BARRIERS TO EXCLUSIVE BREASTFEEDING
AND NUTRITIONAL STATUS OF NON –
EXCLUSIVELY BREASTFED INFANTS IN
ELDORET MUNICIPALITY, KENYA

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HEALTH SCIENCES OF KENYATTA UNIVERSITY

NOVEMBER, 2010
DECLARATION

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

Signature

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Wanyonyi, Mary Nekesa

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This thesis has been submitted with our approval as university supervisors.

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   Signature

   ................. Date..............................
DEDICATION

I dedicate this work to all mothers and to my beloved daughters Laura, Velma and Anita who I did not exclusively breastfeed for 6 months.
ACKNOWLEDGEMENTS

First and foremost, I owe my gratitude to the almighty God for granting me good health and strength throughout my period of study.

Secondly, I am most grateful to my supervisors; Prof. Judith Waudo and Dr Jemima Simbauni for their sincere encouragement and guidance to me. Their remarks made this work to be what it is.

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<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>AMREF</td>
<td>African Medical and Research Foundation</td>
</tr>
<tr>
<td>ARI</td>
<td>Acute Respiratory Infections</td>
</tr>
<tr>
<td>CBS</td>
<td>Central Bureau of Statistics</td>
</tr>
<tr>
<td>EBF</td>
<td>Exclusive Breast Feeding</td>
</tr>
<tr>
<td>KDHS</td>
<td>Kenya Demographic and Health Survey</td>
</tr>
<tr>
<td>LLLI</td>
<td>La Leche League International</td>
</tr>
<tr>
<td>HAZ</td>
<td>Height for Age Z - Score</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immune deficiency Virus</td>
</tr>
<tr>
<td>MCH</td>
<td>Maternal Child Health</td>
</tr>
<tr>
<td>NCHS</td>
<td>National Centre for Health Statistics</td>
</tr>
<tr>
<td>SCN</td>
<td>Standing Committee on Nutrition</td>
</tr>
<tr>
<td>SD</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>TBA</td>
<td>Traditional Birth Attendant</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>United Nations Agency for International development</td>
</tr>
<tr>
<td>UNIC</td>
<td>United Nations Information Centre</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations International Children Education Fund</td>
</tr>
<tr>
<td>UNSD</td>
<td>United Nations Statistics Division</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>WAZ</td>
<td>Weight for Age Z – score</td>
</tr>
<tr>
<td>WHA</td>
<td>World Health Assembly</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WHZ</td>
<td>Weight for Height Z – score</td>
</tr>
<tr>
<td>WIC</td>
<td>Women, Infant and Children</td>
</tr>
<tr>
<td>WW</td>
<td>World War</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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ABSTRACT

Despite its many advantages, the benefits of breast milk have been widely unknown to mothers. In many of the world’s developing countries, water and other liquids are added to the baby’s diet in the first months of life risking infection from harmful bacteria and other pathogens. In Kenya only 13% of children below six months are exclusively breastfed. High infant mortality rates associated with diarrhoea, acute respiratory infections and poor responses to vaccinations result from lack of exclusive breastfeeding. It has been estimated that exclusive breastfeeding for the first six months of life could reduce infant mortality rate by a remarkable 13%. Globally, the practice of mixed feeding is a major public health concern. This study aimed at assessing the practicability of WHO recommendations on exclusive breastfeeding by establishing barriers to the practice. Descriptive survey method was used. The study was carried out in Eldoret Municipality. The study population was selected using simple random sampling. The sample size was 296 mothers of children aged 0-6 months. Data were collected through the administration of questionnaires and structured interview schedules and analyzed using Statistical Package for Social Sciences and EPI Info. Chi-square statistic was used to test the null hypothesis. Anthropometric measures were used to assess the nutritional status of infants. Out of the 296 infants, only 15.5% were breastfed exclusively. The mean age of exclusively breastfed infants was 1.8 months as 36% of the infants were introduced to other foods by 2 months. Maternal knowledge of exclusive breastfeeding was low. According to the mothers’ understanding, exclusive breastfeeding periods in months were as follows; 0-2 (51%), 2-4 (16%), 4-6 (10%) and other ages (23%). Malnutrition cases of underweight were 2.7%, wasting 9.3% and stunting 6.9%. The major hindrance to exclusive breastfeeding was mothers’ perception of insufficient breast milk production. The null hypothesis was rejected as there were many factors that hindered EBF practice, P = 0.004. These findings will form a basis of designing effective strategies to address barriers to exclusive breastfeeding.
CHAPTER 1  INTRODUCTION

1.1 Background Information
Breastfeeding is a process whereby the infant receives breast milk from the maternal breast (Kong et al., 2004). Exclusive breastfeeding has been defined as feeding of an infant with breast milk only without giving any other foods, not even water (Jolly, 2008). The definition allows for prescribed medicines, immunizations, vitamins and mineral supplements. Breastfeeding as a practice was recommended by WHO (2001), for optimal feeding (i.e. exclusive breast feeding for the first 6 months and continued breastfeeding for up to 2 years, with the introduction of other foods).

A nation-wide survey conducted in Pakistan on breastfeeding practice revealed that fewer mothers breastfed their children and these mothers often supplemented breast milk unnecessarily and/or stopped breastfeeding early (Morisky et al., 1991). Study findings from a UK based research indicated that reasons for low breastfeeding rates included cultural attitudes, limited knowledge of the benefits of breastfeeding and heavy media promotion of bottle-feeding (Mitch et al., 2006). According to Kong et al. (2004), undesirable breastfeeding practices were found to be associated with urban residence, younger mother’s age and higher educational attainment.

Data on the prevalence of exclusive breastfeeding vary widely in African countries and rates for exclusive breastfeeding under 4 months of age are very low. For example, Zimbabwe, 17%, Zambia, 23%, (WHO, 2003), South Africa, 29%, (Bland et al., 2002), Tanzania 19%, Uganda 48% (Coutsoudis et al., 2001),
According to UNICEF (2006), one out of every three children is exclusively breastfed for the first six months of life in the developing world. East Asia / Pacific and Eastern / Southern Africa are the regions with the highest levels of EBF in the first six months of life (43 %), while west and central Africa have the lowest levels (20 %).

Globally, available figures show few babies are exclusively breastfed to 3 months (UNICEF, 1994). In Denmark, 4 % of babies were exclusively breastfed to 4 months (Vester et al., 1991). Only 25% of Dutch mothers feed their children mainly on breast milk during the first 6 months (Lanting et al., 2005).

1.2 Problem statement
Despite the extensive available information on the benefits of exclusive breastfeeding both for the mother and the infant, in Kenya only 13% of children below six months are exclusively breastfed (UNICEF, 2006). More so UNICEF (1996), reported a prevalence of 2.3% of exclusive breastfeeding in Uasin Gishu District. The mean duration in months of EBF was 1.5 in 1998, 1.6 in 2003 and 1.7 in 2008 in Rift Valley Province (KDHS 1998, 2003 and 2008). High infant mortality rates associated with diarrhoea, acute respiratory infections and poor responses to vaccinations result from lack of exclusive breastfeeding. Acute respiratory infections and diarrhoeal diseases are two of the major causes of infant mortality in the developing world (UNICEF, 2006). Infant mortality rate in Kenya was 77 deaths per 1,000 live births and 61 deaths per 1,000 live births in the Rift Valley Province, (KDHS, 2003).

While almost all Kenyan mothers initiate breastfeeding, 85% to 90% of them offer water and other liquids to their babies in the first month. This increases the babies’ risk
to infection, poor nutrition and diarrhoea (Tabifer, 2005). Based on KDHS (2003), 46% and 30% of children under 5 years experienced Acute Respiratory Infections (ARI) and diarrhoea respectively. Of these, 41% of ARI and 26% of diarrhoea cases were from the Rift Valley Province under which Eldoret Municipality is found.

According to KDHS (2003) the under fives who were underweight, stunted and wasted were 20%, 30% and 6% respectively. In the Rift Valley Province 24%, 32% and 8% were underweight, stunted and wasted respectively. A third (33%) of bed occupants in paediatrics’ wards in hospitals in Kenya are diarrhoea cases. Prevalence of diarrhoea among infants aged 0-6 months is 14% in Kenya (CBS, 2004).

Early introduction of other foods is of public health concern because it exposes infants to increased infection, particularly diarrhoeal diseases. It may also lead to poorer infant nutrition and adversely affect growth rates. The fifty-ninth World Health Assembly projected that by 2015 the relative contribution to the global prevalence of childhood undernutrition was expected to increase from 16% to 38% for Africa (WHO, 2006).

In this era of HIV/AIDS, exclusive breastfeeding faces a great challenge as mothers who are HIV/AIDS positive are advised to formula feed their infants to minimize transmission of the virus to the infant. Feeds introduced to infants may have too much fat and carbohydrates leading to obesity, poor muscle development and low resistance to infections. For HIV-positive mothers, infants risk of death from infectious diseases is high in the absence of breastfeeding (WHO, 2000). Poor infant diet hampers cell division
The low prevalence and short duration of exclusive breastfeeding in previous studies have highlighted the need for more investigation into the problem (Kong et al., 2004).

