INFANT FEEDING PRACTICES AND NUTRITIONAL STATUS OF CHILDREN AGED 0-12 MONTHS AMONG SOMALI COMMUNITY IN EASTLEIGH ESTATE, NAIROBI, KENYA.

BY

MOHAMED ISMAIL REYGAL

(B.A. ECONOMICS)

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DECLARATION

I, Mohamed Ismail Reygal hereby declare that this dissertation is my original work and has not been presented for a degree in any other University.

Mohamed I. Reygal

Signature: MOHAMMED

Date. 17-08 2007

This dissertation has been submitted with our approval as university supervisors;

Dr. Mwangi, Alice Mboganie

Lecturer,

Unit of Applied Human Nutrition,

Department of Food Technology

and Nutrition

Signature:

Date. 17 8 07

Dr. Stephen Mbithi Mwikya

Lecturer,

Unit of Applied Human Nutrition

Department of Food Technology

and Nutrition

Signature

Date 17 8 07

University of Nairobi, 2007.

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DEDICATION

This work is dedicated to my parents, for sacrificing so much for my education and giving me the best foundation in life.

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OPERATIONAL DEFINITIONS

Breastfeeding: Feeding a child with breast milk direct from the breast or expressed.

Exclusive breastfeeding: The infant is fed only breast milk from the mother or a wet nurse, or expressed breast milk, and no other liquids or solids with the exception of drops of syrups consisting of vitamins and mineral supplements.

Complementary feeding The child is fed on liquid or semi liquid or other food in addition to breast-milk.

Wasting: Low body weight relative to height. Usually results from acute shortage of food and/or severe disease.

Underweight Low body weight relative to age. It reflects long-term nutritional or health experiences of an individual or a population.

Stunting- Deficit in linear growth achieved pre-and post-natal. This indicates long-term cumulative effects of inadequate nutrition.

Household: All people who have lived together for at least three months sharing food and other essential facilities.

Household head: The person who is the major decision maker on household income and expenditure.

Breastfeeding practices The practices to be followed in breastfeeding a baby Such as, initiation of breastfeeding, frequency, and exclusive breastfeeding.

Public place: A place where any one has a right to come without being excluded because of economic or social conditions.

ABBREVIATIONS

ACC/SCN	Administrative Committee on Coordination/Sub-Committee on Nutrition
BWA	Breastfeeding Welcome Award
BIG	Breastfeeding Information Group
ECD	Early Childhood Development
EBF	Exclusive Breastfeeding
FGDs	Focus Group Discussions
FANTA	Food and Nutrition Technical Assistance
GCIM	Global Commission on International Migration
GOK	Government of Kenya
HAZ	Height-for-age Z-score
IFPRI	International Food Policy Research Institute
KDHS	Kenya Demographic and Health Survey
Km	Kilometre
KSh	Kenyan Shilling
LBM	Low Birth Weight
MCHN	Maternal and Child Health and Nutrition
MCH	Maternal and Child Health
NGO	Non Governmental organization
NCHS	National Centre for Health Statistics
SD	Standard Deviation
SPSS	Statistical Packages for Social Sciences
UNICEF	United Nations International Children's Education Fund
WHO	World Health Organization
WAZ	Weight-for-age Z-score.
WHZ	Weight-for-height Z-score

ABSTRACT

The main objective of this study was to assess infant feeding practices and nutritional status of children aged 0-12 months among Somali community in Eastleigh estate, Nairobi, Kenya.

Past research on the topic of infant feeding in Somali communities is scarce. In conducting the literature review, no previous research could be found on Somali infant feeding practices in Nairobi, Kenya.

A cross sectional descriptive study was conducted in five randomly selected health centres within Eastleigh estate, Nairobi, Kenya, an area inhabited mainly by the Somali community. A total of 384 mothers, who had children aged 0-12 months, were interviewed. Out of eleven clinics that offer maternal and child health services in the area, five clinics, were randomly selected for the study and visited. In each of the clinics, 77/76 mothers with children 0-12 months of age will be interviewed. Mothers as respondents in each clinic will be recruited by means of systematic sampling, i.e., every second mother in the queue meeting the inclusion criteria will be interviewed until adequate sample was reached. With the help of five trained field assistants, a pre-tested questionnaire was used to collect information on infant feeding practices, nutritional status, and relevant sociodemographic characteristics. Methods used were respondent interview, anthropometric measurement and focus group discussions.

The SPSS computer package was used for data entry and analysis. Nutritional status indices such as weight-for-age, height-for-age, and weight-for-height were computed using the Epi-info programme.

Information was documented for 384 mother-child pairs. More than three quarters, 307 (79.9%), of the respondents reported that they were breastfeeding, at the time of the study, while 77 (20.1%) were not. About three quarters, 279 (72.7%), of the respondents reported that they initiated breastfeeding within the first day after delivery, while only 105 (27.3%) initiated breastfeeding as recommended within the first hour after delivery. Out of 372 only 20 (5.2%) exclusively breastfed their babies for the recommended period of 4-6 months. Anthropometric assessment of the children revealed that 25 (6.5%) were underweight, 24 (6.3%) were wasted, 60 (11.7%) were stunted.

From the foregoing results and discussions on infant feeding practices and nutritional status, it is concluded that, nutritional status of the study children is not good, feeding mal-practices in the form of delayed initiation of breastfeeding, early complementary feeding, and lack of knowledge about exclusive breastfeeding practice as recommended by WHO are present in the community. The level of exclusive breastfeeding is extremely low in the study area.

CHAPTER ONE

1.0. INTRODUCTION

1.1. Background

Somalis began immigrating in large numbers to Kenya after 1990. They came to Kenya, as refugees escaping political unrest in Somalia. Eastleigh, Nairobi, is home to the largest urban refugee in Kenya majority of who are Somalis. Past research on the topic of infant feeding in Somali communities is scarce.

Feeding practices play a pivotal role in determining optimal development of infants. Poor breastfeeding and infant feeding practices have adverse consequences for health and nutritional status of children, which in turn has consequences on the mental and physical development of the child. Poor nutritional status is one of the most important health and welfare problems in Kenya today and afflicts the most vulnerable groups, women and children. At the individual level, inadequate or inappropriate feeding patterns lead to malnutrition. Numerous socio-economic and cultural factors influence the decision on patterns of feeding and nutritional status (KDHS, 2003).

The major causes of malnutrition are inadequate food and poor or faulty feeding practices. Due to social and economic changes, breastfeeding is becoming a problem in Kenya. The national exclusive breastfeeding rate is 13%. The most affected are children of employed women who do not get enough time for maternity leave to allow exclusive breastfeeding. In rural areas, the workload for women does not allow adequate time for breastfeeding and care. This problem is compounded among single mothers or whose husbands move to urban areas in search of employment. In urban areas, mothers are engaged in informal businesses, often neglecting their children who are left alone or with neighbours. Child maids are not adequately equipped to look

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after the babies they are left with. Some of these maids are children themselves and cannot meet the emotional needs of the babies (Ngaruiya, 2002).

1.2 Statement of the problem

Somali women often stop breastfeeding as soon as they are pregnant and start weaning their children before the recommended age of 6 months (Owens, 2003). This exposes their children to high risk of disease and malnutrition. There is a close link between appropriate infant feeding practices and the health, nutrition and survival of young children. In addition, the quality of care a mother can give to her children is affected when she has to attend to a high number of young siblings (Owens, 2003).

Health statistics indicate that 29% of the deliveries (in Kakuma) since July 2002 arose from the Somali community. There is relationship between Somali refugees in Kakuma and those who are in Eastleigh, Nairobi. They have same characteristics since they are from same community except their place of residents and socioeconomics. Frequent pregnancies in women affect their nutritional status and thus increase the already high chance of having LBW infants (Owens, 2003). In conducting literature review, no previous research could be found on infant-feeding practices among the Somali community in Eastleigh, Nairobi. The Somali community in Eastleigh is heavily governed by family traditions, with poor maternal nutritional knowledge, personal sensitivity and women's employment (Ali, 2005). These factors influence infant feeding practices. Hence, the need to assess child feeding practices and how this relates with infant nutritional status.

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1.3 Aims

The aim of the study was to improve infant feeding practices among Somali community in Eastleigh estate, Nairobi, Kenya.

1.4. Purpose of the study

Purpose of the study was to elucidate information on infant feeding practices and nutritional status of children aged 0-12 months among Somali community in Eastleigh estate, Nairobi, Kenya.

1.5 Justification

The period of baby hood, two weeks after birth to two years comprises the period that forms the foundation of life (Hurlock, 1968). During the first year of life, the infant grows rapidly from its average birth weight and weighs about 9kg by the first year Consequently, energy requirement during this first year of tremendous growth is high. During this time, the demand for child care is usually high, and is among one of the three conditions necessary for child survival and development, the other two being food and health. (UNICEF, 1990a). It has been noted that poor growth that occurs during this crucial time is largely responsible for the low weight and stunted growth of older children throughout Kenya (UNICEF, 1990a).

Early childhood development projects are recognized as a powerful economic investment. First, the period of early childhood with the life cycle provides a window of opportunity to break the vicious intergenerational cycle of malnutrition and impaired educability for children from poor families. Second, research has established that the impact of insults suffered in early childhood (resulting in growth failure, for example) is often irreversible or is far more expensive to cure than to prevent. Third,

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the synergistic effects of health, nutrition, and early stimulation suggest that returns from investment in health, nutrition, and stimulating as a package, will exceed returns from Investments in any of the individual interventions (UNICEF, 1990a).

There are however, very few studies that have investigated the type and quantity of care given to children and their possible nutritional impact (UNICEF, 1990b). Infant feeding practices and resources vary tremendously by culture and perhaps even more among families within cultures. Children's basic needs for food, health care, protection, shelter and love are the same in all cultures. Differences may be seen in how each family attempts to meet these needs (Engele et al., 1997). Therefore, since maternal knowledge of Somali community women are poor (Ali, 2005). The need to establish existing household infant feeding practices, especially among communities who emigrated from their original country and live as refugee in other countries is unquestionable.

