge on early breastfeeding, breast problems, and lack or low milk production. There is an associations between knowledge and practices, attitudes and practices, and knowledge and attitudes of mothers on early breastfeeding hence all the three hypotheses were rejected.

\textbf{H}0_1: There is no significant relationship between early breastfeeding knowledge and practices among mothers; rejected

\textbf{H}0_2: There is no significant relationship between the early breastfeeding attitudes and practices of mothers; rejected

\textbf{H}0_3: There is no significant relationship between the early breastfeeding knowledge and attitudes of mothers; rejected.

6.3 Recommendations

6.3.1 Recommendation for practice

The Ministry of Health (Division of nutrition) together with the county government of Uasin Gishu, the MTRH, and other related facilities should strengthen post-natal education on coping with early breastfeeding challenges both at the health facility and after discharge from the hospital. The negative impact of culture and cultural practices on early breastfeeding should be eliminated by ensuring that their effects are understood by all mothers. The gaps in early breastfeeding education e.g. the benefit it has on mothers, knowledge, and practice on complementary feeds and breastfeeding on demand, should
be addressed by ensuring that all mothers attending pre and postnatal clinics are educated during visits to the clinic on these aspects.

6.3.2 Recommendation for policy

The Ministries of Health both at the national and county level should formulate a policy targeting the mothers on the continuation of breastfeeding education after discharge from hospital, as it has proven to be have a positive outcome towards early breastfeeding.

6.3.3 Recommendation for further research

A study to determine the maternal early breastfeeding knowledge and practices after discharge. Similar studies should be conducted in other hospitals or communities to establish early breastfeeding maternal knowledge, attitudes and practices. An intervention study on strategies/ methods of effectively educating mothers on early breastfeeding will have more weight taking into cognizance other social influences.
REFERENCES


Kuzma, J. (2013). Knowledge, attitude and practice related to infant feeding among


Unicef, & WHO. (2009). *Baby Friendly Hospital Initiative. Revised, Updated and
Expanded for Integrated Care.


WHO/UNICEF. (2009). *Baby-Friendly Hospital Initiative Revised Updated and Expanded for Integrated Care Section 3 Breastfeeding promotion and support in a Baby-Friendly Hospital in a 20 hour course for maternity staff*.

APPENDICES

Appendix A: Graduate School Approval Letter

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: demn-graduate@ku.ac.ke
Website: www.ku.ac.ke

Internal Memo

FROM: Dean, Graduate School
DATE: 3rd September, 2015
TO: Boor Felix Kiplagat
C/o Food, Nutrition & Dietetics Department.

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting of 28th August 2015, approved your Research Proposal for the M.Sc. Degree Entitled, “Knowledge, Attitudes and Practices on Early Breastfeeding among Mothers Delivering at Moi Teaching and Referral Hospital in Uasin- Gishu County, Kenya”.

You may now proceed with data collection, subject to clearance with the Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking forms per semester. The form has been developed to replace the progress report forms. The supervision Tracking Forms are available at the University’s website under Graduate School webpage downloads.

Thank you.

EDWIN OBUNGU
FOR: DEAN, GRADUATE SCHOOL

cc: Chairman, Department of Foods, Nutrition & Dietetics

Supervisors:

1. Prof. Judith Kimiywe
   C/o Department of Foods, Nutrition & Dietetics
   Kenyatta University

2. Dr. Irene Awoor Ogada
   C/o Department of Foods Nutrition & Dietetics
   Kenyatta University
Appendix B: KUERC Approval Letter

KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE

Email: chairman.kuerc@ku.ac.ke
secretary.kuerc@ku.ac.ke
Website: www.ku.ac.ke

P. O. Box 43844 - 00100 Nairobi
Tel: 8710901/12
Fax: 8711242/8711575

Our Ref: KU/R/COMM/51/566

Date: 23rd November, 2015

Boor Felix Kiplagat
Kenyatta University,
P.O Box 43844,
Nairobi

Dear Kiplagat,

RE: APPLICATION NUMBER PKU/412/1 381- “KNOWLEDGE, ATTITUDES AND PRACTICES ON EARLY BREASTFEEDING AMONG MOTHERS DELIVERING AT MOI TEACHING AND REFERRAL HOSPITAL IN UASIN-GISHU COUNTY, KENYA”