1.3 Justification

High infant mortality rates associated with diarrhoea, acute respiratory infections and poor responses to vaccinations that result from lack of exclusive breastfeeding (UNICEF, 2006) can greatly be reduced if exclusive breastfeeding of infants is encouraged. This is because human milk is the ideal nourishment for infant’s survival, growth and development as it contains all the nutrients, antibodies, hormones, immune factors and anti-oxidants an infant needs to thrive (UNIC, 2005).

It has been estimated that exclusive breastfeeding for the first six months of life could reduce infant mortality by a remarkable 13% (Jolly, 2008) and by an additional 2% were it not for the fact that breastfeeding may transmit HIV (Jones et al., 2003). Exclusive breastfeeding has to be practiced in order to contribute to achieving Millennium Development Goal number 4 which is to reduce child mortality by two thirds by 2015 (UNSD, 2005).

Other studies have shown that full breastfeeding for at least six months has large beneficial effects on child survival regardless of socio – economic status. However, the beneficial effects of breastfeeding are dose - dependent (Raisler et al., 1999); therefore increasing the rate of exclusive breastfeeding should be a major target for breastfeeding promotion programmes (Simondon et al., 1998). It is argued that promotion of EBF is the
most effective child health intervention currently feasible for implementation at population – level in low income countries (Jones et al., 2003). This is because exclusive breastfeeding reduces infant deaths in developing countries by reducing diarrhea and infectious diseases (Oddy et al., 2003).

The low frequency of exclusive breastfeeding during the first months of life found in the previous studies underline the necessity to promote exclusive breastfeeding if infant feeding recommendations are to be realized. Breastfeeding is an important determinant of the nutritional status of the child which in turn influences growth and development (EL-Zanaty et al., 1992). Good nutrition protects foetus, infant and young children from permanent physical and intellectual stunting (SCN, 2000).

Promotion of breastfeeding must be seen as a priority for the improvement of the health and the quality of life of children and their families. Globally, the promotion of breastfeeding is a major public health concern. Breastfeeding reduces the risk of both under nutrition and overweight later in childhood (SCN, 2006). Breastfed children are healthier and have fewer hospitalizations than non-breastfed children (Drane, 1997, Weimer, 2001).

Although the WHO recommendation on EBF has been in effect for more than two decades, majority of women do not comply with it. This discrepancy has necessitated the need to explore factors that hinder women to practice EBF. It is worthy carrying out this study to understand factors hindering the exclusive breastfeeding practice in Eldoret Municipality. Given the set up of the study location, mothers have very varied socio -
economic backgrounds. This will show how different socio-economic characteristics can either promote or hinder the practice of exclusive breastfeeding. The varied representation of the study population (heterogeneous), will minimize the biasness of the findings than if the study was done among mothers with a similar background.

1.4 General objective
To investigate factors that hinder exclusive breastfeeding and establish the nutritional status of non-exclusively breastfed infants in Eldoret Municipality.

1.5 Specific objectives
i) To identify factors that hinder exclusive breastfeeding practice.
ii) To establish the mothers’ level of knowledge of exclusive breastfeeding.
iii) To assess the nutritional status of non-exclusively breastfed infants.
iv) To determine the relationship between mothers socio-demographic characteristics and exclusive breastfeeding practice.

1.6 Research questions
i) What are the factors that hinder exclusive breastfeeding practice?
ii) What is the mothers’ level of knowledge of exclusive breastfeeding?
iii) What is the nutritional status of non-exclusively breastfed infants?
iv) What is the influence of mothers’ socio-demographic characteristics on exclusive breastfeeding practice?

1.7 Null hypothesis
There are no factors that hinder exclusive breastfeeding practice.

1.8 Significance of the study
There is need for greater efforts to promote and support the healthy practice of exclusive breastfeeding. The planning of public health interventions to promote longer and more
exclusive breastfeeding practice requires an understanding of the factors that hinder the practice.

More efforts are needed to promote exclusive breastfeeding among mothers in order to realize international feeding practices of the infants. Health education on breastfeeding should be improved in order to eliminate barriers to exclusive breastfeeding. The findings can be used in designing appropriate and effective breastfeeding intervention programmes aimed at improving infant and young children feeding practices.

These findings will provide insights for exclusive breastfeeding promotion programmes of mothers in Eldoret, Kenya. The findings will contribute some extra knowledge in the study area and therefore serve as a basis for implementing child health policies. The research findings will form a basis for other researches on breastfeeding such as the plight of breastfeeding employed mothers.

1.9 Limitations
The study was not inclusive of mothers who do not attend child welfare clinics. The study did not include HIV positive infants Therefore results may not be generalized to the entire population of mothers with infants aged 0-6 months. Data on infant feeds and diseases were reported during the survey and were not based on observation. Language was another limitation. Most mothers could not understand English and therefore questions were asked verbally in Kiswahili. The translation may to some extent have altered the meaning of the question.
CHAPTER 2  LITERATURE REVIEW

2.1 The historical background of breastfeeding

Breastfeeding has been practiced since mammals existed on earth. Breastfeeding was rarely described even by those few ancient writers interested in infant health. The ancient Greek and Roman medical writings from Hippocrates, Soranus and Galen included infant health and feeding to some extent in their broader treatises on health (Ted, 1998).

As far as the duration of breastfeeding accepted in ancient civilizations was concerned, it was said that “Plotinus at the age of eight used to run from his tutor to his nurse and clamour for the breast” (Wickes, 1953). Ploss et al. (1935), estimated an average breastfeeding duration of 3 – 4 years among “primitive” peoples. Hawaiians were said to breastfeed for five years and Eskimos for about 7 years reaching a maximum in King William Land of upto 15 years. Ford, (1945), noted that breastfeeding continued for 3 years or longer in 15 of 45 “primitive” cultures, for 2 years in 16 of them, for 18 months in 13 of them and for 6 months in one culture.

Wickes, (1953) located one source from the late 1400s suggesting that it was by then normal to breastfeed for only about one year in Germany. In Italy, it was noted that women gave up breastfeeding by the third month and stopped breastfeeding by the 13th month.

Before the last few hundred years, alternatives to breastfeeding were rare. Attempts in the 15th Century in Europe to use cow’s or goat’s milk were not very positive. In the 18th century, flour or cereal mixed with broth were introduced as substitutes for
breastfeeding but this did not have a favourable outcome either. True commercial infant formulas appeared on the market in the mid 19th Century but their use did not become widespread until after World War II (Ted, 1998).

Before the 1900s, if a mother did not breastfeed, a substitute “wet nurse” was hired to do it (Gordon et al., 1994). Traditional patterns of both breastfeeding and other care for nutrition have been subjected to erosion. Wet nursing by grandmothers, a very valuable custom, rarely received reinforcement from breastfeeding programmes and hence has been lost (Ebrahim, 1991). During the early 1900s, the technology of formulas and feeding improved. From the 1920s, and especially in the 1940s when women worked in armament factories during WW II, more and more babies were fed formula. Throughout the 1950s and early 1960s, interest in breastfeeding further waned. In the 1970s, breastfeeding enjoyed a resurgence, which has since leveled off (Gordon et al., 1994).

In 1981 and 1987, the La Leche League International (LLLI) board of directors voted to support the WHO / UNICEF International Code of Marketing of Breast milk Substitutes. In February 1988, the board directed LLLI to cooperate and network with other key breastfeeding organizations around the world and to lend strong US support to struggling countries. In October 1988, the board voted to support the efforts of the American Academy of Paediatrics for their policy opposing direct advertising of infant formula to the public. This was recognized as a positive step towards increasing the incidence and duration of breastfeeding in the US. The move was to lend support to breastfeeding worldwide.
On July 21, 1991 a historic meeting was held in the USA to discuss the marketing of artificial infant feeding in the US. At this meeting a consortium drafted the “Declaration for the Protection, Promotion and Support of Breastfeeding” (Janet et al., 2008). Breastfeeding was the normal way of feeding infants in all traditional societies. In a world-wide study of 45 different cultural and ethnic groups in the 1940s, it was found that on average the infant breastfed for 1.5 – 2 years. In some communities it continued for as long as 6 years (Ebrahim, 1991).

A multi-nation study sponsored by WHO, in 1981 found three main patterns of breastfeeding; in the first pattern, breastfeeding was rarely continued beyond 6 months and there was a tendency to terminate breastfeeding even sooner than that. On the other extreme, breastfeeding was prolonged and almost universal with about 50% of the mothers continuing to breastfeed at the age of 18 months. A third group of mothers exhibited a pattern which fell midway between the two extremes (Ebrahim, 1991).

2.2 Effects of beliefs and attitudes on exclusive breastfeeding
In many places, people regard breastfeeding as normal, but they have other ideas that can interfere with it. Sometimes people approve of breastfeeding but believe that it is not enough by itself and that babies need something else as well. Many mothers decide to feed their babies artificially-either partially or completely because they believe that they do not have enough breast milk. According to Lousekuhn et al. (2001), and Lakati (2002), a mother’s perception of insufficient breast milk production is a barrier to exclusive breastfeeding as found in south Africa. Some mothers give babies bottle feeds
as well to make them fatter, because they believe that it is healthier (Morrow, 1996). For Asian families, formula feeding is seen as a way to ensure that babies will grow to be physically larger and to have harder bones (Morrow, 1996).