1.6 Objectives

1.6.1 General objective

The main objective of the study was to assess the infant-feeding practices and nutritional status of children aged 0-12 months among Somali community in Eastleigh Estate, Nairobi, Kenya.

1.6.2 Sub objectives

The specific objectives were-

1. To determine maternal knowledge of WHO recommendation on exclusive breastfeeding.

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2. To determine the prevalence of early complementary infant feeding and associated

reasons.

3. To determine nutritional status of infants (0-12 months), and its association with breastfeeding practices.

1.7 Research questions

1. What is the practice on exclusive breastfeeding and complementary feeding among

the Somali community?

2. What are the reasons behind the breastfeeding and complementary feeding

practices?

3. Is there an association between nutritional status of infants aged 0-12 months and

breastfeeding practices among Somali community?

4. What is the maternal knowledge about breastfeeding practices?

1.8. Hypothesis

There is no association between breastfeeding practice and nutritional status of infants

aged 0-12 months among Somali community in Eastleigh state

1.9 Benefits from the study

The result of the study is useful for health planners and NGOs for planning and

designing appropriate interventions among the Somali community.

The research serves to increase the awareness among the medical community as well

as other community at large. Health planners, international organizations, NGOs can

use the finding of the Investigation for improving status of infant feeding practices

and nutritional status in the community

2.0 LITERATURE REVIEW

2.1 Malnutrition overview

Malnutrition contributes to more than halve of all under-five childhood deaths throughout the developing world. The associated effects of poverty, inadequate household access to food, infectious diseases, and inadequate breastfeeding and complementary feeding practices often lead to illness, growth faltering, nutrient deficiencies, delayed development, and death, particularly during the first two years of life (FANTA, 2003).

There is universal consensus on the importance on infant and young child feeding as a key determinant of child nutrition Maternal and child health and nutrition (MCHN) programmes commonly include activities to address infant and young child feeding Food and Nutrition Technical Assistance (FANTA) works to improve infant and child nutrition and health outcomes by strengthening food security and nutrition policy strategies, and programmes. An area of emphasis in FANTA's work is improving the assessment, monitoring, and evaluation of infant and young child feeding in the six through 23 months age period. Appropriate feeding practices are complex and age-specific, and the need for improved indicators to better assess infant and young child feeding is increasingly recognized (FANTA, 2003).

Malnutrition has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five (WHO, 2003). Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. No more than 35% of infants worldwide are exclusively

breastfed during the first four months of life: complementary feeding frequently begins too early or too late, and foods are often nutritionally inadequate and unsafe. Malnourished children who survive are more frequently sick and suffer the life- long consequences of impaired development. Rising incidences of overweight and obesity in children are also a matter of serious concern. Because poor feeding practices are a major threat to social and economic development, they are among the most serious obstacles to attaining and maintaining health that face this age group (WHO, 2003).

2.2. Infant Feeding Behaviours

The full impact of optimal breastfeeding and complementary feeding, as measured by population level reductions in mortality and morbidity and improved health and development, will never be realized unless women and caregivers adopt recommended infant feeding behaviours. Recommended behaviours change as an infant and young child grows. WHO defines optimal behaviours as exclusive breastfeeding for four to six months, breastfeeding with complementary feeding starting about six months of age, and continued breastfeeding in the second year of life and beyond (ACC/SCN, 2000).

Whether or not optimal behaviours are adopted is a result of interaction of many factors. The closest determinants relate to a woman's choice and her ability to act upon this choice. For optimal breastfeeding and complementary behaviours to occur, a woman must both wish to use them and be able to choose them. The two factors are influenced most immediately by the infant feeding information a woman receives as well as the physical and social support provided to her during pregnancy, child birth and postpartum. These factors are, in turn, influenced by familial, medical, and

cultural attitudes, and norms, demographic and economic conditions (including the resources to grow or purchase needed foods and maternal employment), commercial pressures, and national and international policies and norms. Thus, to promote optimal breastfeeding and complementary feeding behaviours, interventions need to be targeted not only to individual women but also to changing the context in which infant and child feeding choices are made. The determinants of infant feeding behaviours are shown in Figure 1. This figure elaborates the interplay between factors that determine the capacity, resources and care practices for young children (ACC/SCN, 2000)
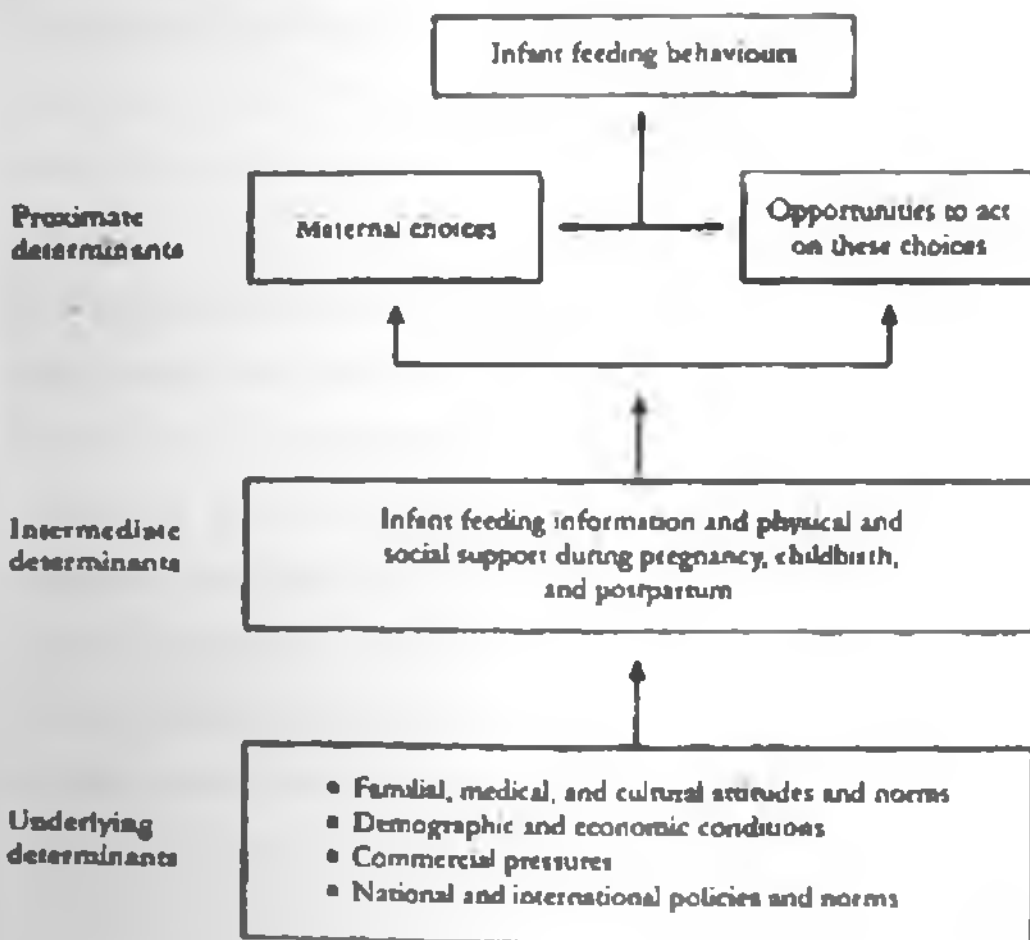
Source: 49

Figure 1. Determinants of infant feeding behaviours (ACC/SCN)

2.2.1. Breast Feeding Practices

Breastfeeding contributes to infant nutrition and health through a number of important mechanisms. It provides a complete source of nutrition for the first six months of life, half of all requirements in the second six months of life and one-third of requirements in the second year of life (ACC/SCN, 2000). It provides immunity as well as other factors that protect against specific illnesses. When infants and children become ill, breastfeeding provides an important source of nutrients because intake of breast milk is not reduced in contrast to the intake of complementary food, which declines considerably. Further, more, exclusive breastfeeding eliminates the risk of illness by contaminated foodstuffs and utensils. It also lengthens the period of postpartum amenorrhea and hence, in the absence of contraceptive use, lengthens the birth interval, which is strongly related to infant and child survival.

Exclusive breastfeeding means no other food or fluid is given to the child, not even water. Because infant feeding mode cannot be, randomly assigned, all data on the protective effect of breastfeeding on morbidity and mortality are observational. However, the dose-response effect observed with exclusive breastfeeding, any breastfeeding, and no breastfeeding provides evidence of causality (ACC/SCN, 2004). The risk of death decreases dramatically, as the infant ages; therefore, the protective effect of breastfeeding on mortality is greatest in the first month of life and declines by months until six months. Many-though-not all-studies continue to show protective effect until 12 months of life, and some studies show protective effect into the second year as well.

Breastfeeding is widely practiced throughout the developing world and is actually improving in spite of demographic trends, such as urbanization, which exert a downward pressure. Nonetheless, there is a need to increase the duration of exclusive breastfeeding because; this breastfeeding behaviour is most associated with infant health and survival. Interpersonal counseling was the key intervention. Breastfeeding promotion is one of the most cost-effective interventions to promote child health and is comparable to immunizations. Increasing the duration of breastfeeding does not necessarily lead to increases in the duration of exclusive breastfeeding. In Bolivia and Colombia, the duration of partial breastfeeding has increased at the same time the duration of exclusive breastfeeding has increased (ACC/SCN, 2000). However, in countries where a concerted effort has been made to increase exclusive breastfeeding, shifts in population level behaviour have been noted. In the Dominican Republic and Peru, the proportion of infants under four months of age who were exclusively breastfed doubled between 1991 and 1996 and between 1986 and 1996, respectively (ACC/SCN, 2000).

The timing of interventions to promote the desired breastfeeding and complementary feeding behaviour is critical because it is likely to affect a mother's decision-making, her motivation to overcome problems should they arise, and her persistence in maintaining a recommended behaviour despite negative influences. Therefore, interventions need to be delivered as close as possible to the time of the desired behaviour.