1. IDENTIFICATION OF PROTOCOL
The application before the committee is with a research topic “Knowledge, attitudes and practices on early breastfeeding among mothers delivering at Moi Teaching and Referral Hospital in Uasin-Gishu County, Kenya” received on 21st September, 2015.

2. APPLICANT
Boor Felix Kiplagat, Department of Foods Nutrition & Dietetics

3. STUDY SITE
Moi Teaching and Referral Hospital in Uasin-Gishu County, Kenya,

4. DECISION
The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 23rd November, 2015.

5. ADVICE/CONDITIONS
i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.
If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

DR. TITUS KAHIGA
CHAIRMAN ETHICS REVIEW COMMITTEE

FELIX K. BOOR
23 Nov. 2015

Signature: ________________________ Dated this day of ____________________________ 2015.

cc. Vice-Chancellor
DVC: Research Innovation and outreach
Appendix C: IREC Approval Letter

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)
MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORER
Tel: 33471/23

MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORER
Tel: 33471/23

Reference: IREC/2015/269
Approval Number: 0001541

28th January, 2016

Felix Kiplagat Boor,
Kenyatta University,
School of Applied Human Sciences,
P.O. Box 438446,
NAIROBI-KENYA

Dear Mr. Boor,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has received your request for approval of your study titled:

"Knowledge, Attitude and Practices on Early Breastfeeding among Mothers Delivering at Moi Teaching and Referral Hospital in Uasin Gishu County".

On the basis of your study review and approval by the Kenyatta University Ethics Review Committee (ERC), IREC is glad to inform you that your study has been granted a Formal Approval Number: FAN: IREC 0001541 on 28th January, 2016. You are therefore permitted to continue with your study.

Note that this approval is for 1 year; it will thus expire on 27th January, 2018. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to expiry date.

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

Yours Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc: Director - MTRH, Dean - SPH
Principal - CHS, Dean - SCD
Dean - SOM, Dean - SON
Appendix D: MTRH Approval Letter

MOI TEACHING AND REFERRAL HOSPITAL

Telephone: 2033471/2/3/4
Fax: 61749
Email: director@mtrh.or.ke
Ref: ELD/MTRH/R.6/VOL.II/2008

Felix Kiplagat Boor,
Kenyatta University,
School of Applied Human Sciences,
P.O. Box 438446,
NAIROBI-KENYA.

P. O. Box 3
ELDORRET
8th February, 2016

RE: APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

“Knowledge, Attitude and Practices on Early Breastfeeding among Mothers Delivering at Moi Teaching and Referral Hospital in Uasin Gishu County”.

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

DR. WILSON ARUASA
AG. DIRECTOR
MOI TEACHING AND REFERRAL HOSPITAL

CC - Deputy Director (CS)
- Chief Nurse
- HOD, HRISM
Appendix E: NACOSTI Authorization Letter (Permit)

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Ref: No. NACOSTI/P/16/22216/9056

Date: 9th March, 2016

NACOSTI

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

Felix Kiplagat Boor
Kenyatta University
P.O. Box 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Knowledge, attitudes and practices on early breastfeeding among mothers delivering at Moi Teaching and Referral Hospital in Uasin-Gishu County,” I am pleased to inform you that you have been authorized to undertake research in Uasin Gishu County for a period ending 9th March, 2017.

You are advised to report to the County Commissioner, the County Director of Education and the County Coordinator of Health, Uasin Gishu County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR GENERAL/CEO

Copy to:

The County Commissioner
Uasin Gishu County.