Some women do not want to stay with the baby all the time to breastfeed, they want to be free to go out with friends or go to work. They believe that breastfeeding will not suit their ways of life. The findings of a study among Hong Kong women showed that women tended to consider breastfeeding as socially limiting and thought that women should not be tied to the baby and family (Kong et al., 2004).

Colostrum has traditionally been viewed as “bad milk” (Ergenekon et al., 2006). The colostrum is discarded because of the general belief that it is ‘heavy’ or ‘not good for the child’. Turkish migrant mothers believe that colostrum, “Mawu / fro” causes stomachache and infants dislike this milk. Mothers squeeze their breasts to get rid of this milk (Ergenekon et al., 2006). In many developing countries, mothers do not give that first milk because they fear it to be “pus” or “poison” (Adegb, 1997).

2.3 The physiology of lactation
The development, growth and secretory functions of the mammary glands are dependent upon stimulation by the appropriate hormones. Parturition triggers the secretion of prolactin hormone from the anterior lobe of the pituitary, and under its influence the acinar cells of the mammary glands synthesize and secrete the various components of milk. When the nipple or areola is suckled, impulses from sensory receptors within the breast travel to the hypothalamus, which signals the posterior pituitary gland to release
oxytocin hormone. The oxytocin reaches the breasts by means of the blood and stimulates the myoepithelial cell to contract (in both breasts). Within about thirty seconds, milk is ejected into the mouth of the infant (Shafer et al., 2001).
Breast milk is the natural food for infants during the first months of life. It contains all the nutrients a baby needs for the first six months of life. Breast milk contains antibodies to protect the baby against infections, there is less gastroenteritis, fewer respiratory and ear infections among breastfed babies (Penny et al., 2005). Infants fed on breast milk...
have less risk of atopic eczema, asthma, lower rates of obesity, diabetes and coronary heart diseases in the later life. The suckling required in breastfeeding is more vigorous and encourages the healthy development of jaws and gums (Penny et al., 2005).

Breastfeeding is important for physical health and neurological development. There is a possible decrease in the risk of cot death and a possible increase in Intelligence Quotient. Some studies suggest that long-term intelligence or cognitive scores increase with the mother’s choice to breastfeed and with the duration of breastfeeding (Pollack, 1994). Breastfeeding may be particularly important in neurological development when some impairment is present at birth (Lanting et al., 1994). The hormones released during breastfeeding strengthen the maternal bond.

2.5 The value of breastfeeding to the mother
Breastfeeding on demand helps protect against another pregnancy (Paget et al., 2004). Breast suckling prevents ovulation through the hormone prolactin. Prolactin has an inhibiting influence on the synthesis of ovarian steroids. The longer and more completely the infant suckles, the more delay in the return of the ovulation cycle and thus the mother’s fertility. Breastfeeding helps the uterus to return to its original size much more quickly. Breastfeeding soon after giving birth increases the mother’s oxytocin levels making her uterus contract more quickly and reducing bleeding (Ford et al., 1990). Women who breastfeed are less likely to suffer from uterine disorders, ovarian and breast cancer (Penny et al., 2005). According to Mitch et al., (2006) breastfeeding allows for quicker weight loss after pregnancy. The fat reserves set aside during pregnancy are used
to manufacture milk (David et al., 2001). Breastfeeding uses an average of 500 calories a day, thus, it helps a mother to lose weight after giving birth (Saadeh, 1996).

2.6 Factors influencing mothers’ exclusive breastfeeding practice

2.6.1 Level of knowledge on breastfeeding

Having adequate information about breastfeeding and failing to experience problems during breastfeeding period are found to influence mothers to breastfeed their infants. One of the elements to empower a woman to breastfeed is that she has sufficient knowledge to make decisions (Shelton, 1994). Breastfeeding choice and success are usually associated with higher knowledge on breastfeeding (Wallace, 1992).

2.6.2 HIV status

The fear of transmitting HIV through breast milk is a factor that contributes to the decline in breastfeeding. HIV- positive mothers could be targeted by the distributors of infant food products. A four-country study on breastfeeding in selected African countries concluded that there has been a reduction on support of breastfeeding as a result of fears and misinterpretation of the UNAIDS/WHO/UNICEF guidance related to HIV and breastfeeding (Miriam et al., 2005). A recent study in Zimbabwe indicates that postnatal transmission of HIV can be halved from 14% to 7% by exclusive breastfeeding in the first three months of life (Jolly, 2006). The risk of HIV infection in breastfed babies is smaller than the risk of non breastfed babies getting other infectious diseases in present conditions in many developing countries (Paget et al., 2004). If a HIV positive mother decides to breastfeed, some evidence exists in favor of exclusive breastfeeding (Steichen et al., 2002). It remains unclear why exclusive breastfeeding is better than
mixed feeding. Possible explanations include a reduction in dietary antigens and pathogens which are assumed to provoke an inflammatory response or alter infant’s gut integrity; the promotion of beneficial intestinal microflora by breast milk which may increase resistance to infection (Coutsoudis et al., 2001).

2.6.3 Age

The literature on the determinants of breastfeeding has consistently identified lower maternal age as predictors of lower breastfeeding rates (Scott et al., 1999). A young mother with her first child may find it difficult to believe that she can breastfeed successfully. Breastfeeding fails easily in a young school girl who has a baby that she really did not want (King et al., 1983). The young mother feels shy to breastfeed and this impaires milk secretion. The young women to a large extend perceive their breasts in terms of their attractiveness rather than their function. Several mothers with a child at the end of a large family give up breastfeeding rather easily, although they had no difficulties with earlier children (King et al., 1983).

Age above 25 years has been repeatedly associated with a longer duration of breastfeeding (Scott et al., 2001). It is probable that older women know more about the benefits of breastfeeding and have more realistic outcome expectations (Lawson et al., 1995). If a young woman is interested in breastfeeding, she should talk to women who have done it successfully. Experienced mothers can be an enormous help to the first time mother (Freed, 1993).
2.6.4 Marital status

Single mothers have great difficulty supporting themselves and caring for the baby especially if they are young. Single mothers have less family support. Without this support, activities outside the home such as having to work might prevent EBF. It is often best if the mother and the baby can stay together and be supported as a family. They can breastfeed at least partially (Ebrahim, 1991).

2.6.5 Education

A woman’s educational and social class affect her motivation to breastfeed but the way it affects is different in different parts of the world. In many industrialized countries in the west, breastfeeding is more common among the educated and upper class women. On the other hand, in third world countries the educated and upper class women are more likely to feed their infants artificially (King et al., 1993).

Generally educated women tend to breastfeed less and are likely to introduce supplementary feeding earlier than those with little or no education. This is attributed to the fact that a better educated woman is more likely to work away from home which makes breastfeeding difficult (Luan, 2003). The KDHS (2003), found an inverse relationship between education and mean duration of breastfeeding.

2.6.6 Employment

A woman may choose not to breastfeed because she plans to go back to work outside home soon after the baby is born and feels it is too difficult to work and also breastfeed.
Other women find it hard to maintain their milk supply when separated from their babies and may be forced to stop breastfeeding (Fisher et al., 1990). Maternal employment outside the home is often cited as a major factor in short-term breastfeeding patterns seen throughout the world (Perry, 2003).

2.6.7 Cultural factors

The decision to breastfeed is very often influenced more by socio-cultural factors than by health consideration (Henderson et al., 2000). Ergen ekon et al., (2006) noted that cultural beliefs have a significant influence on breastfeeding practices. When perceived primarily as sex symbols, the breasts must be decently hidden which makes breastfeeding in public places difficult (Fisher et al., 1990).

Breastfeeding in a public place or in the presence of friends is an activity that is extremely sensitive to cultural norms. Findings of the study done among women in Hong Kong showed that majority of the women agreed that it was unacceptable to breastfeed in front of others except the husband and the health care workers (Kong et al., 2004). Society has stressed modesty and frowned on baring breasts in public even in so good a cause as nourishing babies (Freed, 1993). In most African countries, breastfeeding is still considered an important part of the traditional culture and is actively supported and promoted by community members (Walker et al., 2000).
2.6.8 Husband / Family support

The role of the husband as a supporter of breastfeeding is mentioned in the lay literature. Particularly when he has a positive mind-set relating to breastfeeding, it is thought that he can play an important role (Litman et al., 1994). The presence of the husband at delivery tends to make him more supportive of breastfeeding (King et al., 1993).

Women who have breastfed have often had problems because of lack of experience and support around them (Fisher et al., 1990). In some places, the husband thinks that breastfeeding is normal and important and most mothers breastfeed successfully. In other places, the husband does not understand the importance of breastfeeding or may disapprove breastfeeding in public places; then it is more difficult for women to breastfeed successfully (King et al., 1993).