Exclusive breastfeeding declines, precipitously in the first month of life. Evidence shows that in the short term women can be encouraged to return to exclusive

breastfeeding with counseling (ACC/SCN, 2000). However, once women cease exclusive breastfeeding they usually do not resume. Therefore, reaching women during the prenatal period, soon after delivery, and within the first month postpartum is critical to increasing the duration of exclusive breastfeeding. The challenge from a public health perspective is to translate the first scientific literature on breastfeeding and complementary feeding recommendations to effective interventions that are understood and accepted by the population at large. To some extent, lessons learned from campaigns to promote breastfeeding can provide guidance. However, as important as breastfeeding is the infant's health and survival. It is also necessary to look beyond breastfeeding and to integrate both breastfeeding and complementary feeding in campaigns to promote optimal nutrition of both the infant and young child. As noted in a recent review, providing safe and adequate amounts of foods appropriate for infants and young children is not simple (ACC/SCN, 2000). Complementary foods must be adequately dense in energy and micronutrients to meet the requirements of this age group. They must also be prepared, stored, and fed in hygienic conditions to reduce the risk of diarrhoea. Lastly, many feeding behaviours that affect infant and child nutritional status need further study. Qualitative and quantitative research is necessary, along with cost-effectiveness analysis. However, research is not sufficient to guarantee the success of public health interventions. The international community must work together to ensure that the same rigor applied to such research is applied to broad scale interventions, to bring the benefits of nutrition research to those who need it most (ACC/SCN, 2000).

2.2.2. Complementary Feeding Practices

It is difficult to meet the zinc and iron requirements of children 6 to 24 months even in the best conditions. Inadequate micronutrient and energy intake is often coupled with the high prevalence of both clinical and sub clinical morbidity, which is often associated with anorexia. This is the period of active growth faltering. Interventions to improve intake of complementary foods can result in improved infant and child growth among populations at risk of under nutrition. A review of efficacy trials and programmes in 14 countries showed that child nutritional status could be improved by 0.10 to 0.50 standard deviation (SD) through increased dietary intakes(ACC/SCN, 2000). This range of improvement in growth would reduce prevalence of under nutrition (-2 SD) at 12 months by 1-19%. The effects of improved nutritional intakes on growth are greatest in the first year of life, though significant effects continue into the second and third year. Nutritional status during the first two years of life, which coincides with the period of peak diarrhoeal disease and high prevalence of respiratory infections, is particularly important in light of the fact that adequate nutrition mitigates the negative effect of diarrhoea. In Central and South America and the Caribbean, there is renewed interest in the role that processed complementary foods can play in providing a nutritionally complete infant and toddler food. Processed complementary foods, appropriately fortified, can complement breast milk and traditional foods during the nutritionally vulnerable period. Because these foods require minimal time for preparation and cooking. They alleviate time-related constraints to improved child feeding. Risk of food contamination may also be reduced through good packaging. Despite these advantages, processed complementary foods have not been shown to be effective outside research setting at improving of nutritional status of children at risk of under nutrition. Sustainability is also an issue,

Inadequate attention has been given to cultural acceptability, as well as, cost and financing, social marketing, targeting, and distribution. Processed complementary food often fail to reach the poorest households, and when they do, breastfeeding practices, and other key feeding behaviours have not been improved simultaneously (ACC/SCN, 2000)

Appropriate complementary feeding depends on accurate information and skilled support from the family, community and health care system. Inadequate knowledge about appropriate foods and feeding practices is often a greater determinant of malnutrition than the lack of food. Moreover, diversified approaches are required to ensure access to foods that will adequately meet energy and nutrient needs of growing children, for example use of home-and community-based technologies to enhance nutrient density, bioavailability and the micronutrient content of local food. (WHO, 2003)

2.2.3. Role of national and international initiatives in support of optimal infant feeding

Governments, international organizations and other concerned parties share responsibility for ensuring the fulfilment of the right of children to the highest attainable standard of the health and the right of women to full and unbiased information, and adequate health care and nutrition. Each partner should acknowledge and embrace its responsibilities for improving the feeding of infants and young children and for mobilizing required resources (WHO, 2003).

In response to concerns about changing breastfeeding behaviours with negative consequences for infant health, a number of national and international initiatives have been implemented to promote breastfeeding. Three have been particularly important (ACC/SCN, 2000):

1. The International Code of Marketing of Breast milk Substitutes adopted by the World Health Assembly In1981 and subsequent relevant World Health Assembly resolutions, collectively known as The "Code", provide guidelines for the marketing of breast milk substitutes, bottles, and teats. To ensure the infant feeding decisions are free from the influence of marketing pressures, the Code aims to restrict such practices, including direct promotion to the public. Furthermore, World Health Assembly resolutions urge that there be no donations of free or subsidized supplies of breast milk substitutes and other products covered by the Code in any part of the health care system. With the rising prevalence of HIV, governments may consider accepting free or low-cost supplies for distribution to HIV positive mothers to prevent post-natal mother to child transmission. Many governments, either as a norm or through legislation, have adopted the Code. Despite a mixed record of compliance by infant formula manufacturers, it has had a major impact on the way formula is advertised and marketed. The Code has been particularly effective in the virtual elimination of the direct marketing to women who receive services through the public sector and in the restriction of marketing to health providers.

2. The Innocenti Declaration, which focuses on the need to protect, promote, and support breastfeeding, was signed by more than 30 countries in 1989. One operational target of this declaration is the universal implementation of the ten

steps to successful breastfeeding, which forms the basis of the third major Initiative: the WHO/UNICEF Baby Friendly Hospital Initiative.

3. The Forty-fifth World Health Assembly endorsed the WHO/UNICEF Baby Friendly Hospital Initiative in 1992. This initiative has influenced the routines and norms of hospitals throughout the world through the "Baby Friendly" certification process. A hospital is designated as Baby Friendly when it has agreed not to accept free or low-cost breast milk substitutes, feeding bottles and teats and to implement the ten steps.

2.3 Gaps in knowledge

Past research on the topic of infant feeding practices in Somali communities is scarce. In conducting the literature review, no previous research could be found on infant feeding practices among Somali community in Nairobi, Kenya

CHAPTER THREE

3.0 STUDY SETTING AND RESEARCH METHODOLOGY

3.1. Study setting

3.1.1. Study area and population

Eastleigh is one of the locations in Pumwani division, Nairobi province. It is situated at latitude one degree 16 minutes south of the equator and longitude 36 degree 51 minutes east of the Greenwich Meridian, and covers an area of 7.5 square km (CBS, 1999).

3.1.2 The people

According to the 1999 population and housing census, Eastleigh North had a total population of 70,231 of which 38,384 were males and 31,847 were females. There were 16,385 households, on an area of 6 km and a population density of 11,705 Eastleigh South had a total population of 52, 979 of which 28,665 were male and 24, 314 were females, households 15,465, on an area of 1.5 km and a population density of 35,319.

The vast majority of Nairobi's urban refugees live in Eastleigh, a densely populated low-income area of Nairobi, where the informal economy is flourishing. Eastleigh is popularly referred to as 'Little Mogadishu' and is dominated by Somalis and other African refugees and immigrants. Throughout the 1990s, Eastleigh was transformed, largely by Somali businessmen, from a residential community to the commercial centre of the Eastlands area, and increasingly much of Nairobi. These refugees bought up residential block and turned many of them into multi-million shilling retail malls and commercial enterprises. The economic transformation of Eastleigh has indeed

brought tremendous competition to the marketplace, pushing out many Asian retailers, who had hitherto controlled the business. According to Narayan Mehta, owner of a city centre hardware store, 'Most Asians don't like to admit it, but the Somalis are really cutting into our businesses. They are willing to live and work in Eastleigh. The cornerstone of this development, the famous 'Garissa Lodge', serves today as a symbol of refugee businesses in Eastleigh. Many Somalis resided in this former guesthouse before its transformation into a modern retail shopping mall, officially renamed Little Dubai but popularly referred to as Garissa lodge. From small-scale informal market trading in hotel rooms, today Garissa lodge houses 58 stalls in which everything from designer clothing to electronics is sold for some of the lowest prices in Nairobi. According to Mahmoud Noor, a Somali trader, 'real business at Garissa Lodge took root after [trade] liberalization, especially when used clothes were allowed. Trade liberalization in Kenya coincided with the influx of Somali refugees in the early 1990s, offering them an edge in already established yet covert business transactions. With their businesses deeply entrenched in the informal economy, they benefited from trade liberalization because they were able to move goods across the borders more easily and sell them openly. That is, government deregulation and privatization of industry opened up avenues for big business and informal or illegal traders alike.

In addition to individual consumers, larger commercial businesses and medium-sized traders also rely on retailers in Eastleigh to purchase a wide variety of items at cheaper costs.

Many Somali refugees living in Eastleigh are indeed poor. Some survive by working for other more wealthy Somalis. Others, including many women, are able to open

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their own roadside stands selling fabrics, undergarments, scarves, shoes, perfume, dishware, music tapes and CDs, fruit and vegetables, electronics, coffee, and tea. Many engage in the rather lucrative business of selling miraa. A day's supply for a single person goes for between Ksh 300 and 500. Women especially do washing and other household chores for wealthier Somalis, often in exchange for rent and/or food. There are many Somali-owned telephone calling centres and internet cafes. Some are taxi drivers, shuttling customers up and down the busy commercial thoroughfare and throughout the city.

Today, Eastleigh's growing influence cannot be underestimated. Aside from offering all the goods and services imaginable at the cheapest price in Nairobi, thereby attracting both individual consumers and purchasers from a variety of businesses, the Somalis have also created work for local Kenyans, many of whom are hired as low-wage, unskilled labourers. More jobs that are lucrative include working on Somali-owned matatus and as mechanics. With the general infusion of capital in the area, Kenyan residents of the larger Eastlands area, of which Eastleigh is the commercial centre, increasingly turn toward this refugee-dominated section of the city to eke out a meagre living. For many, chances to earn a day's wage are higher in Eastleigh—the informal economy—than the formal economy in the city centre. In fact, most of the large-scale commercial businesses in Eastleigh are now part of Nairobi's formal economy, where a greater numbers of the city's residents are increasingly turning for access to cheap goods and livelihood opportunities.