The County Director of Education
Uasin Gishu County.

The County Coordinator of Health
Uasin Gishu County.
Appendix F: Informed consent and introduction form for mothers

Principal Investigator: Felix Boor

Introduction

Hello Madam,

I am a student at Kenyatta University pursuing Master of Science in Food, Nutrition, and Dietetics. I am carrying out a study on the knowledge, attitudes, and practices on early breastfeeding among mothers delivering at Moi Teaching and Referral Hospital Uasin-Gishu County.

Study procedure: In this study, I will ask you questions on;

Early breastfeeding practices about timely introduction to breast milk, skin-to-skin care, rooming in, pre and post lacteals.

The discussion will last about 30 to 40 minutes of your time, and I will be recording your responses on the questionnaire. You may sit stand or lie down while responding to the questions depending on your preference.

Benefits/Compensation: There will be no material compensation for participation in this study. The findings of this study, however, will help identify gaps in the early breastfeeding practices at the hospitals so that corrective action is taken and also help the hospitals adhere to the Baby Friendly Hospital Initiative guidelines, thus benefiting mothers and children’s health.

Risks: There are no foreseen risks associated with this study as there will be no medications or chemicals given, and no blood samples will be taken.
Confidentiality: Whatever information you provide will be kept in confidence and will not be shared with any other persons other than my supervisors. Your identity will also not be revealed to anyone.

Voluntary Participation: Your participation in this research is voluntary and that you are at liberty not to participate since non-participation will not interfere with service delivery, and your name will not appear anywhere at any stage in this research process. During the interview, you are free not to answer any question you do not want to or are uncomfortable with. In that case, I can skip that question and proceed to other questions. You are also free to end the interview anytime you feel like. I would very much appreciate your participation in this research and hope that you will participate since your views are important. This study has been cleared by KUERC and IREC.

CONTACTS:

Researchers’ contact: In case you need more information and clarifications, regarding this research you can contact the principal investigator on phone number: 0721876127, from the Department of Foods, Nutrition, and Dietetics, Kenyatta University. P.O. Box 43844-00100, Nairobi – Kenya.

KUERC/ IREC contact: In case you have any questions or complaints about your rights as a participant concerning this study, you are free to enquire further from the chairpersons’ Kenyatta University Ethical Review Committee (KUERC)/ Institutional Review Ethical Committee (IREC) of MTRH.

Please indicate your willingness to participate in the study by signing the space below.

Interviewer: Signature/ Thumbprint: ……………………… Date: …………………

Respondent: Signature/ Thumbprint ……………………… Date: …………………
Appendix G: Informed consent and introduction form for key informants

**Principal investigator:** Felix Boor

**Introduction**

Hello Sir/Madam,

I am a student at Kenyatta University pursuing Master of Science in Food, Nutrition, and Dietetics. I am carrying out a study on the knowledge, attitudes, and practices on early breastfeeding among mothers delivering at Moi Teaching and Referral Hospital Uasin-Gishu County.

**Study procedure:** In this study, I will ask you questions on;

- Early breastfeeding practices about timely introduction to breast milk, skin-to-skin care, rooming in, pre-lacteals and post lacteals.

The discussion will last about 30 to 40 minutes of your time, and I will be recording your responses on this (show the device) audio recorder.

**Benefits/Compensation:** There will be no material compensation for participation in this study. The findings of this study, however, will help identify gaps in the early breastfeeding practices at the hospitals so that corrective action is taken and also help the hospitals adhere to the Baby Friendly Hospital Initiative guidelines, thus benefiting mothers and children’s health.

**Risks:** There are no foreseen risks associated with this study as there will be no medications or chemicals given, and no blood samples will be taken.