A man’s positive or negative attitude towards breastfeeding can easily influence a woman’s breastfeeding behaviour. Men may disapprove of breastfeeding if they believe it will interfere with sexual activity, will make women lose their breast shape or cause women to expose their breasts in public (Bryant et al., 1992 and Beutley et al., 1999). According to Kessler et al., 1995, the child’s father may be supportive of breastfeeding if he realizes that the economic benefits of the mother’s milk will free him from the responsibility of obtaining infant foods. Other husbands, especially those who understand the nutritional value of breastfeeding, like the health professionals may not buy their babies infant formula even though they could afford.
Several studies have demonstrated that the nursing mother needs emotional support especially during the early days of lactation, provided by the people she trusts (Ebrahim, 1991). The attitude of husbands, relatives, friends and the community, all affect women’s decisions about breastfeeding positively or negatively (King et al., 1993). Hogan (2001), noted that lack of family support is a barrier to exclusive breastfeeding.

2.6.9 Religion

The Islamic holy book, the Quran, recommends that mothers breastfeed their children for two years if possible and states that “every infant has the right to be breastfed. That if a mother is unable to breastfeed, she and the husband can decide together to have a wet nurse feed the child” (Jessica, 2007). Islam has codified the relationship between the wet nurse and the infants she nurses and also between the infants when they grow up, so that milk siblings are considered as blood siblings and cannot marry (Jessica, 2008). The Shulchan Aruch, based on the Talmud, allows breastfeeding until age two in all cases and upto age 4 (or 5 if the child is sick as long as the child has not ceased nursing for 72 hours). The reason for this is that adults are forbidden to breastfeed although they may drink mother’s milk indirectly (Ari, 2006). Islam contradicts breastfeeding. The Islamic society represses and suppresses women who are generally believed to be inferior to men. In most Islamic nations, women have to be covered from head to toe (Ari, 2006). This is a cultural barrier that hinders breastfeeding. Other religions support breastfeeding. For example, the La Leche League International was founded by Catholic mothers in support of breastfeeding.
CHAPTER 3   METHODOLOGY

3.1 Research design
Descriptive survey method was used to observe, describe and document aspects of exclusive breastfeeding practice and nutritional status of infants. This design was chosen because the study was concerned with specific prediction and describing characteristics of a particular group (mothers and infants). The design was preferred as the topic was a social survey under social and behavioral sciences (Role, 2007).

3.2 Location of study
The study was carried out within Eldoret Municipality which is in Uasin Gishu District of Rift Valley Province. The land area is 157 Km$^2$ with a total population of 311,027, of which 162,882 are male and 148,145 are female (The 1999 Population & Housing Census). There are five Health Centres under the Municipality. These are: Eldoret West, Pioneer, Kapsoya, Kipkenyo and Kapyemit. Town Hall Clinic is another health facility but does not offer MCH services. All these facilities serve an average population of 2,523 clients monthly. Of these 1186 attend the dispensaries while 1337 attend MCH clinics (Municipal Council of Eldoret, 2007).

Given that the study area was an urban setting, the target population was representative of the larger population as the selected mothers had varied socio-economic, cultural, demographic and personal backgrounds.

3.3 Target population
All mothers and infants who attended the MCH Postnatal clinics which were Eldoret West, Pioneer, Kapsoya, Kipkenyo and Kapyemit.
3.4 Study population
Mothers of infants aged 0-6 months drawn from the target population.

3.5 Inclusion criteria
Mothers of infants aged 0-6 months who were willing to participate in the study.

3.6 Exclusion criteria
Mothers of children aged 0-6 months not willing to participate. Mothers of children aged 0-6 months who were unwell.

3.7 Sampling techniques
Each of the five health centres was visited on different days for 4 consecutive weeks. Each visit lasted 4 hours. This is because each clinic had 2 different specific MCH clinic days which operated from 8 a.m to 12 noon. Simple random sampling was used. Papers with two written choices yes and no were placed in a container. On each visit, mothers of children aged 0-6 months attending MCH clinics willing to participate, picked the papers at random. The subjects who picked the yes response were included in the sample. On each day, the total number of mothers and infants was recorded. Once the sample size of 296 mothers and infants was achieved, the visits ended.

3.8 Sample size
From the Municipality report of June 2007, out of the 2,523 clients, 1,337 mothers attended the MCH clinics. Based on this, the desired sample size was calculated using the formula \( n = Z^2pq / d^2 \) (Fisher et al., 1998),

Where \( N \) is the desired sample size if the target population is greater than 10,000

\[ Z \] is the standard normal deviate at the required confidence level

\[ P \] is the proportion in the target population estimated to have the characteristic
\[ q = 1 - p \]

d is the level of statistical significance

Hence \[ p = \frac{1337}{2523} = 0.53, \quad n = \frac{1.96^2 (0.53)(0.47)}{0.05^2} \]

\[ Z = 1.96 \quad = 382 \]

\[ d = 0.05 \]

\[ q = 1 - p = 1 - 0.53 = 0.47 \]

Since the target population was less than 10,000, that is, 1,337, a final sample estimate was calculated using the formula:

\[ n_f = n / (1+n) / N = \frac{382}{(1+382)}/1337 = 296 \]

Therefore the sample size was 296.

3.9 Data collection instruments

Research instruments used were questionnaire and personal interview schedules. Closed ended questions and structured interview schedules were constructed. A six-part questionnaire was developed on the basis of literature review.

Part A - Socio-demographic characteristics of the mother

Part B – Nutritional status of the baby

Part C - Employment

Part D – Knowledge level

Part E – Personal factors

Part F – Social support

Anthropometric Method that involved height and weight measurements was used to assess the nutritional status of infants.

For reliability, the questionnaire was initially pretested to 20 mothers who were not among the final 296 respondents.
3.10 Data collection techniques
The questionnaire and the structured, face-to-face interview schedule were researcher-administered. Personal interviews were done using a structured questionnaire on participants who could not read. Mothers were asked to state how much they knew about EBF. Established true facts about breastfeeding were used to rate maternal knowledge on breastfeeding. Mothers were asked to respond to established true facts testing knowledge (under part E of the questionnaire), as strongly agree, agree or disagree.

Anthropometric Measurements
Infant weight was taken using a 25 kg Salter Scale graduated in 100gm. The infant’s clothes were removed except the vest, before being placed on the weighing pan. Before each series of weight measurement, the scale was adjusted to read zero. Weight was read twice and recorded to the nearest 100gm, (in kg).

Infant height was taken by use of a calibrated measuring board from the forehead to the toe. The infant was placed on the hospital bed lying flat straight and facing up. Measurements were taken twice; one immediately after another and recorded to the nearest 0.1 cm. The average reading was used to ensure accuracy. Infant’s age (in months) was determined using the child health card and also by asking the mother when the baby was born. All mothers who attended the MCH clinics had been issued with child heath cards.
### 3.11 Data analysis

Data from the survey was statistically analyzed using the Statistical Package for Social Sciences (SPSS) (version 12.0). Inferential statistics and chi-square were performed to compare the effects of different factors on exclusive breastfeeding practice. Since the study was about a relationship (dependency between exclusive breastfeeding practice and other factors) chi-square statistic ($\chi^2$) was used to establish whether relationships existed among the variables. Statistical significance was assumed for P – values, < or = 0.05. Basic descriptive analysis were done using frequency distributions. Qualitative data was sorted, categorized and conceptualized in a systematic way to uncover patterns of exclusive breastfeeding. Measures of central tendency were used to give expected summary statistics of variables studied. Descriptive statistics was used to describe a distribution of scores. Findings were presented by use of frequency distribution tables, charts and graphs.

The Epi Info 2002 software package was used for the analysis of Quantitative data. First the raw measurement data (weight and height) were entered into the computer. Second, the programme combined the raw data on the variables (age, sex, length, weight) to compute nutritional status indices, that is, weight for age (underweight), an overall indicator of a population’s nutritional status, height for age (stunting) measure of linear growth and weight for height (wasting) an indicator of current nutritional status. Third, the programme transformed these data into Z-scores so that the prevalence of nutritional conditions such as underweight, wasting and stunting could be calculated. Children were classified as malnourished if their Z-scores were below -2 or -3 standard deviation (SD) of the reference population based on the WHO Child Growth Standards.
(WHO, 2006). (Roberto F.A., 2007). Children with Z-score below <-2 SD to > -3 are considered moderately, < -3 Z-score, severely malnourished. A child below -2 SD from the median of the reference population in terms of weight for height is considered too thin for height (wasted), a condition reflecting acute / recent nutritional deficit. Below -3 SD is severe wasting which is closely linked to mortality risk.

3.12 Logistical and ethical considerations
This included seeking legal authority from Medical Officer of Health, Eldoret Municipal Council and clearance from Kenyatta University Graduate School to carry out the study. A sample questionnaire was given to the MCH staff in order to clarify issues and obtain their cooperation. Respondents consent (signed) consent for study participation was sought through attaching a brief consent form with the questionnaire that addressed the nature of the study. Informed verbal consent was also sought. During the interviews, mothers were encouraged to talk freely. The respondents’ information was treated confidentially.
CHAPTER 4 RESULTS AND DISCUSSION

This chapter covers results and discussion starting with socio–demographic characteristics of the mothers. This is followed by factors that hinder exclusive breastfeeding practice, maternal understanding of exclusive breastfeeding, nutritional status of infants and the relationship between socio–demographic characteristics and exclusive breastfeeding practice.