Despite the fact that UNHCR and the Kenyan government do not usually allow refugees to settle outside the Dadaab and Kakuma camps, many have opted for the in-tractions of self-settled life in town. In this city, there are many men on their own

who have left their families behind in the camps and are trying to earn income, a few of the refugees are there for the purpose of gaining education, and yet others are seeking better chances of resettlement. In all these instances, their stay in Nairobi is seen as a temporary one (GCIM, 2005).

Therefore, as it is seen, these Somali refugees left the camps and come Nairobi to earn income, often in exchange for rent and or food. This caused many mothers to spend more time trying to augment the family income at the expense of caring adequately for their children

3.2.1 Study population

The targeted study population consisted of mothers as respondents and their infants 0-12 months of age, among the Somali community living in Eastleigh and attending clinic in that area.

3.2.2 Study design

A descriptive cross-sectional study was undertaken to assess infant-feeding practices and nutritional status of infants aged 0-12 months attending clinic in Eastleigh, Nairobi, Kenya.

3.2.3 Sample size determination

The formula below was used to calculate the sample size (Fisher et al., 1991).

$$N = \frac{z^2 pq}{d^2}$$

$$N = \frac{(1.96)^2 (.50)(.50)}{(.05)^2}$$

384.

Where.

n= the desired sample size (when population is greater than 10,000).

z= the standard normal deviate, usually set at 1.96 (or simply at 2.0), which corresponds to the 95 percent confidence level.

p= the estimated proportion of the population who are malnourished (.50)

Since there was no any research done so far on the prevalence of malnutrition among 0-12 months old infants in the Somali community in Eastleigh estate, the value 0.5 for P was used (as recommended by Fisher, 1991).

q proportion of the population who are not malnourished (1.0-p)

d = Degree of accuracy desired, usually set at .05 or occasionally at .02.

3.2.4 Sampling procedure

Multi-stage sampling process was used, based on the clinics in Eastleigh, which offer MCH in the study area. There were 11 clinics that offer MCH in the area, i.e. Pumwani Maternity Hospital, Pumwani Rayadha Clinic, Tigna clinic, Dock Care Nursing Home, Medina Nursing Home, Salaama Nursing Home, Marie-Stop, Wood Street Nursing Home, Kilimanjaro Nursing Home, Shaam Nursing Home, and Mother and Children Clinic.

In the first stage, Eastleigh sub location was selected. At the second stage, five clinics were randomly selected from eleven clinics in the study area, whereby the names of the clinics in Eastleigh were written on small piece of papers, the papers folded and put in a bowl, after which 5 health centres were drawn from the bowl one at a time. Lastly, mothers as respondents in each clinic were recruited by means of systematic sampling as follows, the first mother waiting to be seen by clinic staff at

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immunization room was selected if her infant was aged 0-12 months. She was then interviewed after seeing the service provider. From then on, every second mother in the queue meeting the inclusion criteria was interviewed. If the mother did not meet the criteria, the next mother was selected. Each clinic was visited until the sample size of respondent mothers and their infants was realised. Five clinics, namely Medina, Wood Street, Kilimanjaro, Mother and Child and City Council, were visited and 77 mothers interviewed in each clinic, except for Wood Street where 76 mothers were interviewed.

3.2.5 Research instruments and tools

The research tools included a structured questionnaire and a focus group discussion (FGD) guide. The structured questionnaire was used to collect both qualitative and quantitative data (see appendix 1). It consisted of sections on household demographic characteristics, infant feeding practices, maternal knowledge on breastfeeding, and Anthropometric measurements. FGD guides were used to verify information collected in the questionnaire including information on length of breast feeding, barriers of breastfeeding, and knowledge about breastfeeding practices. FGDs produce a lot of information far more quickly and at cheaper cost. Due to their flexibility, one can discover attitudes and opinions that may not be revealed in a structured questionnaire. They were also used to answer the whys of unexplained social phenomena (Scrimshaw and Hurtado, 1987).

3.2.6 Research clearance permit and Ethical Issues

Research Clearance Permit was obtained from the Government of Kenya, and the principal investigator reported to the Provincial Commissioner, the Provincial

Director of Education Nairobi and the District Officer of Eastleigh Area before embarking on the research. A permit from Nairobi municipality for city council run clinics in the Area of study was also obtained. Informed consent was obtained from the respondents that participated in the study after explaining to them the objectives of the study. The mothers were also informed that the information collected on each individual would be held in confidence.

3.2.7 Pilot Study

Before training the interviewers, the questionnaire was pre-tested in a pilot study, conducted among 10 mother and child pairs at Shaam nursing home, which was not among those selected for the actual study. The main purpose of the pre-test was to ensure that the respondents understood the questions and answered them usefully. Hence, it was not enough simply to interview the respondents during the pre-test; each interview was followed by a debriefing, in which the interviewer was asked about the respondent's understanding of questions that were thought likely to be misunderstood or that appeared to have caused difficulty during the interview. The questionnaire was adjusted accordingly.

3.2.8 Recruitment and training of field assistants

Five research assistants with secondary school level of education were recruited and hired. The training was designed to familiarize the interviewers with the intent and meaning of the questions. The training included briefings on the study sample and researcher's expectations of their work. They were also trained on interpersonal skills, how to introduce themselves to the respondents and develop a rapport. They were explained to the basic principles of field ethics, such as assuring the respondent of

confidentiality. They were intensively trained in the techniques of interviewing. Methods used to train the field assistants included lecture for familiarization with the questionnaire and techniques of interviewing, demonstrations for anthropometric measurements and role-plays.

3.2.9 Data collection procedure

A structured pre-tested questionnaire was used to collect information on household demographic characteristics, infant feeding practices, maternal knowledge on breastfeeding, and anthropometric measurements. In addition, FGDs were conducted to obtain source of information on infant feeding practices, knowledge about the advantages of colostrums and practices, length of breastfeeding, reasons for stopping breastfeeding, and foods used in place of breast-milk

3.2.9.1 Household demographic characteristics

Household demographic data collected included sex, age, household size, occupation, and the level of education of the household members, with particular interest in the principal caregiver; the mother. This data was collected using the questionnaire by simply asking the respondent for the information on the household member.

3.2.9.2 Infant feeding practices

Data collected on infant feeding practices included breastfeeding practices and complementary feeding Information sought under breastfeeding included time of initiation of breastfeeding after birth, any fluid given to the child other than breast milk (prolacteal), period of exclusive breastfeeding, frequency of breastfeeding, breastfeeding practices outside the home and in public places, age at which

breastfeeding was stopped and the reasons for stopping breastfeeding. Information on age of the child at the first introduction of complementary food, kind of food introduced, reasons for introduction of complementary food, and frequency of feeding was also sought.

3.2.9.3 Maternal knowledge

Data collected for maternal knowledge included knowledge about exclusive breastfeeding and advantages of breastfeeding practices. The information included, knowledge on recommended length of exclusive breastfeeding and reasons for breastfeeding. Knowledge questions from the questionnaire were assessed as being answered correctly or incorrectly.

3.2.9.4 Anthropometric measurement

The Paediatric clinic scales were used for measuring the weight of the children. Every morning before data collection, the clinic scales were calibrated using a 2 kg standard weight. The scales were then zeroed before taking measurements of the children Field assistants took the measurements twice for accuracy purpose with the help of the health service providers in the clinic.

A length board was used to measure the recumbent length of the index child. The measurement was taken when the child was lying down on the measuring board. Two readings were made for each child to confirm consistency, which improved accuracy and the average was calculated. Length/height measurements were recorded to the nearest 0.1cm. Age of the study children was estimated by using clinic cards and this was recorded in months. Sex of the child was also recorded.

3.2.9.5 Focus Group Discussions

A focus group discussion of ten mothers with children aged 0–12 months who did not participate in the study was conducted. Data from the focus group discussion strengthened the information pertaining to the prevalence of infant feeding practices and its associated factors. After the participants were invited, the facilitator who was the principle investigator introduced the discussion topics, and then led the group, observed participants, and listened carefully to them in order to move the discussion logically from point to point; built the rapport with the participants and gained their confidence and trust and controlled the time and the rhythm of the meeting. At the same time, two field assistants were present as an observer and a recorder.

3.2.10. Data management and analysis

3.2.10.1 Data quality control management

Close supervision of the interviewers in the field was done by the principal investigator. All the questionnaires were checked for completeness at the end of each day and were stored safely until the time for the data entry. The materials from the focus group discussions (notes and cassettes) were also kept safely awaiting the time for analysis.

3.2.10.2. Data analysis

Data was entered using the computer packages, SPSS and Epi-info. Epi-info was used to convert raw anthropometric data into anthropometric indices. SPSS was mainly used for other data analysis. Descriptive statistics, comparison between means and proportions of different variables were done by assessing the significant levels at 0.05 using the chi-square test, Fisher Exact test, bivariate correlation. Graphs were plotted

using SPSS programme. Means and proportions were given with their corresponding 95% confidence intervals that define range within which the variable estimated was likely to lie/fall. The anthropometrics measurements were taken for all study infants and their corresponding deviation scores (z-scores) calculated with reference to the national centre for health statistics (NCHS) data, using cut-off points recommended by the World Health Organization (WHO, 1983). Three standards indices of physical growth that describes the nutritional status of children are presented:

- Height-for-age (stunting)
- Weight-for-height (wasting)
- Weight-for age (underweight)

Each of the three nutritional indicators is expressed in standard deviations (Z-scores) from the mean of the reference population. Deviations of the indicators below -2 standard deviations (SD) indicate that the children are moderately and severely affected, while deviations below -3 SD indicate that the children are severely affected. 384 infants 0-12 months old were eligible to be weighed and measured.