**Confidentiality:** Whatever information you provide will be kept in confidence and will not be shared with any other persons other than my supervisors. Your identity will also not be revealed to anyone.
Voluntary Participation: Your participation in this research is voluntary and that you are at liberty not to participate since non-participation will not interfere with service delivery, and your name will not appear anywhere at any stage in this research process. During the interview, you are free not to answer any question you do not want to or are uncomfortable with. In that case, I can skip that question and proceed to other questions. You are also free to end the interview anytime you feel like. I would very much appreciate your participation in this research and hope that you will participate since your views are important. This study has been cleared by KUERC, and IREC.

CONTACTS:

Researchers’ contact: In case you need more information and clarifications regarding this research you can contact the principal investigator on phone number: 0721876127, from the Department of Foods, Nutrition, and Dietetics, Kenyatta University. P.O. Box 43844-00100, Nairobi – Kenya.

KUERC/ IREC contact: In case you have any questions or complaints about your rights as a participant concerning this study, you are free to enquire further from the chairpersons’ Kenyatta University Ethical Review Committee (KUERC)/ Institutional Review Ethical Committee (IREC) of MTRH.

Please indicate your willingness to participate in the study by signing the space below.

Interviewer: Signature/ Thumbprint: ……………………….. Date: …………………

Respondent: Signature/ Thumbprint ……………………….. Date: …………………
Appendix H: Questionnaire on the knowledge, attitudes, practices and challenges on early breastfeeding administered to mothers

Questionnaire Code No_________________
Name of the interviewer_________________ Code No_________________

Date of interview……./…../…… Start time_______ End time___________

Date of delivery: _____/_____/______ Time: _____ :_____( am/pm)

[Complete the questionnaire by writing the responses in the spaces provided or placing the appropriate number in the last column.]

[The interview should be conducted as close to discharge as possible]

SECTION A: SOCIAL AND DEMOGRAPHIC CHARACTERISTICS
A1. Age of mother in complete years: ________________.
A2. Marital status
   1 = Married  [  ]
   2 = Single    [  ]
   3 = Divorced [  ]
   4 = Separated [  ]
   5 = Widowed  [  ]
   6 = Other    [  ]
A3. How many children do you have? ________________.
A4. Religion
   1 = Christian  [  ]
   2 = Muslim     [  ]
   3 = Hindu      [  ]
   4 = Tradition African [  ]
   5 = None       [  ]
   6 = Other      [  ]
A5. What is your ethnicity? ________________
A6. What is your highest level of education?
   1 = None  [  ]
   2 = Primary [  ]
   3 = Secondary [  ]
   4 = College/University [  ]
A7. Occupation?
   1 = House wife [  ]
   2 = Professional (teacher, social worker, etc) (specify)____________ [  ]
   3 = Self-employed/ business [  ]
   4 = Farmer [  ]
   5 = other (specify) ______________ [  ]
A8. Do you possess any of the following?

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>
| 1 | Land | [ ] | How many acres? ________.
| 2 | cows | [ ] | How many? ________.
| 3 | Goats | [ ] | How many? ________.
| 4 | Sheep | [ ] | How many? ________.
| 5 | Chicken | [ ] | How many? ________.
| 6 | others (specify) | [ ] | How many? ________.

A9. How old is your baby? _____ Hours ____ days [Check clinic MCH card]

A10. What is the sex of your baby?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
</tr>
</tbody>
</table>

SECTION B: KNOWLEDGE

B1. Have you ever received information on breastfeeding?

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>[ ] [if Yes go to B2]</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>[ ] [if No skip to B4]</td>
</tr>
</tbody>
</table>

B2. Who/what was the source of the information? [Tick ALL responses given]

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Health worker</td>
</tr>
<tr>
<td>2</td>
<td>Family/relatives/friends (specify) ________</td>
</tr>
<tr>
<td>3</td>
<td>Traditional birth attendant</td>
</tr>
<tr>
<td>4</td>
<td>Media (magazines/newspapers/television/radio) (specify)</td>
</tr>
<tr>
<td>5</td>
<td>other (specify) ________</td>
</tr>
</tbody>
</table>