4.1 Socio–demographic characteristics of the mothers

The sample size of the study population was 296 mothers. The variables of interest researched on were age, marital status, level of education and employment status. The mothers’ ages ranged from 15 to 44 years. The highest percentage of the mothers (31%) were in the age group of 25-29 while the least percentage (1.4%) were in the age group 40-44 years. The mean age of the mothers was 25 years. Twenty seven percent of the mothers had secondary education while 15% had tertiary education. Most of the mothers were engaged in some form of employment with only 39.5% having no employment. More than three quarters of the mothers (78%) were married while 22% were single.
Figure 4.2 Levels of education of mothers

Figure 4.3 Mothers’ employment status
4.2 Factors that hinder exclusive breast feeding practice

The important factors that hindered EBF were mother’s insufficient breast milk production, mother’s inability to express breast milk, to improve infant’s health, mother’s return to work, mother socially tied down, inadequate knowledge about EBF and lack of health messages on EBF from both antenatal and post-natal clinics.

Table 4.1 Factors hindering mothers from exclusive breastfeeding

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient breast milk production</td>
<td>40</td>
</tr>
<tr>
<td>Inability to express breast milk</td>
<td>24</td>
</tr>
<tr>
<td>Lack of health messages from clinics</td>
<td>17</td>
</tr>
<tr>
<td>Mother returns to work</td>
<td>15</td>
</tr>
<tr>
<td>Breastfeeding as socially limiting</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
4.2.1 Mothers’ insufficient breast milk production

Figure 4.4 Mothers’ opinion on breastmilk not satisfying infant

Many mothers decided to feed their babies artificially – either partially or completely because they believed that they did not have enough breast milk. On responses given under personal factors, 20.6% strongly agreed, 39.9% agreed and 39.5% disagreed that they did not have enough milk; $\chi^2 = 11.290$, df = 2, P= 0.004. Most mothers reported that their breasts could not produce adequate milk because the baby cried a lot on breastfeeding alone. This could be attributed to mothers not feeding well. They opted to give other feeds to satisfy the baby. Breastfeeding women should eat a well balanced diet and drink enough liquids like juice, water, milk and soup to increase milk production. Breastfeeding at least every two to three hours helps to maintain milk production. For most women, eight breastfeeding or pumping sessions every 24 hours keeps their milk
production high (UNICEF, 1999). Feeding a baby on demand (when a baby shows signs of hunger) helps to maintain milk production and ensures the baby’s needs for milk and comfort are met (WHO, 2003).

This study’s finding is similar to the one done in New Zealand on factors associated with duration of breastfeeding. The common reason for stopping breastfeeding among mothers was perceived insufficient milk in the first months (Vogel et al., 1999). According to Lousekuhn et al., (2001) and Lakati, (2002), mother’s perception of insufficient breast milk production was a barrier to EBF as reported in South Africa. Similarly, in a study done in Nairobi, breast milk insufficiency was one of the main reasons cited for the cessation of EBF (Lakati et al., 2002).

4.2.2 Mothers’ inability to express breast milk

When mothers were asked if they expressed breast milk to leave for feeding baby while they were away, 7.4% responded yes, 92.6% responded no; \( \chi^2 = 4.373, \text{df} = 2, \ P=0.021 \). This was a barrier to EBF. If a mother could not express breast milk, it meant the infant had to be fed on other drinks / foods besides breast milk. Reasons for not expressing breast milk included mother’s lack of skill on how to express, lack of equipment like a breast pump to express breast milk, fear of contamination due to lack of refrigerators to store and other mothers saw no major need of expressing the milk. Expressing breast milk requires a skill. A mother can express milk by hand or using a breast pump into a sterile plastic bottle. Keeping breast milk requires careful sanitation.
and rapid chilling. Breast milk may be kept at room temperature for up to 10 hours, refrigerated up to 8 days and frozen up to 4 to 6 months (Pediatrics, 2005).

Mothers should know that expressing breast milk can maintain a mother’s milk supply when she and her child are apart. Expressed breast milk can be fed to the baby using a cup and a spoon, by the care taker when the mother is away. This ensures EBF for the baby. However, to be successful, the mother must produce and store enough milk and the care giver must be comfortable in handling breast milk. With good pumping habits, it is possible to produce enough milk to feed the baby as long the mother wishes.

4.2.3 Lack of health messages on EBF from both antenatal and postnatal clinics

Most mothers expressed their dissatisfaction with availability of health messages on breastfeeding during both antenatal and postnatal clinic visits. On availability of health messages on EBF during antenatal visits 14.2% strongly agreed, 35.8% agreed and 50% disagreed; $\chi^2 = 3.857$, df = 2, P = 0.047. On its availability during postnatal visits 18.2%
strongly agreed, 11.8% agreed and 69.9% disagreed; $\chi^2 = 4.253$, df = 2, P = 0.038. On rare occasions did they receive any messages encouraging them to breastfeed.

If mothers are not encouraged by the health personnel to breastfeed, then they take exclusive breastfeeding practice for granted. On establishing if they received sufficient information on breastfeeding to enable them decide to breastfeed, 42.2% respondent yes, 57.8% respondent no; $\chi^2 = 11.468$, df = 1, P = 0.001 at significance level 0.05. There was a significant relationship between information received on breastfeeding and exclusive breastfeeding. This means lack of adequate information hinders the practice of EBF. Most mothers reported that they did not get adequate support through advice from health workers to exclusively breastfeed.

![Figure 4.6 Mothers' opinion on availability of health messages on EBF at postnatal clinics](image)
4.2.4 The baby needs more than breast milk

All the mothers of the infants aged 0-6 months had the following responses on baby’s need for more than breastmilk. Those who strongly agreed were 36.1%, 44.6% agreed and 19.3% disagreed that the baby needed more than breast milk; $\chi^2 = 19.079$, df = 2, P = 0.044. Mothers approved of breastfeeding but believed that it was not enough by itself and that babies needed something else as well. Among the reasons given why mothers decided to give other drinks / foods besides breast milk was that the baby cried even when breastfed. According to the mothers, this suggested the baby was not satisfied and therefore needed something else. Another important factor for not practicing EBF was the perception of water as being indispensable for the infant’s health.

Participants of another study among African American Women perceived that giving infants water was essential and they believed that cereal and solid foods should be introduced much earlier (Underwood et al., 1997). However, in Nepal breast milk was considered to be pure and while the infant was drinking only breast milk, he or she, unlike adults was not yet polluted (Moffat, 2002).

Findings of this study indicated that some mothers gave babies bottle feeds to make them fatter because they believed that it was healthier. Among the reasons for giving other drinks / foods besides breast milk was to make infants grow bigger. Fifty four point one percent strongly agreed, 35.1% agreed and 10.8 % disagreed that breastfed babies were healthier. The findings of this study are similar to those of Asian families. According to Morrow, (1996), for Asian families, formula feeding was seen as a way to
ensure that babies grew to be physically larger and had harder bones. A survey done in Cameroon indicated that more than 38% of the mothers supplemented breast milk in the first month of the infant’s life. Mothers gave reasons to mix feed their babies as breast milk being an incomplete food that did not increase the infant’s weight (Kakute et al., 2005).

4.2.5 Breastfeeding as socially limiting

The findings of a study among Hong Kong women showed that women tended to consider breastfeeding as socially limiting and thought that women should not be tied to the baby and family (Kong et al., 2004). However, according to this study, many women disagreed that breastfeeding tied them down socially; 4.1% strongly agreed, 31.4% agreed and 64.5% disagreed; $\chi^2 = 16.89$, df = 2, P = 0.004. This was not a major hindrance. Mothers who breastfed did it with pride and confidence, without being embarrassed. Breastfeeding is a natural thing to do and should be allowed everywhere even in public. Mothers should not mind other people’s negative opinions about breastfeeding. Breastfeeding is not time consuming and therefore would not limit social activities.
4.3 Mothers` understanding of EBF

Mothers were rated on their responses testing their understanding on recommended age of EBF. Most mothers agreed that they knew little about EBF. According to the mothers’ understanding, EBF periods were as follows; 0-2 months (51 %), 2-4 months (16 %), 4-6 months (10 %), other ages (23 %), $\chi^2 = 14.884$, df = 3, P= 0.002. This showed clearly that most mothers did not know the recommended age of EBF. According to Shelton 1994, one of the elements to empower a woman to breastfeed was that she had sufficient knowledge to make decisions. The low rates of EBF in this study could be attributed to insufficient knowledge on breastfeeding, as breastfeeding choice and success are usually associated with higher knowledge on breastfeeding (Wallace, 1992).

The importance of mothers’ breastfeeding knowledge has been shown in other studies (Chezem et al., 2003). According to Barbara et al. (2007), study findings on factors
associated with the duration of exclusive breastfeeding showed a positive significant association between the duration of EBF and mothers breastfeeding knowledge, meaning that having knowledge on breastfeeding promotes the practice of exclusive breastfeeding. From a study done in an urban health centre of Grant Medical Foundation, Ruby Hall Clinic, in Pune India, 75% of the mothers interviewed had antenatal education regarding breastfeeding. In a study done in Tanzania (Hufman, 1984), women not having knowledge of exclusive breastfeeding were more likely to terminate exclusive breastfeeding early. This lack of adequate knowledge could hinder the initiation and sustainability of EBF.

