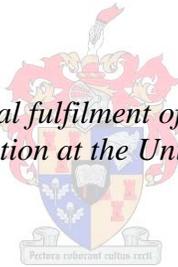


**DETERMINANTS OF INFANT AND YOUNG CHILD
FEEDING PRACTICES OF CHILDREN 0-23
MONTHS AMONG AGRO-PASTORALIST
COMMUNITIES IN EAST POKOT IN BARINGO
COUNTY, KENYA**

By
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*Thesis presented in partial fulfilment of the requirements for the
degree Master of Nutrition at the University of Stellenbosch*



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DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third-party rights, and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

Introduction: Adequate nutrition is critical to child development and survival and can be achieved by appropriate Infant Young Child Feeding (IYCF) practices. It is recommended that infants should be exclusively breastfed for the first six months of life with the introduction of appropriate and safe complementary foods at six months, and continuation of breastfeeding for up to two years of age and beyond in order to achieve optimal growth, normal development and comprehensive health. Regrettably, this period from birth to two years of age is often marked by growth faltering, nutrient deficiencies and infections due to inappropriate IYCF practices.

Aim: The aim of this study was to examine the determinants of IYCF practices of children 0-23 months among agro-pastoralist communities in East Pokot Sub-county in Baringo County, Kenya.

Methods: The study adopted a cross-sectional, analytical design. Face-to-face interviews were conducted with 302 mothers of infants 0-23 months old using researcher-administered, structured questionnaires. Information on demographic and socio-economic characteristics of households and IYCF practices were collected. Since the ages of the participating children ranged from 0-23 months and the indicators differed in months measured, the total (N and n) for each indicator-age category differed.

Results: About half (52%; n=157) of mothers-initiated breastfeeding within one hour of birth. Exclusive breastfeeding up to six months was practiced by 38.5% (n=55) and continued breastfeeding up to two years by 7.9% (n=3) of the mothers. Forty two and a half percent (42.5%; n=127) of children were given pre-lacteal feeds and 31% (n=49) were bottle fed. Almost two-thirds (60%; n=24) of the children aged six to eight months had received complementary foods at the time of study, 59.2% (n=122) attained minimum meal frequency while dietary diversity was reached by 53.3% (n=49). Twenty three percent (22.8%; n=47) of children 6-23 months of age attained the minimum acceptable diet. There was a significant relationship between demographic

(mother's age, educational level and marital status) and socio-economic characteristics (source of family income, occupation of the mother and income allocated to food) and whether the child was ever breastfed ($p=0.000$); while no significant relationship was found between timely introduction of CF and demographic and socio-economic characteristics ($p > 0.05$).

Conclusion: IYCF practices and its determinants were investigated in this study. Breastfeeding practices were found to be sub-optimal. More than half of the study population practiced appropriate complementary feeding practices. Socio-cultural determinants negatively influenced breastfeeding practices e.g. by introducing herbal concoction to infants before six months of age. Poor IYCF practices could also be attributed to demographic determinants like low level of maternal education and marital status as well as poor access to healthcare and poor physical infrastructure of the area. Targeted maternal, infant and young child health promotion programmes will be key in promoting optimal IYCF practices in East Pokot Sub-county.

OPSOMMING

Inleiding: Voldoende voeding is krities vir kinderontwikkeling en oorlewing en kan bereik word deur toepaslike Baba en Jong Kind Voeding (BJKV) praktyke. Dit word aanbeveel dat babas eksklusief geborsvoed moet word vir die eerste ses maande van lewe met die insluiting van toepaslike en veilige komplimentêre voedsel op ses maande, met volgehoue borsvoeding tot twee jaar en langer om optimale groei, normale ontwikkeling en omvattende gesondheid te bereik. Ongelukkig word die periode vanaf geboorte tot twee jaar dikwels gekenmerk deur ontoereikende groei, voedingstof-tekorte en infeksies as gevolg van ontoepaslike BJKV praktyke.

Doel: Die doel van die studie was om die oorsake van BJKV praktyke van kinders 0-23 maande in gemeenskappe wat landbou beoefen met lewende hawe in 'n dorre area, Oos-Pokot in Barongo distrik, Kenia te ondersoek.

Metodes: Die studie het 'n deursnit, analitiese ontwerp gevolg. In-persoon onderhoude was gevoer met 302 moeders met babas 0-23 maande oud met behulp van navorser-geadministreerde, gestruktureerde vraelyste. Inligting oor demografiese en sosio-ekonomiese karaktereenskappe van huishoudings en BJKV praktyke was ingesamel. Aangesien die ouderdomme van die deelnemende kinders gestrek het van 0-23 maande en die indikatore verskil het vir die maande gemeet, het die totale (N en n) vir elke ouderdom-indikator kategorie verskil.