[If health worker (1) go to B3] [If not Health worker (2-5) go to B4]

B3. When did you receive this breastfeeding information?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>during antenatal clinic of this baby</td>
</tr>
<tr>
<td>2</td>
<td>at the time of delivery of this baby</td>
</tr>
<tr>
<td>3</td>
<td>at the time of delivery of past babies</td>
</tr>
<tr>
<td>4</td>
<td>during post-natal clinic of other babies</td>
</tr>
<tr>
<td>5</td>
<td>Maternal and child clinic</td>
</tr>
<tr>
<td>6</td>
<td>in the non-perinatal period</td>
</tr>
</tbody>
</table>

B4. Why is breastfeeding important?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do not know</td>
</tr>
<tr>
<td>2</td>
<td>It is nutritious</td>
</tr>
<tr>
<td>3</td>
<td>It prevents pregnancy</td>
</tr>
<tr>
<td>4</td>
<td>It protects against infections</td>
</tr>
<tr>
<td>5</td>
<td>other (specify) ________</td>
</tr>
</tbody>
</table>

B5. What should a baby be given immediately after a safe delivery? [tick all responses given]

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breast milk</td>
</tr>
<tr>
<td>2</td>
<td>Cow milk</td>
</tr>
<tr>
<td>3</td>
<td>plain water</td>
</tr>
<tr>
<td>4</td>
<td>Infant formula</td>
</tr>
<tr>
<td>5</td>
<td>Salt-sugar solution</td>
</tr>
<tr>
<td>6</td>
<td>Sugar/glucose solution</td>
</tr>
<tr>
<td>7</td>
<td>other (specify) ________</td>
</tr>
</tbody>
</table>

B6. After how long should a baby be put to the breast after a safe delivery?
1 = within 30 minutes [  ]
2 = Less than 24 hours but after 1 hour [  ]
3 = More than 24 hours [  ]
4 = Do not know [  ]

B7. Should the baby be fed on the yellowish liquid (colostrum) that comes from the breast during the first few days?
   1 = Yes [  ]
   2 = No [  ]

B8. Should the baby be fed on any other food or drink after initiation of breast milk?
   1 = Yes [  ] [if Yes specify] ________________.
   2 = No [  ]

B9. At what age should a baby be introduced to any food or drink? _______ Months

B10. When should you feed your baby?
    1 = by routine [  ]
    2 = on demand [  ]
    3 = other (specify) [  ]

B11. How long should a baby suckle?
    1 = 15 minutes [  ]
    2 = 30 minutes [  ]
    3 = for as long as they want to [  ]

SECTION C: ATTITUDE (Likert rating scale)

Part A: Favorable statements towards breastfeeding.
Key: 5 = Strongly agree, 4 = Agree, 3 = Maybe, 2 = Disagree, 1 = Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1. It is necessary to give other feeds before breast milk initiation.</td>
<td></td>
</tr>
<tr>
<td>C2. It is necessary to give other feeds after breast milk initiation.</td>
<td></td>
</tr>
<tr>
<td>C3. The baby should be put on the breast milk immediately after delivery.</td>
<td></td>
</tr>
</tbody>
</table>