CHAPTER FOUR

4.0 RESULTS

A total of 384 mothers of children aged 0-12 months old were interviewed and measured. Information on household demographic characteristics, infant feeding practices, maternal knowledge on breastfeeding, and anthropometric measurements were collected and analysed.

4.1 Socio-demographic characteristics

4.1.1 Respondent's household structure, age, education, and occupation

Most 233 (60.7%) of households had 1-6 members, 84 (21.9%) households had 3-4 members, while 67 (17 %) of households had 6-10 members. The average household size of the study area was 5 with a range of 3-10 people.

Among mothers, more than half were illiterate, one quarter had attained lower primary, while the rest had attained upper primary, secondary, and postsecondary education. The predominant occupation of the respondents was housewife followed by business. Only 15 (4%) in contrast, were mothers who were either salaried or students

The maternal age was 26.6±3.5 years, with a range of 16 to 32 years. More than half of the mothers were in the age group 20-25 years, one quarter were teenaged 15-19 years, while the rest were 26-35 years. This shows that all mothers were in their reproductive age.

Table 1. Age distribution, education and occupation of respondents

Description	Percentage
Age category (Years)	N=384
15-19	25.3
20-25	54.7
26-30	16.9
31-35	3.1
Level of education	
Lower primary	25.0
Upper primary	4.2
Secondary	4.0
Post secondary	3.8
Not attendant	63.0
Occupation	
House wife	65.0
Business	31.0
Casual labour	2.1
Student	0.3
Clerk	1.6

4.1.2 Age, education and occupation of household heads

The mean age of household head was 30.5 ± 6.1 years, with a range of 19 to 50 years. Majority of household heads, more than half were in the age group 30-40 years and slightly less than half were in the age group 20-30 years. Only a small number in contrast, were in the age group 15-20 and 40-50 years old. All were married and almost all of them were male 380 (99%).

About half of the fathers were illiterate, more than one-quarter had attended primary education. While less than one-quarter had attended secondary, postsecondary, and university. The predominant occupation of fathers was business, followed by employment and casual labour in that order. Less than one quarter in contrast, were either salaried or students.

Table 2. Age distribution, education and occupation of household heads

Description	Percentage
Age category (Years)	N =384
15-19	1.1
20-30	42.2
31-40	50.8
41-50	5.7
Level of education	
Illiterate	43.7
Primary education	36.1
Secondary	20.3
Others	0.10
Occupation	
Business	34.6
Unemployed	32.3
Casual labour	21.4
Salaried and students	11.7

4.2 Infant feeding practices

4.2.1 Breastfeeding practices

4.2.1.1 Status of breastfeeding in the study area

Figure 2 shows the distribution of mother-infant pairs by status of breastfeeding. More than three quarters of the respondents reported that they were breastfeeding their babies at the time of study. Although the babies were only less than one year old, less than one quarter of them were not breastfeeding at the time of the study. Reasons for not breastfeeding were varied among mothers. Almost half-stopped breastfeeding due to another pregnancy, more than one quarter because the child refused, while the others stopped due to either lack of breast milk secretion or maternal sickness (Table 3).

Status of breastfeeding practices

80%

20%

▥ Breastfeeding
☐ Not breastfeeding
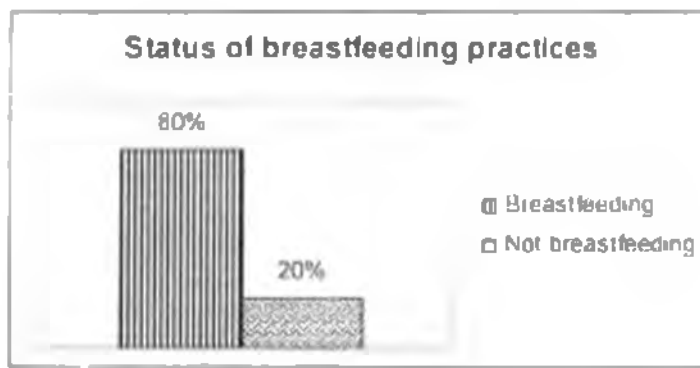
Figure 2. Distributions of respondents by breastfeeding status

Table 3. Distribution of mothers who stopped breastfeeding within the first four months of infant age by reasons

age at stopping breastfeeding	reasons for stopping breastfeeding				Total
	Sickness n=11	no breast milk secretion n=10	child refused n=23	Pregnant n=33	N=77
within first month after delivery n= 23 (%)	21.7	26.1	47.8	4.3	100.0
Within second month after delivery n= 30 (%)	10.0	6.7	30.0	53.3	100.0
within third month after delivery n= 20 (%)	15.0		5.0	80.0	100.0
Within fourth month after delivery n= 4 (%)		50.0	50.0		100.0
Total (%)	14.3	13.0	29.9	42.9	100.0

From the focus group discussion, majority of the mothers agreed that babies should continue breastfeeding up to two years, and they had knowledge about this as they said it was religious to breastfeed a baby up to two years.

4.2.1.2 Frequency of breastfeeding

As figure 3 shows, the frequency of breastfeeding of those 384 children was varied among mothers. Slightly more than one-third breastfed their babies on demand, nearly half breastfed their babies three times per day, while the rest breastfed their babies either rarely or one-two times per day.
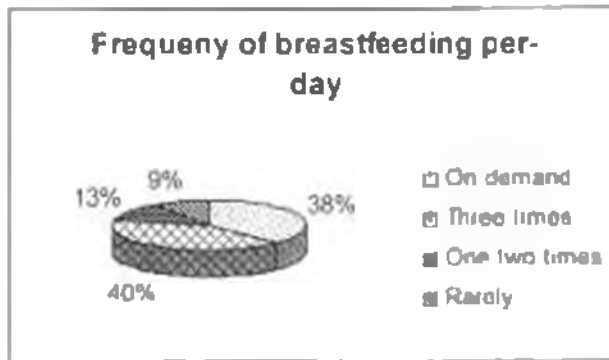
Figure 3 Distribution of respondents by daily frequency of breastfeeding

4.2.1.3. Initiation of breastfeeding

As figure 4 shows, more than two third of the respondents reported that they initiated breastfeeding within the first day after delivery, while less than one third initiated breastfeeding within first hour after delivery.

Figure 4 Distribution of respondents by time of initiation of breastfeeding.

4.2.1.4 Barriers to breastfeeding

Almost all 360 (94%) of the respondents reported that they did not breastfeed in public places, compared to only 24 (6%) respondents who reported otherwise. As figure 5 shows, the reasons for not breastfeeding when outside home/public places were varied. Majority of the respondents reported that they did not breastfeed because of, embarrassment, while less than one quarter did not breastfeed in public places due to lack of an appropriate place and belief that the child will be sick if you breastfed in public places/away from home

Figure 5 Distribution of respondents by reasons for not breastfeeding in public places/Away from home.

It was also elucidated from the focus group discussions that some socio-cultural, physiological and psychological factors act as constraints to breastfeeding. These included embarrassments of feeding in public places, next pregnancy, belief that feeding formula was as good as breast-milk, sore and cracked nipples; perception that breastfeeding was painful and inconvenient, and poor milk supply. Contributing factors to improper breastfeeding included lack of support and appropriate advice; lack of knowledge; and lack of confidence and low self-esteem.

4.2.2 Complementary feeding practices

Given that babies need nutritious food in addition to breast milk from the age of six months, it is recommended that children should begin receiving complementary foods at this age.

4.2.2.1 Age of starting complimentary foods/fluids of the index child

Majority of the respondents had already introduced their babies to complimentary foods. Almost one-third of the mothers interviewed introduced the baby to other foods/fluids at the age of 1-3 months, nearly half introduced the first day after delivery, while only 5% introduced complementary foods at recommended age 4-6 months and the rest did not start any complementary foods/fluids. The reasons given for introduction of other foods/fluids include mother's choice more than one third "to accustom baby early for other foods in case the mother goes away," "advised by relative" slightly more than one quarter, "advised by friends" slightly more than quarter, while the rest included "refusal of the child" and "maternal sickness."
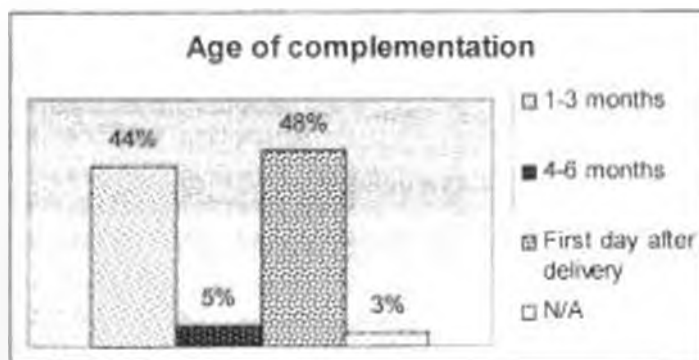
Figure 6 Prevalence of age of starting complementary feeding

As table 4 shows, majority of complementary foods at the age of first day after delivery was infant formula, while the rest is sugary water. Similarly, majority of

complementary foods at the age of 1-3 months were Cerelac, while about one quarter was infant formula. Others were potatoes and porridge. The same was true at the age of 4-6 months.

Table 4. Distribution of respondent by age of starting complementary feeding and type of complementary food

Age of complementation of the index child	Type of complementary food/fluid*					N
	Cerelac	infant formula	potatoes	porridge	sugary water	
first day after delivery		98 (56.6)			75 (43.4)	173 (100.0)
1-3 months	129 (76.3)	25 (14.8)	6 (3.6)	9 (5.8)		169 (100.0)
4-6 months	16 (53.3)	6 (20.0)	4 (13.3)	4 (13.3)		30 (100.0)
Total	145 (39.0)	129 (34.7)	10 (2.7)	13 (3.5)	75 (20.2)	372 (100.0)

*Numbers in the parenthesis are percentages

4.2.2.2. Type of complementary foods/fluids given to the child

As shown in table 5, the most common type of complementary foods/fluids given to the babies were Cerelac, followed by infant formula and sugary water in that order. Potatoes and porridge were used by only a small proportion of the respondents. Reasons for choosing a particular food type were varied among the mothers. Majority of the mothers reported that they got advice from their relative, about one quarter made their choices while the rest were advised in the clinic, by friends; or a feeding programmer.