Resultate: Meer as helfte (52%; n=157) van moeders het borsvoeding geïnisieer binne een uur na geboorte. Ekslusiewe borsvoeding tot ses maande was beoefen deur 38.8% (n=55) en volgehoue borsvoeding deur 7.9% (n=3) van die moeders. Twee en veertig en 'n half persent (42.5%; n=127) van kinders het pre-laktasie voedings ontvang en 31% (n=49) was gebottelvoed. Bykans tweederdes (60%; n=24) van die kinders ses tot agt maande oud het komplimentêre voedsel (KV) tydens die studie-periode ontvang, 59.2% (n=122) het die minimum maaltyd frekwensie bereik

en 53.3% (n=49) het dieetdiversiteit bereik. Drie en twintig persent (22.8%; n=47) van kinders 6-23 maande oud het 'n minimum aanvaarbare dieet ontvang. Daar was 'n beduidende verwantskap tussen demografiese - (moeder se ouderdom, opvoedingsvlak en huwelikstatus) en sosio-ekonomiese karaktereenskappe (bron van familie inkomste; moeder se beroep en inkomste geallokeer aan voedsel) en of die kind ooit geborsvoed was ($p=0.000$); met geen beduidende verwantskap tussen die tydige insluiting van KV en demografiese en sosio-ekonomiese karaktereenskappe nie ($p > 0.05$).

Gevolgtrekking: Die studie het BJKV praktyke en die invloede daarop ondersoek. Dit was bevind dat borsvoedingpraktyke sub-optimaal was. Meer as helfte van die studiepopulasie het toepaslike komplimentêre voedingpraktyke gevolg. Sosio-kulturele invloede het borsvoeding negatief beïnvloed, bv. die insluiting van kruie-konkoksies aan babas voor ses maande ouderdom. Swak BJKV praktyke kan ook aan demografiese oorsake gekoppel word, soos lae opvoedingsvlakke van moeders en huwelikstatus asook swak toegang tot gesondheidsorg en swak fisiese infrastruktuur van die area. Geteikende moder, baba en jong kind gesondheidsbevorderende programme sal 'n sleutel rol speel in die bevordering van optimal BJKV praktyke in Oos Pokot Sub-distrik.

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TABLE OF CONTENTS

DECLARATION	ii
Date:	ii
ABSTRACT.....	iii
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER 1	1
INTRODUCTION AND PROBLEM STATEMENT	1
1.1 INTRODUCTION.....	1
1.2 STATEMENT OF THE PROBLEM	2
1.3 SUMMARY	5
CHAPTER 2	6
LITERATURE REVIEW	6
2.1 INTRODUCTION.....	6
2.2 CURRENT GUIDANCE ON INFANT AND YOUNG CHILD FEEDING PRACTICES (IYCF)	7
2.3 THE STATUS OF OPTIMAL EARLY BREASTFEEDING PRACTICES	8
2.4 APPROPRIATE COMPLEMENTARY FEEDING PRACTICES	10
2.5 DETERMINANTS OF IYCF PRACTICES	12
2.5.1 Maternal characteristics	13
2.5.2 Household characteristics	14
2.5.3 Socio-cultural determinants.....	15
2.6 MEDIA EXPOSURE.....	16
2.7 SIGNIFICANCE OF THE STUDY	16
2.8 SUMMARY	17
CHAPTER 3	18
RESEARCH METHODOLOGY.....	18
3.1 INTRODUCTION.....	18
3.2 PURPOSE OF THE STUDY	18
3.3 OBJECTIVES OF THE STUDY	18
3.4 DELIMITATION OF THE STUDY	19
3.5 DEFINITION OF TERMS	19
3.6 RESEARCH DESIGN	20
3.7 STUDY VARIABLES	20