4.4 Nutritional status of infants
There were 142 female and 154 male infants. The mean age of all infants was 2.9 months. The mean age of EBF infants was 1.8 months. The mean weight for all infants was 6.18 kg while the mean weight for EBF infants was 5.87 kg. The mean height of all infants was 52.11 cm whereas the mean height for EBF infants was 49.39 cm.

Table 4.2 Nutritional Status of Children by percentage

<table>
<thead>
<tr>
<th>Age in months</th>
<th>Height for age Stunting</th>
<th>Weight for height Wasting</th>
<th>Weight for age Underweight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003</td>
<td>2008</td>
<td>Study findings</td>
</tr>
<tr>
<td>&lt; 6</td>
<td>7.4</td>
<td>5.4</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Source KDHS 2008-2009
Table 4.3 Age of introduction of other drinks / foods

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4.4 Percentage of infants below 6 months exclusively breastfed

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>2003</th>
<th>Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (months)</td>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
</tr>
<tr>
<td>&lt; 2</td>
<td>28.2</td>
<td>29.3</td>
<td>31</td>
</tr>
<tr>
<td>2-3</td>
<td>8.0</td>
<td>9.3</td>
<td>5.1</td>
</tr>
<tr>
<td>4-5</td>
<td>3.5</td>
<td>2.6</td>
<td>2.0</td>
</tr>
<tr>
<td>6-7</td>
<td>0.6</td>
<td>2.1</td>
<td>0.0</td>
</tr>
<tr>
<td>&lt; 6</td>
<td>2.6</td>
<td>12.7</td>
<td>15.5</td>
</tr>
</tbody>
</table>

Source KDHS 1998 and KDHS 2003

Most of the infants (36 %) were introduced to other foods by 2 months. Some mothers (30 %), who thought that they were exclusively breastfeeding gave their babies water
besides breast milk in the first month. There is a misconception that breast milk alone is not sufficient to quench thirst. The mothers’ low level of knowledge could also have contributed to introduction of other foods to the infant before the age of 6 months.

From Table 4.4, only 15.5% of the infants below 6 months (in this study), were exclusively breastfed. The results of this research are similar to the findings of KDHS 2003, (12.7%) of infants below 6 months were exclusively breastfed. The findings of Fifth Nutrition Survey for Uasin Gishu District reported an EBF rate of 2.3% (UNICEF, 1996). According to the KDHS 2003, 54% of children under six months received solid / semi-solid foods (complementary foods) and 40% of children under six months were given water, juices and other milks.

Giving other liquids to infants in addition to breast milk, as well as introducing solid foods before 6 months are traditional widespread practices in most sub-Saharan countries (Delpeuch et al., 1999). From a study done in Tanzania (Huffman, 1984), results showed that only 17% of the mothers knew that water was not necessary during the first 6 months. Forty six percent of the women reported that they had introduced additional fluids to breast milk only a few days after the birth of the baby.

In a study done in a rural area of Cameroon, all women surveyed introduced water and food supplementation prior to 6 months of age. More than 38% gave water in the first month of life (Kakute et al., 2005). Mothers identified cultural factors influencing their decision to mix-feed their babies. This included pressures by village elders and families
to supplement because it was a traditional practice; belief that all family members should receive the benefit of food grown in the family farm and the taboo of prohibiting sexual contact during breastfeeding (Kakute et al., 2005).

Rates of EBF for 4 months were 0% in rural Malawi (Vahtera et al., 2001) and 1.3% in Turkey (Tunicbilek et al., 1998). In south Africa solid food was introduced to the infants at the age of 3.6 months (Faber et al., 1999). In a study done in Europe, at 6 months, 95% of the infants were fed on solid foods (Hascke et al., 2000). Findings from a study in Turkey showed that 40% of the mothers started solid foods before 4 months (Ergenekon et al., 2006). From a study in urban low socio economic class in India (Ashwin et al., 2007), results indicated 48.6% babies were exclusively breastfed, 38% were bottle fed and 13.3% were both breastfed and bottle fed.

A nation-wide survey conducted in Pakistan revealed that fewer mothers breastfed their children and these mothers often supplemented breast milk and / or stopped breastfeeding early (Morisky et al., 1991). From other study findings, families gave something else besides breast milk at about 2 to 9 weeks (Jolly et al., 2005). In a study done in Nairobi, early introduction of complementary foods was high, with 46.4% of the mothers introducing other foods before one month (Lakati et al., 2002).

A USAID report on “Readiness for Supplementation” underlined that infants may not be physically ready for consumption of other foods prior to 6-7 months (SCN, 2001).
According to this report, complementary foods should be introduced when a child is six months old to reduce malnutrition.

The Z-score values were compared with the WHO Child Growth Standards (WHO, 2006), which is used to assess the nutritional status of children all over the world.

Malnutrition cases among infants were evident. Cases of underweight that is \( \text{WAZ} < -2 \) SD were low, 2.7%, cases of wasting, that is, \( \text{WHZ} < -2 \) SD were 9.3% while cases of stunting \( \text{HAZ} < -2 \) SD were 6.9%. Lack of EBF did reflect the infant’s current nutritional status. These malnutrition could be due to early introduction of complementary feeds to babies. Early introduction of complementary foods predisposes the child to wasting which culminates into stunting. Uzi et al., (2006) reported high level of underweight (56%) among infants aged 3-24 months in India. In another study in India among tea workers in Assam, Passi et al., (2004) reported malnutrition among EBF infants at 6 months as underweight (11.63%), wasting (4.65%) and stunting (11.28%) while the cumulative frequency infants’ malnutrition was underweight (47.31%), wasting (15.79%) and stunting (68.42%). Malnutrition levels among the EBF category was due to the low birth weight of infants in that study.

The 1998 KDHS reflected a 5.2% prevalence of wasting nationally among children less than 6 months old. From the results shown in table 4.2, cases of wasting were evident, with a prevalence of 9.3%. This is a relatively significant percentage of malnutrition that could be attributed to lack of exclusive breastfeeding. Stunting was 6.9 percent. The findings of this study agree with the 1998 findings which estimated the
prevalence of chronic malnutrition (stunting) among children below 6 months old as 7.1% in the Rift Valley Province (KDHS, 1998).

When mothers do not practice EBF, they offer their children water and other liquids in the first month of life. This increases the babies risk of infection, poor nutrition and diarrhoea (Tabifer et al., 2005). Breastfeeding is an important determinant of the nutritional status of the child which in turn influences growth and development (EL–Zanaty et al, 1992). Good nutrition protects foetus, infants and young children from permanent physical and intellectual stunting (SCN, 2000).

Weight for age (underweight) is a composite index of weight for height and height for age. A child can be underweight for his age because he is stunted, wasted or wasted and stunted. The findings of this study did show that 2.7% were underweight. A wasting prevalence of 2.3% was shown among children below 6 months (KDHS 1998).

4.5 Relationship between socio-demographic variables and exclusive breastfeeding

According to study findings by Cindy (2000), women least likely to breastfeed are those who are young, have less education, are employed full time, are unsupported, have negative attitudes towards breastfeeding and have low confidence in their ability to breastfeed. Findings from this study showed younger maternal age, single marital status, higher levels of education and employment, particularly office work as being associated with lesser exclusive breastfeeding practice.
4.5.1 Relationship between mothers’ age and exclusive breastfeeding

There was a relationship between mothers’ age and exclusive breastfeeding, $\chi^2 = 13.377$, df = 2, $P = 0.022$ at significance level 0.05. Younger maternal age was associated with a short length of breastfeeding. This study agreed with a study done in New Zealand on factors associated with duration of breastfeeding which revealed that younger maternal age was associated with a short length of breastfeeding (Vogel et al., 1999).

Young mothers appreciate the aesthetic aspects of having beautiful breasts. They believe that breastfeeding leads to less attractive breasts and so they choose not to breastfeed.

Thirty one percent of the mothers in this study were aged between 25 – 29 years. A third of the mothers indicated they had one child who was the first born. This study agrees with King et al., (1993), on effect of age on exclusive breastfeeding. According to King et al. (1993), a young mother with her first child found it difficult to believe that she could breastfeed successfully. Young mothers have limited exposure and no experience of breastfeeding. This makes it difficult for them to accomplish breastfeeding successfully.

Young mothers are less likely to breastfeed than older mothers, because of myths surrounding its impact on the young mothers. However, according to Chantry et al., (2001), bone mineral density of young mothers who breastfed, was stronger once breastfeeding was concluded than those who did not breastfeed. As women age, bones become thin, porous and more fragile, a condition known as Osteoporosis. Without strong bone density, women are more susceptible to hip fractures, curvature of the spine.
and back pain. Women who breastfeed are known to be less prone to hip fractures later in life (Chantry et al., 2001).

Age above 25 years has been repeatedly associated with a longer duration of breastfeeding (Scott et al., 2001). It is probable that older women know more about the benefits of breastfeeding and have more realistic outcome expectation (Ynvge et al., 2001). According to Isidro et al. (2000), the mother’s age did not seem to influence the production of breast milk. Girls of 15 years of age who nursed their babies as they themselves continued to grow were compared with mothers aged 40 years and above. There were no notable differences in quantity or quality of milk produced among these two groups. Other health research findings showed a positive significant relationship between EBF and age $P \leq 0.05$, (Barbara et al., 2007), meaning a younger maternal age was associated with a longer duration of breastfeeding.