Table 5. Distribution of respondents by type of child complementary food and reasons for choosing the food

Type of food	Reasons*					N
	Advised by friends	My choice	Feeding programmer	Advised by clinic	Advised by relatives	
Biscuits	21 (14.5)	27 (18.6)	37 (25.5)	42 (29.0)	18 (12.4)	145 (100.0)
Infant formula	31 (24.0)	36 (27.9)	4 (3.1)	14 (10.9)	44 (34.1)	129 (100.0)
Porridge	3 (23.1)	3 (23.1)	-	4 (30.7)	3 (23.1)	13 (100.0)
Potatoes only	1 (10.0)	4 (40.0)	2 (20.0)	-	3 (30.0)	10 (100.0)
Sugary water	9 (12.0)	21 (28.0)	-	-	45 (60.0)	75 (100.0)
Total	65 (17.5)	91 (24.5)	43 (11.6)	60 (16.0)	113 (30.4)	372 (100.0)

*Numbers in the parenthesis are percentages.

4.2.2.3. Frequency of child feeding

Of the 77 mothers who stopped breastfeeding, frequencies of child feeding were varied. Majority of the mothers fed their babies on demand, less than one quarter reported fed their babies either two times, three times or four times daily (figure 7).

Frequency of child feeding is very different from breastfeeding frequency in this study. Frequency of child feeding on demand is higher than frequency of breastfeeding This might he breastfeeding barriers, such as embarrassment in public places, pregnant, employment, and other factors that can prevent mothers to breastfeed their children on demand.
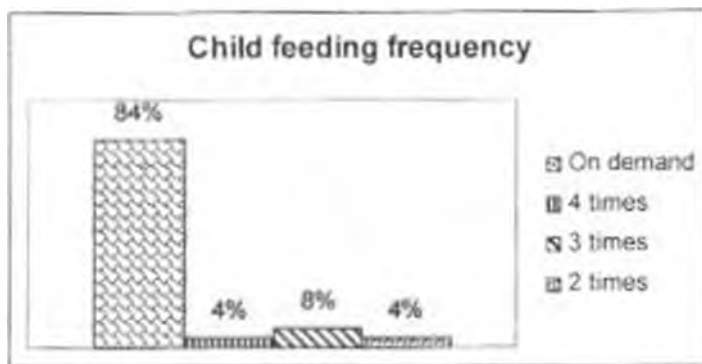
Figure 7 Distribution of non-breastfeeding study children by feeding frequency.

4.2.3 Mothers' knowledge about exclusive breastfeeding practice as recommended by WHO

Majority of the mothers 347 (90.4%) had no knowledge of the WHO recommended period of exclusive breastfeeding. The lack of knowledge on the WHO recommendations on exclusive breastfeeding was also confirmed among mothers participated in one focus group discussion. However, almost all (99.7) of the mothers had knowledge about the benefits of breastfeeding. Their source of this knowledge was mainly relatives and friends.

4.3 Nutritional status of the study children

The nutritional status of the children was assessed using the anthropometric indicators weight-for-age, weight-for-height, and height-for-age according to the NCHS reference standard and WHO (1983) recommended cut off points. The study children with anthropometric indicators -2SD from the median were considered malnourished.

4.3.1 Underweight

Weight-for-age is a composite index of height-for-age and weight-for-height and, thus, does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). A child can be underweight for his age because he is stunted, wasted, or both. Weight-for-age is a useful tool in clinical settings for continuous assessment of nutritional progress and growth. Children whose weight-for-age is below -2 SD from the median of the reference population are classified as "underweight." According to this categorization and as figure 8 shows, 6.5% of the children were underweight.

4.3.2 Wasting

Weight for height measures body mass in relation to body length and describes current nutritional status of an individual. A child who is below -2SD from reference median for weight-for-height is considered to be too thin for his/her height, or "wasted," a condition reflecting acute malnutrition. Wasting represents the failure to receive adequate nutrition in the period immediately preceding the survey and may be the result of inadequate food intake or recent episodes of illness causing loss of weight and the onset of malnutrition. Wasting is considered severe if the child is below -3SD from the reference mean. Severe wasting is closely linked to an elevated risk of mortality. Prevalence of wasting may vary considerably by season. According to this categorization and as figure 8 shows, 6.3% of the children were wasted.

4.3.3 Stunting

Height-for-age is a measure of linear growth. A child who is below -2SD from the median of the NCHS reference population in terms of height-for-age is considered

short for his/her age, or "stunted." a condition reflecting the cumulative effect of chronic malnutrition. If the child is below -3 SD from the reference median, then the child is considered to be severely stunted. A child between -2 and -3 SD is considered to be moderately stunted. According to this categorization and as figure 8 shows, 11.7% of the children were stunted.
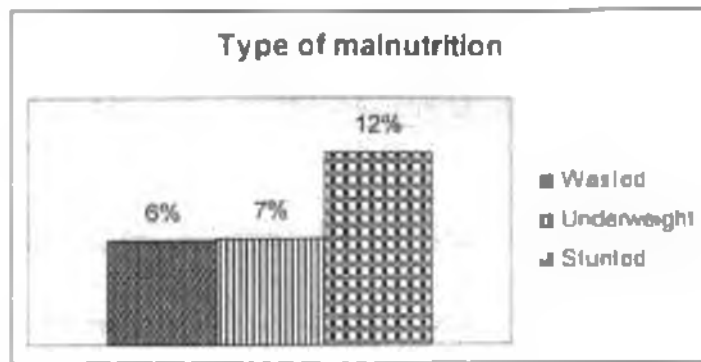
Figure 8. Prevalence of malnutrition among study children

4.3.4 Relationship between nutritional status and age of study children

A bivariate correlation was done to assess the association between nutritional status and age of the study children. It was established that there was a significant and positive correlation between age and nutritional status, in terms of weight-for-height ($r = 0.140$, p 0.006), weight-for-age ($r = 0.369$, p 0.000), and height-for-age (r 0.029, $p = 0.000$).

There was also a significant correlation between wasting and underweight ($r = 0.113$, p .027) as well as underweight and stunting ($r = 0.162$, p 0.001). However, there was no significant correlation between stunting and wasting (r 0.079, $p = 0.124$).

Table 6-8 show that a higher proportion of children in the older age group (7-12 months) was wasted, underweight and stunted respectively.

Table 6 Prevalence of wasting by age among study children

WHZ-score	Count and percentages	months of index child category		Total
		0-6	7-12	
wasted	Count	14	10	24
	% within age of index child categorical	4.6	13.0	6.3
normal	Count	293	67	360
	% within age of index child categorical	95.4	87.0	93.8
Total	Count	307	77	384
	% within age of index child categorical	100.0	100.0	100.0

Table 7 Prevalence of underweight by age among study children

WAZ-score	Count and percentages	Months of index child category		Total
		0-6	7-12	
underweight	Count	6	19	25
	% within age of index child categorical	2.0	24.7	6.5
normal	Count	301	58	359
	% within age of index child categorical	98.0	75.3	93.5
Total	Count	307	77	384
	% within age of index child categorical	100.0	100.0	100.0

Table 8 Prevalence of stunting by age among study children

HAZ-score	Count and percentages	months of index child category		Total
		0-6	7-12	
stunted	Count	26	19	45
	% within age of index child categorical	8.5	24.7	11.7
normal	Count	281	58	339
	% within age of index child categorical	91.5	75.3	88.3
Total	Count	307	77	384
	% within age of index child categorical	100.0	100.0	100.0

4.3.5 Relationship between nutritional status and sex of study children

A cross tabulation was done for stunting, wasting, and under weight by sex among the study children. As shown in figures 9, there was no significant association between sex and wasting (chi-square= 0.001, p 0.979), as well as stunting (chi-square 0.630, p 0.427). However, as shown in figure 9 there was a significant association between sex and underweight (chi-square 15 220, p 0.000). There were significantly more underweight male than female children (chi-square 15.22, P=0.000).
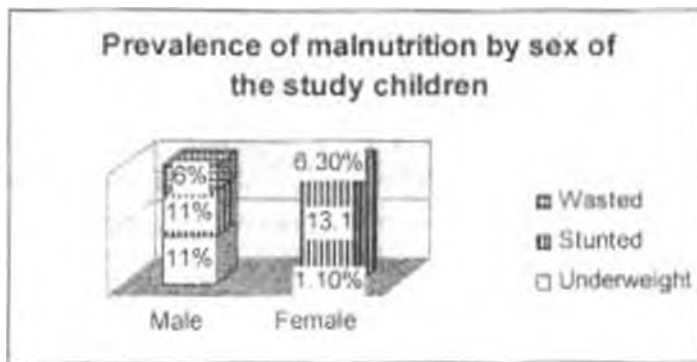
Figure 9. Prevalence of malnutrition by sex of the study children

4.3.6 Feeding practices and nutritional status of study children

When statistical analysis was done for wasting, stunting and underweight and its association of some selected breastfeeding factors, it was established that there was a significant and negative correlation between frequency of breastfeeding and wasting (r -114, p .026), no significant and negative correlation between wasting and age at which complementary feeding was initiated (r= -078, p= .128), as well as wasting and time at which breastfeeding is initiated (r= -062, p .227). There was a significant and negative correlation between underweight and frequency of breastfeeding (r -141, p .005), as well as underweight and initiation of breastfeeding (r= -115, p= .025), but no significant and negative correlation between age at introduction of complementary

feeding and underweight (r -041, p .419). No significant and positive correlation was established between stunting and frequency of breastfeeding (r=.032, p= .538), no significant and negative correlation between stunting and age at introduction of complementary feeding (r -051, p 0.316), as well as time at which breastfeeding was initiated (r=-096, p= .059).