3.8	TARGET POPULATION	21
3.8.1	STUDY LOCATION	21
3.9	TARGET POPULATION	23
3.9.1	Inclusion criteria	23
3.9.2	Exclusion criteria.....	23
3.10	SAMPLE SIZE DETERMINATION.....	23
3.11	SAMPLING TECHNIQUES.....	24
3.12	RESEARCH INSTRUMENTS.....	28
3.12.1	Semi- Structured questionnaire.....	28
3.13	QUALITY CONTROL MEASURES EMPLOYED DURING THE STUDY	28
3.14	RECRUITMENT AND TRAINING OF RESEARCH ASSISTANTS	29
3.15	PRETEST OF THE STUDY	29
3.16	VALIDITY OF THE QUESTIONNAIRE	29
3.17	RELIABILITY OF THE QUESTIONNAIRE.	30
3.18	DATA COLLECTION TECHNIQUE.....	30
3.19	DATA ANALYSIS	31
3.20	LOGISTICAL AND ETHICAL CONSIDERATION	32
3.21	SUMMARY	32
CHAPTER 4		33
RESEARCH ANALYSES AND RESULTS.....		33
4.1	INTRODUCTION.....	33
4.2	DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS	33
4.2.1	Maternal demographic characteristics	33
4.2.2	Household size.....	35
4.3	SOCIO-ECONOMIC CHARACTERISTICS	35
4.3.1	Source of family income.....	35
4.3.2	Occupation of the mother	35
4.3.3	Household income allocated to food	36
4.4	CHARACTERISTICS OF SURVEYED CHILDREN.....	37
4.4.1	Child age and sex.....	37
4.5	INFANT AND YOUNG CHILD FEEDING PRACTICES AMONG CHILDREN 0-23 MONTHS IN AGRO-PASTORAL COMMUNITIES	38
4.5.1	Breastfeeding practices	38
4.5.2	Frequency of pre-lacteal feeds given	39
4.5.3	Bottle feeding rates	40
4.6	COMPLEMENTARY FEEDING PRACTICES.....	40
4.6.1	Timely introduction of complementary foods	40
4.6.2	Minimum meal frequency.....	41
4.6.3	Minimum dietary diversity of studied children	41
4.6.4	Minimum acceptable diet.....	42

4.7	DETERMINANTS ASSOCIATED WITH INFANT YOUNG CHILD FEEDING PRACTICES	43
4.8	DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS AND MINIMUM DIETARY DIVERSITY, MEAL FREQUENCY, MINIMUM ACCEPTABLE DIET	45
4.9	MORBIDITY DETERMINANTS	46
4.10	MEDIA EXPOSURE AND INFLUENCE ON IYCF PRACTICES	47
4.11	SUMMARY	48
CHAPTER 5		49
DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.....		49
5.1	INTRODUCTION.....	49
5.2	DISCUSSION OF FINDINGS	49
5.2.1	Breastfeeding practices	49
5.2.2	Complementary feeding practices.....	51
5.2.3	Determinants associated with IYCF practices	52
5.3	STUDY LIMITATIONS.....	55
5.4	CONCLUSIONS AND RECOMMENDATIONS	55
5.4.1	Conclusions.....	55
5.4.2	Recommendations.....	57
5.5	SUMMARY OF FINDINGS	58
REFERENCE.....		60
APPENDICES		67
7.1	APPENDIX 1: QUESTIONNAIRE	67
7.2	APPENDIX 2: PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM (ENGLISH) ...	77
7.3	APPENDIX 3 STELLENBOSCH UNIVERSITY AUTHORIZATION LETTER.....	82
7.4	APPENDIX 4: COUNTY PERMISSION LETTER	83

LIST OF TABLES

Table 3. 1 IYCF Indicators (Source: WHO, 2008).....	26
Table 4. 1 Demographic characteristics of the mothers.....	34
Table 4. 2 Socio-economic characteristics -Source of family income and occupation of the mother.	36
Table 4. 3 Distribution of children by age and gender (N = 302).....	38
Table 4. 4 Breastfeeding practices in East Pokot.....	39
Table 4. 5 Pre-lacteal feeds given to infants (n = 127)	40
Table 4. 6 Complementary feeding practices	43
Table 4. 7 Relationship between demographic and socio-economic characteristics and IYCF practices	46
Table 4. 8 Relationship between morbidity and IYCF practices	47

LIST OF FIGURES

Figure 2. 1 The malnutrition poverty cycle.	7
Figure 3. 1 A map of East Pokot Sub-county Source: NDMA drought bulletin, 2014	22
Figure 4. 1 Socio-economic characteristics - household income allocated to food.....	37
Figure 4. 2 Food groups consumed by children aged 6-23 months, based on 24-hour recall	42

LIST OF ABBREVIATIONS AND ACRONYMS

BFHI	Baby Friendly Hospital Initiative
BFCI	Baby Friendly Community Initiative
CF	Complementary feeding
C4D	Communication for Development
EBF	Exclusive breastfeeding
FAO	Food and Agriculture Organization
IYCF	Infant and Young Child Feeding
KAP	Knowledge, Attitudes and Practices
KDHS	Kenya Demographic and Health Study
MCDP	Most Critical Days Programme
MDG	Millennium Development Goals
MIYCN	Maternal Infant and Young Child Nutrition
PAHO	Pan-American Health Organization
SBCC	Social behaviour Change Communication
SDG	Sustainable Development Goals
UNAIDS	United Nations Programme on HIV and AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organization