4.5.2 Relationship between mothers’ marital status and exclusive breastfeeding

There was a relationship between marital status and exclusive breastfeeding; $\chi^2 = 1.417$, df $= 1$, $P = 0.039$ at significance level 0.05. The findings in this study showed that few single mothers exclusively breastfed compared to the married mothers. The likely explanation to this could be that single mothers as heads of households might have less family support. Without this support, activities outside the home such as having to work might prevent EBF. Findings from a study done in Tanzania (Marina et al., 1999), indicated that early termination of exclusive breastfeeding was 88% for the unmarried women and 42.3% for the married, that is, married women were the least likely to end
exclusive breastfeeding early. A shorter intended duration of breastfeeding was associated with unmarried status.

According to Ebrahim (1991), single mothers had great difficulty supporting themselves and caring for the baby especially if they were young. That it was best if the mother and the baby could stay together and be supported as a family, they could at least breastfeed partially. Perez – Escamila et al., (1995) suggested that in Honduras, women living in a home with the child’s father, exclusively breastfed less than single mothers. Similarly, according to Dr. Lutter, Latin American Regional Advisor on nutrition, the presence of the child’s father at home could also be negatively related to EBF because providing infant formula could be a father’s way of showing support towards child feeding matters (Lutter, 2000). This could be attributed to the father’s lack of knowledge of the nutritional value of breast milk. In most cases, it is only mothers who get breastfeeding education during MCH clinic visits.

4.5.3 Relationship between mothers’ level of education and exclusive breastfeeding

There was a relationship between education level and exclusive breastfeeding. $\chi^2 = 5.735$, df = 4, P = 0.041 at significance level 0.05. The level of education did influence EBF practice. Mothers who had completed secondary education exclusively breastfed less compared to mothers who had completed primary education. Therefore higher levels of education were associated with low levels of exclusive breastfeeding.
This study disagrees with KDHS, 2003 which found an inverse relationship between education and mean duration of breastfeeding. Women with no education breastfed longer than those who had at least some secondary education. Similarly the KDHS, 1998 also showed that mothers with incomplete primary education had a median EBF duration of 0.6 months while those with above secondary education had 0.5 months. A study done in Tanzania (Bureau of Statistics, Tanzania, 1993), showed that 44.7% women with primary education, 45.9% with secondary education and 54.3% illiterate women terminated EBF early. In Ethiopia, it was noted that mothers who were literate were seen to bottlefeed more than their illiterate counterparts (Bekele et al., 1999).

From a study done in India (Ashwin et al., 2007) 68% of the literate mothers exclusively breastfed as compared to 45% of the illiterate mothers who exclusively breastfed. Findings from a study done in Nigeria showed higher education of the mothers being associated with higher EBF rates, 81% (Ojofeitim et al., 2000). These women were more likely to have knowledge of EBF and therefore put it in practice. From a study done in Tanzania on factors related to early termination of breastfeeding (Huffman, 1984), maternal education was a factor that correlated significantly with improved feeding rates. From previous studies, a woman’s educational and social class affected her motivation to breastfeed but the way it affected differed in different parts of the world. According to King et al., (1993), in many industrialized countries in the west, breastfeeding was more common among the educated and upper class women. There could be reasons why more highly educated women continued to breastfeed longer than other women; they could be
motivated to do so, they could be in a position to get hold of information on the management of breastfeeding problems, allowing them to continue breastfeeding through difficulty rather than weaning early (Lewisky, 2008).

On the other hand, in third world countries, the educated and upper class women were more likely to feed their infants artificially (King et al., 1993). Generally educated women tended to breastfeed less and were more likely to introduce supplementary feeding earlier than those with little or no education. This could be attributed to the fact that a better educated woman was more likely to work away from home which made breastfeeding difficult (King et al., 1993). Other studies indicated that additional breastfeeding education did not significantly affect breastfeeding rate among the Women Infant and Children (WIC) Supplemental Nutrition Program Participants (Reifsnider et al., 1997).

**4.5.4 Relationship between mothers’ employment status and exclusive breastfeeding**

There was a relationship between employment status and exclusive breastfeeding; $\chi^2 = 2.629$, $df = 1$, $P = 0.042$ at significance level 0.05. Employed mothers stopped EBF earlier than mothers not employed. There is evidence from surveys of breastfeeding duration that employment status and associated employment practices may adversely impact on the duration of breastfeeding. The UK national infant feeding survey found that 19% of those who stopped breastfeeding by 4 months attributed this to the need to return to work. This was the most often cited reason (39%) for cessation by those who breastfed but ceased between 4 and 6 months, (Joanna, 2006). In a study done in India,
35% of the working mothers exclusively breastfed while 75% of the non-working mothers exclusively breastfed.

A study done in Nairobi on the effect of work status on EBF showed a prevalence of 13.3% at 3 months. Working mothers were able to continue breastfeeding although the EBF rates were low. Return to work was the main reason cited for the cessation of EBF (Lakati et al., 2002). Women who are unable to take an extended leave from work following the birth of their child are less likely to continue breastfeeding when they return to work. According to Perry (2003), maternal employment outside the home was often cited as a major factor to short-term breastfeeding patterns throughout the world. Mothers who were employed cited work away from home as a hindrance to exclusive breastfeeding. When mothers in this study were asked whether it was too difficult to work and also breastfeed, 84.5% respondent yes, 15.5% respondent no. Other women found it hard to maintain their milk supply when separated from their babies and were forced to stop breastfeeding.

This research concurs with findings of other researchers who found out that maternal employment was a factor as in Hong Kong women’s decisions to wean early (Chan et al. 2000, Leung et al., 2002). The global recession has forced women back into the labour market immediately after giving birth. The result is that mothers are forced to return to full time jobs with a shorter breastfeeding time span, which in most cases may not be exclusive. In developed countries, many working mothers do not breastfeed their children due to work pressure (Scott et al., 1999). A mother may need to schedule for frequent
pumping breaks and find a private place at work for pumping. These inconveniences may cause mothers to give up on breastfeeding and use infant formula instead.

Employment of any form negatively affects EBF. A verbal interview with the nurses revealed that they did not practice EBF especially because they had to leave the baby and be on duty at night. Work outside the home can complicate plans to breastfeed. Some women can juggle both a job and breastfeeding, but others find it too cumbersome and decide to formula-feed instead (Freed, 1993). Perez et al. (1995), suggested that the working status did not show any significant relationship with the prevalence of EBF. Working women in Mexico might have started introducing foods/liquids long before resuming their jobs, so the relationship between a negative effect of having a job and EBF was not identified.

Most studies find negative associations between employment and breastfeeding particularly the relationship between return to employment and shortened duration of breastfeeding although timing and intensity of return to employment are facets that complicate this negative association (Lindberg, 2000).

4.5.5 Relationship between form of employment and exclusive breastfeeding

Of those employed, 31 (10.5%) did office work, 115 (38.5%) were in business, 33 (11.1%) did farm work and 117 (39.2%) did not specify the form of employment.
There was also a relationship between form of employment and exclusive breastfeeding; \(\chi^2 = 3.542, \text{ df } = 2, \ P = 0.039\) at significance level 0.05. Mothers doing office work exclusively breastfed less compared to mothers engaged in farmwork or other forms of employment.
Poggensee *et al.* (2004), noted that employed and business women were more likely to stop breastfeeding earlier. A study on Analysis of Personal and Social factors influencing initiation and duration of breastfeeding in Queensland established that women with skilled jobs exclusively breastfed less than unskilled and non-working women (Papinczak *et al.*, 2000). This could be attributed to the job conditions that may not allow caring for their babies. Such babies may have been left under the care of other persons who cannot breastfeed them.

In studies done in Nigeria and Uganda, the results showed that not all types of mother’s work had a negative effect on breastfeeding practices. In Nigeria, mother’s work had a negative effect on EBF when mothers earned cash and did not take their child with them to work. In contrast, mothers who earned cash in Uganda, irrespective of whether they took their children to work or not were least likely to exclusively breastfeed (Ukwuani *et al.*, 2001).

The null hypothesis was rejected as there were many factors that hindered exclusive breastfeeding practice, $P = 0.004$. 
CHAPTER 5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary
The main objective of this study was to investigate factors that hinder exclusive breastfeeding and establish the nutritional status of non–exclusively breastfed infants in Eldoret Municipality. Descriptive research design was used in the study. The study population were mothers of infants aged below 6 months and the sample size was 296. A questionnaire was used in data collection. Anthropometric method that involved height and weight measurement was used to assess the nutritional status of infants. The Statistical Package for Social Sciences and EPI Info 2002 software package were used for data analysis. From the findings of the study, there were many factors that hindered the practice of exclusive breastfeeding. This included mothers’ perception of insufficient breastmilk production, mothers’ inability to express breastmilk, mothers’ return to work, inadequate knowledge about EBF and lack of health messages from both antenatal and postnatal clinics.