Part B: Unfavorable statements towards breastfeeding.
Key: 1 = Strongly agree, 2 = Agree, 3 = Maybe, 4 = Disagree, 5 = Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1. Feeding the first yellowish liquid (colostrum) is not important</td>
<td></td>
</tr>
<tr>
<td>C2. The baby should not be fed on the breast milk only after delivery</td>
<td></td>
</tr>
<tr>
<td>C3. Early breastfeeding knowledge is not necessary at all</td>
<td></td>
</tr>
</tbody>
</table>
SECTION D: PRACTICES ON THE BABY
D1. How long after you gave birth was the baby put to the breast?
   1 = before 30 minutes [   ]
   2 = within one hour (31-60 minutes) [   ]
   3 = after one hour [   ]
D2. Did you feed your baby with anything before initiating breastfeeding?
   1 = breast milk only [   ]
   2 = others (specify) [   ]
D3. If not breast milk only above why did you give other feeds? __________________________.
D4. Did you feed the baby with the yellowish liquid (colostrum) that comes from the breast during the first few days?
   1 = Yes [   ]
   2 = No [   ]
D5. Has the baby been fed anything other than breast milk after initiating breastfeeding?
   1 = Yes [   ] (if Yes, what was the baby fed on?) Specify ________.
   2 = No [   ] (if No skip to D7.)
D6. If yes above why was the baby given the feed? __________________________.
D7. Has your baby been fed with a bottle by you, a staff member, or anybody else?
   1 = Yes [   ]
   2 = No [   ]
D8. In the first hour after birth, did you have skin-to-skin contact with your baby after they were born?
   1 = Yes [   ]
   2 = No [   ] (if No, why?) (Specify) __________________________.
D9. How soon after birth, did your baby start staying in your room/bed/near your bed?
   1 = within one hour [   ]
   2 = after one hour [   ] If more than one hour why? ________.
   3 = other (specify) __________________________.

SECTION E: PRACTICES OF MOTHERS
E1. Has anyone demonstrated or given you written information on how to express your breast milk since you delivered?
   1 = Yes [   ]
   2 = No [   ]
E2. Since you got to your room after delivery, has a staff member offered you help with breastfeeding e.g. positioning and attachment?
   1 = Yes [   ]
   2 = No [   ]
E3. If yes, how useful did you find this help at the time?
   1 = extremely useful [   ]
   2 = Very useful [   ]
   3 = Not very useful [   ]
   4 = Not useful at all [   ]
E4. Could you please demonstrate how to position and attach your baby for breastfeeding?
[It is acceptable for the mother to demonstrate by feeding her baby, or to
demonstrate by holding her baby or a doll in position while describing what she
has been told.]

E5. What advice have you been given by the staff about when you should breastfeed
your baby? [Do not read the list. Probe if necessary]
   1 = as often as he/she wants to breastfeed [ ]
   2 = after every 30 minutes [ ]
   3 = after 1 hour [ ]
   4 = Not given any advice about this [ ]

E6. Does your baby usually feed from both breasts at each feeding?
   1 = Yes [ ]
   2 = No [ ]

E7. For how long do you intent to breastfeed your baby?
   1 = less than 23 months [ ]
   2 = More than 23 months [ ]

SECTION F: CHALLENGES FACED DURING EARLY BREASTFEEDING

F1. Have you encountered any challenges during the early breastfeeding stages?
   1 = Yes [ ] (if Yes go to F2.)
   2 = No [ ] (if No skip to G1.)

F2. What are the challenges encountered?

SECTION G: FOLLOW UP ADVICE

G1. Have you been given any advice about where to get help if you have problems
with breastfeeding after you leave this facility?
   1 = Yes [ ] [if Yes go to G2]
   2 = No [ ] [if No End]

G2. What advice were you given?
   [Do not read. Probe if necessary]
   1 = Call or visit this or another facility [ ]
   2 = Ask for help from a mother-support group [ ]
   3 = Ask for help from a community worker [ ]
   4 = other [specify] ___________________

END. Thank you very much for your time.
Appendix I: Key Informant Interview Guide administered to the Nurse in charge and the Nutritionist

1. Do you have manuals or policies that guide your presentations on early breastfeeding practices?

2. What do you do to improve maternal knowledge, attitudes and practices?

3. Do you experience challenges about
   a. Timely initiation of breast milk
   b. Giving pre-lacteals
   c. Giving post-lacteals
   d. Giving colostrum

4. What types of challenges do you encounter in early breastfeeding?

5. What types of challenges do mothers encounter in early breastfeeding?

6. How do you cope with these challenges?

7. How do mothers cope with these challenges?
Appendix J: Map of Uasin-Gishu County

Source: IEBC, 2012