4.4. Summary of the finding

The finding of this study shows that there was significant and negative correlation between frequency of breastfeeding and wasting (r= -114, p= .026), no significant and negative correlation wasting and age at which complementary feeding was initiated (r= -078, p- .128), as well as wasting and time at which breastfeeding is initiated (r= -062, p .227). There was a significant and negative correlation between underweight and frequency of breastfeeding (r= -141, p .005), as well as underweight and initiation of breastfeeding (r= -115, p- .025), but no significant and negative correlation between age at introduction of complementary feeding and underweight (r= -041, p .419). No significant and positive correlation was established between stunting and frequency of breastfeeding (r .032, p .538), no significant and negative correlation between stunting and age at introduction of complementary feeding (r - 051, p 0.316), as well as time at which breastfeeding was initiated (r=-096, p .059).

The finding of this study also shows that prevalence of underweight 6.5%, wasting 6.3% and stunting 11.7%. The bad nutritional status of study children can possibly be explained by feeding mal- practices in the form of delayed initiation of breastfeeding, early complementary feeding, extremely low rate of exclusive breastfeeding; and lack of knowledge about exclusive breastfeeding practice as recommended WHO, which were present in the study area.

5.0 DISCUSSION

5.1 Socio-demographic characteristics in the study area

5.1.2 Level of education of respondents

Illiteracy levels of women of 63% found in the present study is high for an urban setting but lower than that found (82%) in Northern Eastern, Kenya (Borle, 2004) where the Somali population is also large. The proportion 10.7% of women who had attained primary school is similar to (9.2 %) in North Eastern province. Only 16 (4.2%) of the women studied had attained or completed secondary school. Proportion comparable to that (2.3%) in Garrisa, Kenya. (Borle, 2004).

The finding that more males than females have attained secondary school education is in agreement with KDHS (2003) which indicated that Kenyan men tend to complete higher levels of education than women do.

Clearly, the results indicate that most of the study population has low levels of secondary and higher education and this could have contributed to the few permanent occupations among the study population. Low secondary and higher education results from economic and socio-cultural factors, which include, inability to pay tuition fees, lack of interest in schooling and failure to achieve sufficient grades in primary school. Pregnancies and early marriages also contribute to school dropouts (GoK/UNICEF, 1992). Most of Somali settlers in Eastleigh originally have nomadic backgrounds, and give priority to boys than girls and this contribute to the low levels of education.

5.1.3 Occupation of respondent

About two-thirds of the mothers studied are housewives compared to 75 % in North Eastern, Kenya. In addition, about one-third are business women compared to one-quarter (24 %) found in North Eastern, Kenya (Borle, 2004). It is clear from the results that few mothers are in permanent income generating occupations, the main means of livelihood in urban areas. This could mean that contribution of maternal income to the household income is substantially low, and indicate that majority of the mothers in the study have little control over expenditure. It has been shown that when income is controlled by mothers, it translates into improved nutrition security of the households as more of it is availed for food purchases (Chaudhury, 1986). The scenario in this study implies that this may not apply, and quality complementary feeding may be compromised.

5.2 Infant feeding practices in the study area

5.2.1 Breast Feeding Practices

Feeding patterns are the principal determinants of a child's nutritional status and poor feeding exposes them to higher risks of illness and death. Breast-feeding has been internationally recognized and promoted as the best method to feed a baby. In this study more than three-quarters 307 (79.5%) of the respondents reported to breastfeed their babies. This figure is not comparable to the national figure of 98% breastfeeding (KDHS, 2003).

Reasons for not breastfeeding were varied among mothers. Almost half stopped breastfeeding due to another pregnancy, more than one quarter because the child refused, while the others stopped due to either insufficient breast milk or maternal

sickness. Women are always unable to articulate in survey responses, and/or uncomfortable reporting, less socially acceptable or 'mother-driven' reasons (such as, fear of loss of breast shape) for not breastfeeding or stopping breastfeeding early; they tend to report more child-centered such as 'child did not want the breast' or reasons beyond the mothers control notably, 'insufficient milk'. Insufficient milk usually results from the women not breastfeeding frequently enough, which, in turn, may be affected by circumstances such as the mother returning to work (and working in an environment which does not facilitate expressing breast milk), or being busy with other siblings family disruption or dysfunction, or a young mother's desire to minimize time spent in care giving. The explanation of 'insufficient breast milk' there fore masks a range of underlying factors that undermine breastfeeding. It is therefore recommended further research of underlying factors or potential influence of breastfeeding.

Normal and healthy babies can self-regulate their feeding times to accommodate their varying nutritional and physiological needs. It is therefore recommended that they be breastfed on demand including at night to enable them meet these needs. In this study one-third 131 (34.1%), of the mothers rightly breastfeed their babies on demand a proportion that is incomparable and far less than the national figure of 92% (KDHS, 2003).

Early initiation of breastfeeding (soon after birth) is recommended to reduce the risk of hypoglycemia, maximize social bonding between the mother and her child in order for the infant to get the protective colostrum. Research has shown that colostrum, contained in the very first breast-milk after delivery is highly nutritious and contains a

high concentration of antibodies, which protect babies from infection before their immune system is maturely developed. Ideally, breastfeeding should be initiated within the first six hours post delivery but within the first hour at best (Latham, 1997). The mothers who initiate breastfeeding within the first hour after delivery in the study area is about one quarter 99 (25.8%), a proportion only halfway of the national proportion of 52 % (KDHS, 2003).

Breastfeeding is known to provide the entire nutritional requirement for about the first six months of life and continue thereafter to contribute significantly to the overall nutritional status of the child well into the second year of life. It is therefore recommend that babies continue breastfeeding into the second year of life. During the Focus Group Discussion, mothers supported continued breastfeeding up to the second year of the baby's life. They said, "it is very good to babies because our religion tells us." Continued breastfeeding is a healthy practice and has been shown to have a strong positive association with linear growth and development of the child especially in rural settings with poor sanitation and inadequate water supply (Onyango et al., 1999).

Breast-milk should be the first baby food, but it was observed during Focus Group Discussion that many mothers in Somali community give prelacteals like sugary water and infant formula to the baby soon after birth or in the first few days before the breast can produce enough milk. Studies in Uganda also show that it is common for women to give plain water, sugar solution or gripe water during the first few days after delivery (WHO, 1999). Therefore, mothers should be informed that these prelacteals are not good for the newly born and encourage provision of colostrum.

The results of this study show very low rates of exclusive breastfeeding even during the first four months 20 (5.2%), a figure which is much smaller than the national proportion of 13% (KDHS, 2003). UNICEF (1999) lists Kenya as one of the countries where exclusive breastfeeding has declined in the 1990s. The solution of achieving exclusive breastfeeding goal lies in convincing mothers that their milk is all the baby requires for sufficient satisfaction in the first six months and in reducing workload for women.

This community is Muslim, and Islamic religion fully supports breastfeeding, whether advantage of breast-milk, benefits of colostrums, and continue breastfeeding up to two years, and again the community adopting inappropriate infant feeding practices. Therefore, the reasons that both breastfeeding and exclusive breastfeeding were so slow within this community apart from illiteracy, might be migration and underlying factors of migration. Women who migrated from the traditional rural areas to the so-called modern universe adjust to new situations adopt new attitudes and patterns of behaviour, which all can have negative impact of breastfeeding.

This community migrated from their country of origin and lives as a refugee in Nairobi, Kenya, whereby majority of them used to be pastoralists who lived nomadic area: an environment, which was very friendly to breastfeeding. Urban existence is synonymous with extreme individual and community poverty. Economic and social pressures, under which the low-income refugee lives in an urban area, rather than serious ignorance on the part of the women, were responsible for the critical change in traditional infant feeding practices. Implicit in this is a great pressure on mothers to

spend more time trying to augment the family income at the expense of caring adequately for their children

5.2.2 Complementary Feeding Practice

Early introduction of complementary foods at about 2-3 months is a common practice in the study area and even in other parts of the country (CBS, 1996; KDHS, 1998; Onyango et al., 1999). Breast-milk alone is sufficient for a baby for up to 4-6 months and any food/fluid other than medicine before this age is discouraged because it does not increase caloric intake and only displaces milk from the diet (Cohen et al., 1994). Early complementary food is also discouraged because the likelihood of contamination is high (Dewey et al., 1999) and the child's digestive system is still premature and cannot handle complex or bulky foods.

Infant formula and biscuits (Cerelac) are popular first complementary food in the study area, as well as porridge and mashed potatoes. Early complementation is attributed to next pregnancy, infants, sickness, and perceived insufficient breast-milk to satisfy the baby. Research has shown that early complementation reduces breast-milk output since production and release of milk is modulated by the frequency and intensity of suckling (Latham, 1997).

At the age of six months, breast-milk alone is not sufficient to satisfy a baby's nutritional needs and therefore the baby should be introduced gradually to other foods. The baby's digestive system is still not fully developed and so the appropriate foods should be given in small bits but frequently.

Study finding indicated that maternal knowledge about exclusive breastfeeding as recommended by WHO is extremely low, demonstrating a general lack of awareness. This seems to be an educational gap as there are no efforts to educate the mothers on breastfeeding due to crowding in almost all the clinics visited in the study site, such that the health workers have no breathing space to offer any kind of education. The situation varies between the private and city council clinics. City council clinics are more crowded than private clinics. So, careful consideration of the clinic environment is needed to foster improvement in breastfeeding practices.

5.3 Nutritional status of children

The growth patterns of healthy and well-fed children are reflected in positive changes in their height and weight. Inadequate food supply, among other factors, often lead to malnutrition, resulting in serious consequences on the physical and mental growth and development of the children. Monitoring of nutritional indicators provides information on the progress made in achieving the Millennium Development Goals, as well as targets set in the Economic Recovery Strategy (Ministry of Planning and National Development, 2003). The nutritional status of under fives has been used as proxy indicators under which statements about the nutritional situation in developing countries are made leading to its use as a basis for nutritional planning. The nutritional status of the study children is not good. A high proportion (6.5%) of study children is underweight. A figure, similar to 6% in Nairobi province (KDHS, 2003). The same results are observed for wasting and stunting in combination to Nairobi province (6% and 7.4% respectively).