5.2 Conclusions
The following were drawn as the main conclusions from the study:

1. All the socio–demographic characteristics of the mothers (age, marital status, education level, employment status and form of employment) had some influence on mothers’ practice of exclusive breastfeeding. There were relationships between socio–demographic characteristics and EBF practice at significance level P < or = 0.05.
2. Among the factors that hindered EBF, mothers` insufficient breast milk production had the highest percentage (29%), followed by inability to express breast milk (24%). The least factors was breastfeeding being seen as socially limiting (11%).

3. Maternal understanding of EBF and its recommended period in Eldoret Municipality was low. The mean age of EBF was 1.8 months. The highest percentage (36%) of infants was introduced to other drinks and foods at the age of 2 months while the least percentages were, 2% at 6 months and 3% before 1 month. EBF upto 6 months was very low; only 15.5% of the infants were exclusively breastfed while 84.5% were both breastfed and mixed fed. By age 6 months no infant was EBF. This is an indicator that WHO recommendation on EBF upto 6 months is not being practiced. Barriers to EBF upto 6 months could be attributed to lack of adequate knowledge on EBF.

4. The prevalent form of malnutrition was wasting (low HAZ) 9.3%. Cases of underweight (low WAZ) were 2.7% and stunting (low HAZ) were 6.9%. Malnutrition in this study could be attributed to early introduction of complementary foods.

5. From the findings of the data analysis, the null hypothesis that there were no factors that hindered EBF practice was rejected, P = 0.004.

5.3 Recommendations

1. All mothers, irrespective of their age, marital status, education level and employment status should be encouraged to exclusively breastfeed their infants.

   Public forums should be used as a channel to promote EBF.
2. There is a great need for health education to explain to mothers the importance of breastfeeding the child on demand to sustain the quantity of breast milk production. This should be done in both antenatal and postnatal clinics in health facilities. Mothers need counseling if they doubt their milk is inadequate or if going back to work.

3. Staff in the ministry of Public Health concerned with child health should be more aggressive in implementing the existing policy on EBF. It should be made clear to the mothers the meaning of exclusive breastfeeding, its recommended period and its health benefits both for the mother and infant.

4. To reduce cases of malnutrition, early introduction of complementary foods to infants by mothers should be discouraged.

5.4 **Recommendation for further research**

1. Research beyond this descriptive study (qualitative research) is needed; for instance a research on the adequacy of breast milk in meeting the nutritional needs of infants to 6 months.

2. A similar study may be done in a different geographical and cultural setting incorporating factors like religion and income that were not captured in this research.
REFERENCES


American Medical Association 269; 243.


**Penny, T., Kate, B., and Harriet, E. (2005).** Child Care and Education. 2nd ed. Heinemann.


MUNICIPAL COUNCIL OF ELDORDET

TELEPHONE: 2032601/6
OUR REF: ED/D17/VII/51
TOWN HALL
P.O. BOX 40
ELDORDET

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION FOR MARY N. WANYONYI, REG. No.
157/CF/12363/04

The above named student has been granted permission to carry out a research in Eldoret Municipality.

The title of her work is “Barriers to exclusive breastfeeding and nutritional status of non-
exclusively breastfed infants in Eldoret Municipality, Kenya”

Kindly accord her the necessary assistance.

Thank you,

[Signature]

FOR: MEDICAL OFFICER OF HEALTH
Hallo. I am a student at Kenyatta University, department of Public Health. I am here to carry out a survey to find out your views on breastfeeding and establish the nutritional status of your baby. Your responses will be treated with utmost confidentiality and will be used for the sole purpose of this study.

Are you willing to participate in this study? Yes / No (please tick one).

Signature --------------------------------------------- (please don’t write name).

Date of interview -------------------------------------

Questionnaire No -------------------------------------

Health center ---------------------------------------
APPENDIX 3    QUESTIONNAIRE

A. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE MOTHER

Please tick in the bracket of one of the answers

1. Marital status 1. Married [ ] 2. Single [ ]
2. Level of Education 1. None [ ] 2. Primary incomplete [ ] 3. Primary complete [ ]
   4. Secondary incomplete [ ] 5. Secondary complete [ ]
   6. Secondary and above [ ]
3. Employment 1. Self-employed [ ] 2. Part–time employment [ ]
   3. Full-time employment [ ] 4. No employment [ ]
4. Form of employment 1. Office work [ ]
   2. Business [ ]
   3. Farm work [ ]
   4. Others (specify) -----------------------------------------------
5. Age ----------- years
6. Number of children -----------

B. NUTRITIONAL STATUS OF BABY

1. Sex ----------- Boy / Girl
2. Age ----------- (months)
3. Height ----------- (centimeters)
4. Weight at birth ------- (kg)
5. Weight now ------- (kg)
Please tick one of the answers

6. Birth order (1st born, 2nd born, last born, other, specify ---------------)

7. Birth interval between this child and the previous one (< 24 months, 24-47 Months, 48 + months).

8. Place of birth
   1. Health facility
   2. Home

9. Do you breastfeed? 1. Yes [ ] 2. No [ ]
   If no, why?-----------------------------------------------------------------------------------------------

10. Which is your feeding option?
   1. Exclusive (only) breastfeeding [ ]
   2. Artificial (bottle) feeding [ ]
   3. Breastfeeding and artificial feed [ ]
   4. Others (specify) ---------------------------------------

11. Did you feed the infant on the first milk (colostrum) soon after birth? 1. Yes 2. No
   If no, why?-----------------------------------------------------------------------------------------------

12. Do you express breastmilk to leave for feeding baby while you are away?
   1. Yes [ ] 2. No [ ]
   If no, why?-----------------------------------------------------------------------------------------------

13. Do you feed your infant on other drinks/foods apart from breastmilk?
   1. Yes [ ] 2. No [ ]
   If yes, which drinks/foods?
Please tick appropriate answers
5. Tea 6. Fruit juice 7. Solid foods (ugali / irish potatoes)

Others (specify) -------------------------------------------------------------

14. Why did you decide to feed infant on these drinks / foods besides breastmilk?
----------------------------------------------------------------------------------------

15. At what age of infant did you start giving other foods? (1). At birth
(2). 2 months (3). 4 months (4). 6 months (5) other (specify) ---------------

16. To your understanding, how long should a baby be exclusively (only) breastfed?
(1). 0-2months (2). 2-4 months (3). 4-6 months (5) other (specify) -------

17. What prevents you from practising exclusive (only) breastfeeding?
----------------------------------------------------------------------------------------

18. Which disease(s) has your infant suffered from in the recent past? 1. Diarrhoea

C. EMPLOYMENT / WORK

Please tick in the bracket of either Yes or No

1. Did you have maternity leave? 1. Yes [ ] 2. No [ ]

2. If yes, how long? ------------------------------------------

3. Are you allowed by your employer to take breaks in between to go and breastfeed?
1. Yes [ ] 2. No [ ]

4. Are you able to work and also breastfeed?
1. Yes [ ] No [ ]
D. KNOWLEDGE LEVEL
Please tick in the box of the most appropriate answer only

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If the baby suckles more, the breasts make more milk.</td>
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<tr>
<td>2. The quantity of breastmilk depends on mother’s food.</td>
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<td>3. Both small and large breasts produce milk in sufficient quantity.</td>
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<td>4. Colostrum (first milk) is only what a baby needs for the first few days.</td>
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<tr>
<td>5. Breastmilk protects infants from illness.</td>
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<td>6. Breastfed babies are healthier.</td>
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<td>7. Artificially fed babies are healthier.</td>
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<td>8. Breastfeeding exclusively (only) makes baby refuse to eat other foods (weaned).</td>
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<td>10. Breastfeeding women are less likely to develop cancer of breasts and cervix.</td>
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</table>
E. PERSONAL FACTORS

Please tick in the box of the most appropriate answer only

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
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</thead>
<tbody>
<tr>
<td>1. I do not have enough milk.</td>
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<td>2. I have physical difficulties and problems about breastfeeding.</td>
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<td>3. The baby needs more than breastmilk.</td>
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<td>4. Its embarrassing to breastfeed in public.</td>
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<td>5. Breastfeeding causes mothers to be socially tied down.</td>
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<td>6. Breastfeeding is an outdated (old) practice.</td>
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<tr>
<td>7. Breastfeeding is inconvenient to me.</td>
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<tr>
<td>8. Breastfeeding makes my breasts loose shape.</td>
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F. SOCIAL SUPPORT

Please tick in the box of the most appropriate answer only

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Encouragement and support in breastfeeding from husband is important.</td>
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<tr>
<td>2. Family, relatives and friends encouragement is important for breastfeeding.</td>
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<tr>
<td>3. Health messages on breastfeeding during antenatal clinics (before birth) were available.</td>
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<tr>
<td>4. Health messages on breastfeeding during postnatal clinics (after birth) are available.</td>
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<tr>
<td>5. The society values breastfeeding.</td>
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Thank you for your co-operation.

Signature of Researcher -----------------------------------------------
Goal 1
Eradicate extreme poverty and hunger.

Goal 2
Achieve universal primary education.

Goal 3
Promote gender equality and empower women.

Goal 4
Reduce child mortality.

Goal 5
Improve maternal health.

Goal 6
Combat HIV/AIDS, malaria and other diseases.

Goal 7
Ensure environmental sustainability.

Goal 8
Develop a global partnership for development.

APPENDIX 5  MAP OF STUDY AREA

MAP OF ELDORET MUNICIPALITY