The bad nutritional status of study children can possibly be explained by feeding mal-practices in the form of delayed initiation of breastfeeding, early complementary feeding, and lack of knowledge about exclusive breastfeeding practice as recommended WHO are present in the community.

CHAPTER SIX

6.0 Conclusions and recommendations

6.1 Conclusions

From the foregoing results and discussions on infant feeding practices and nutritional status, it is concluded that, nutritional status of the study children is not good, feeding mal-practices in the form of delayed initiation of breastfeeding, early complementary feeding, and lack of knowledge about exclusive breastfeeding practice are present in the community. Knowledge regarding recommended breastfeeding practices is inadequate. The level of exclusive breastfeeding is extremely low in the study area and mothers seem not well informed about recommended feeding practices. Most of

the mothers often administer prelacteal feeds. Infant formula is widely used as complementary food, an indication that manufacturers of infant foods and infant milk substitutes and feeding bottles apply all possible tactics in the promotion and marketing their products. This undermines the success of breastfeeding.

Babies rejecting breast milk, maternal sickness and insufficient milk are the most common reasons for stopping breastfeeding. Successful breastfeeding depends on feeding on demand, as the amount of milk produced is directly related to the amount of time the baby spends at the breast. If the mothers are prevented from feeding their babies on demand, it will be more difficult to maintain an adequate supply of milk. Embarrassment is the most common reason for not breastfeeding outside the home and this contributes to the drop-off rate of breastfeeding.

6.2 Recommendations

To overcome many barriers of breastfeeding, there is need for input from health professionals and voluntary workers, and a positive environment (including the provision of information, support, and demonstration of practical skills and locally relevant strategies in the Somali community). Hence, from this study, it is recommended that strategies that encourage women to feel confident about breastfeeding their children outside the home and aggressively promote and support appropriate breastfeeding and infant feeding practices be adopted the study area.

To support exclusive breastfeeding it is recommended that interventions be designed to take into account the important role of a mother's networks. In addition, health communication should address the wider community and not just focus on the mother when she presents herself to the clinic. Husbands and friends in particular and also neighbours, relatives and other community members all need to be informed of optimal breastfeeding practices. These networks are readily in contact with mothers in the early postpartum period and are influential.

Community ownership, empowerment and participation, sustained programmed funding are seen as essential for overcoming breastfeeding barriers in the community. There is need for behavior change strategies to improve feeding practices in the community. There is need to conduct a survey of community health workers for their knowledge and skills as well as commitment to help women in establishing and maintaining of exclusive breastfeeding and feeding practices in the community.

The results of the study are useful for health planners and NGOs for planning and designing appropriate interventions among the Somali community.

The research serves to increase the awareness among the medical community as well as other community members.

Health planners, international organizations, NGOs can use the finding of the investigation for improving status of infant feeding practices and nutritional status in the community.

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Appendix 1. Household questionnaire

QUESTIONNAIRE FOR INFANT-FEEDING PRACTICES AND NUTRITIONAL STATUS AMONG SOMALI COMMUNITY IN EASTLEIGH, NAIROBI, KENYA

Date of interview..........   Questionnaire no...   Household no.
Name of interviewer...
Name of child...............................Date of birth.........
Name of Mother............................. Clinic attended............
Location..................Sub-location..........Area...........

A. GENERAL INFORMATION, DEMOGRAPHY AND SOCIO-ECONOMIC CHARACTERISTICS.

1. Please tell me about permanent household members.

No.	1. Name.	2 Relation to h/h head.	3 Sex.	4. Age yrs/months.	5 Marital status.	6 Religion.	7 Education level.	8 Occupation.
1								
2								
3								
4								
5								
6								
7								
8								

CODE.

Relation to h/h
1. H/h head.
2. Spouse.
3. Son.
4. Daughter.
5. Brother/sister
6. Nephew/niece.
7. Other (specify)

Occupation
1. Unemployed.
2. Teacher.
3. Clerk.
4. House wife.
5. Business.
6. Driver.
7 Other (specify)

Sex
1. Male
2. Female.

Marital Status.
1. Single
2. Married.
3. Separated.
4. Widowed.
5. Divorced.

Religion
1. Muslim.
2. Christian.

Education.
1. Pre-school.
2. Lower primary
3. Upper-primary
4. Secondary.
5. Post-secondary.
6. University.
7. Not attended.
8. Not applicable.

B. PRACTICE

9. Are you breastfeeding your child?   1 Yes   2. No. (If no go to question 17)

10. When did you initiate breastfeeding?

    1. First hour after delivery. 2. First day after delivery. 3. Other (specify)...........

11. How many times do you breastfeed your child per day/night?

    1. On demand. 2. Three times. 3. Rarely. 4. Other (specify)............

12. Do you breastfeed your child when you are outside home public places?
    1. Yes.   2. No.

13. If not, why don't you breastfeed?
    1. Embarrassment. 2. There is no space. 3 No chance. 4. Other (specify)...........

14. Have you started giving your child any other food, fluid apart from breast-milk?

    1. Yes. 2. no. (if yes go to next).

15 At what age did you start giving the child something else apart from breast-milk?
    1. 1-3 months. 2. 4-6 months. 3. Other (specify)...................................

16. What was the first food/fluid given to the child?

    1. Biscuits. 2. Infant formula. 3. Other (specify)

17. [If not breastfeeding] why did you start giving other foods?

    1. Advised by friends. 2. my choice. 3. Other (specify.)...............................

18. At what age did you stop breastfeeding?
    1. Within first month after delivery 2. Within second Month after delivery.
    3. Other (specify)...

19. What was your reason for stopping breastfeeding?

1. Sickness 2. Child refused. 3. No breast secretion. 4. Other (specify)..............

20. When did you initiate breastfeeding in the past?

    1. First hour after delivery. 2. First day after delivery. 3. Other (specify)...........

21 How many times did you breastfeed your child per day night in the past?

    1. On demand. 2. 3 times. 3. Rarely. 4. Other (specify)...........

22. At what age did you start giving the child something else apart from breast-milk in the past?
    1. 1-3 months. 2. 4-6 months. 3. Other (specify).....................................

23. What food did you introduce in place of breast milk?
    1. Biscuits. 2. Infant formula. 3. Porridge. 4. Other (specify).

24. How many times is the mentioned food fluid given per day?

    1. 2 times. 2. 3 times. 3. 4 times. 4. on demand. 5. Other (specify)......

25. What was the reason for your choice?

    1. Provided by feeding programme. 2. Advised by clinic. 3. Other (specify).

26. Were you used to breastfeed when you were outside home/public places?
    1. Yes. 2. No.

27 Why didn't you breastfeed?

1. Embarrassment. 2. No appropriate place. 3. No chance 4. Other (specify).

C. KNOWLEDGE.

28 For how long should a baby be exclusively breastfed?

   1. 1-3 months. 2. 4-6 months 3. I don't know. 4. Other (specify)...............

29. Why do you say so?

   1. Clinic taught me. 2. My mother told me. 3. Imagination. 4. Other (specify).......

30. Why do you breastfeed?

   1. Balanced diet. 2. Nutritious. 3. Healthy. 4. Cheap. 5. Other (specify)...............

D. ANTHROPOMETRY

Name of the child_____

Date of birth_____ SEX_____ 1.Male   ☐

                                        2. Female.   ☐

Measurements	First Reading	Second Reading	Average
31. Weight (Kg)			
32. Height (cm)			

Appendix 2. Data analysis matrix

Objective 1. To determine the practices of exclusive breastfeeding

Indicators	Basic statistics	Advanced statistics	Software packages
	Significant test @ 95%		
Measurement			
Age	Proportions		SPSS- version 10
	Frequency		
	Range		
	Means		
	Chi-square		
	Fisher's Exact test		

Objective 2: To determine maternal knowledge on WHO recommendation on exclusive breastfeeding

Indicators	Basic statistics	Advanced statistics	Software packages
Measurement			
Knowledge score	Frequency		SPSS.
	range		
	Proportions		
	Percentages, etc.		

Objective 3. To determine the prevalence of early complementary infant feeding and associated reasons

Indicator	Basic statistics significance test a/95%	Advanced statistics	Software packages
measurement			
Complementary feeding rate (age) Reasons, e.g. Maternal sickness, pregnancy, child refusal, and etc	Proportions Frequency Range Cross-tabulation Chi-square		SPSS

Objective 4. To determine types of food used for complementary feeding

Indicator	Basic statistics significance test a/95%	Advanced statistics	Software packages
Measurement			
Type of food given to the child, e.g. Porridge, Infant formula, and etc.	Proportions Frequency Percentages Etc.		SPSS

Objective 5. To determine age at which breastfeeding is stopped and associated reasons

Indicator	Basic statistics significance test @95%	Advanced statistics	Software packages
Measurement			
Age Reasons, e g Maternal sickness, pregnancy, child refusal, etc.	Frequency Proportions Mean range		SPSS.

Objective 6. To determine breastfeeding practices outside home/public places

Indicator	Basic statistics significance test @95%	Advanced statistics	Software packages
Measurement			
Posed question like, do you breastfeed when you are in public places? Yes no	Proportions Frequency Percentages Range, etc.		SPSS.

Objective 7. To determine nutritional status of infants (0-12 months), and its association to breastfeeding practices

Indicators measurement	Basic statistics	Advanced statistics	Software packages
WHZ-score	Proportions	Log linear model	SPSS
HAZ-score	Percentages		Epi-info
WAZ-score	Frequency		Spread sheet
Frequency of breastfeeding	Chi-square		
Initiation of breastfeeding	fishers exact test		
Age of complementary feeding			