CHAPTER 1

INTRODUCTION AND PROBLEM STATEMENT

1.1 Introduction

Optimal breastfeeding practices involve immediate initiation of breastfeeding within one hour of birth, exclusive breastfeeding through 0-6 months, followed by continued breastfeeding for 24 months of age and beyond. The above should be coupled with timely introduction of appropriate complementary foods at six months of age, frequent feeding of solid and semi-solid foods, and diverse varieties of food groups fed to children between 6 and 23 months of age.¹ These recommendations for optimal Infant and Young Child Feeding (IYCF) have been proven to support ideal growth, health and development.²

The nutritional status of children below two years of age is very sensitive to appropriate IYCF practices, which in turn ultimately influences the child's future growth trajectory. Improving IYCF practices in children 0–23 months of age is paramount in enhancing nutrition, health and growth of children. Studies have shown that optimal breastfeeding improves brain development and enhances immunity, thus preventing almost one fifth of deaths of children under five years of age.³ However, indicators that can be used to measure IYCF practices have focused mostly on breastfeeding practices. The tardiness in the development of simple indicators for appropriate complementary feeding practices in children 6–23 months of age has hindered advancement in assessing feeding practices, thereby contributing to slow improvements in infant and young child nutritional outcomes.⁴

Only about 40% of infants in low income countries are breastfed exclusively for the initial 6 months of life. Additionally, two thirds of infants up to 12 months receive any breast milk.⁵

Various determinants associated with sub-optimal breastfeeding and complementary feeding practices have been identified in various situations by studies across the divide. They include maternal/caregiver characteristics such as marital status, age of the mother when they had their first child, mothers work status, and mothers/caregiver's education level attained,⁶ antenatal hospital visits and level of maternity health care;⁷ health education and sensitization that the mother/caregiver has received, and the mothers/caregivers' media exposure. The household's socio-economic status and geographical area of residence have also been reported to influence IYCF practices. On the other hand, the child's characteristics include: the weight of the infant at birth, maternal method of delivery and birth order of the index child, further influence IYCF practises.⁶

1.2 Statement of the problem

In low and middle-income countries, more than one-third of the morbidity burden occurs mostly from maternal and child undernutrition. Various studies report that growth faltering arises rapidly in infants, hence confirms the importance of nutrition during the first two years of life to ensure optimal growth and proper development for children.⁸

In poor social economic areas, children may not receive complementary foods at the right age (often either too early or too late). The frequency of feeds during the day are normally not enough, or inadequate quality of foods are offered to the children.⁹ The nutritional adequacy of complementary foods is therefore crucial in the prevention of infant mortality and morbidity, including underweight, macro- and micronutrient deficiencies and overweight.¹⁰

In Kenya, the childhood mortality rate according to Kenya Demographic Health Survey (KDHS)2015, decreased to 39 deaths per 1,000 infants born alive, compared to the prior KDHS 2010`s level of under-five mortality record of 52 deaths per 1,000 births. This implies that at least, one in every 19 children born in Kenya during that period died before reaching their fifth birthday.¹¹

East Pokot is the only Sub-county in Baringo that lies in the cattle-rustling corridor between Baringo County, Samburu County and Turkana County, a factor that makes the area prone to regular banditry and communal conflict. In addition to experiencing perennial drought and famine, the local communities always live in constant fear of brutal attacks from armed bandits who want to steal their animals. When such attacks happen, they leave many children orphaned and homeless, a factor that seriously complicates the IYCF practices of the local community.¹²

East Pokot is also disadvantaged in terms of climate since it is the most arid region of Baringo County. A Standardized Monitoring and Assessment of Relief and Transitions (SMART) survey carried out in January 2017 by Word Vision, exhibited that the General Acute Malnutrition (GAM) rates were at 23.3%, and during a repeat SMART survey in July 2017, it recorded GAM rates of 25%. There were other causal factors also reported, including declining pasture lands, and constant tribal wars and conflicts in the Sub-county. In another view, East Pokot Sub-county has been classified as a Sub-county that receives one of the poorest rainfalls in the last two long and short rain assessments by Kenya Food Security Steering Group (KFSSG).¹³ A close monitoring of Baringo county, through active case finding, mass screening, as well as health and nutrition community outreaches combined with the administering of MOH health and nutrition services especially in East Pokot Sub-county, is pragmatic. However, there is a scantiness of data on IYCF practices in agro-pastoral communities in Kenya, since few studies have focused on such areas.

The study reported here covered East Pokot Sub-county in Baringo County. Although there is nationwide data on IYCF practices, including Baringo county, specific IYCF data for East Pokot is scarce on existing literature. Therefore, data from such agro-pastoral areas is not comprehensive and thereby resulted to dearth of robust data on IYCF practices in agro-pastoral areas. Despite that, this study is deemed important to contribute to the scientific knowledge on IYCF in East Pokot Sub-county.

The majority of nutrition studies that have been carried out in sub-Saharan Africa have targeted children under five years of age ,with the aim of measuring malnutrition, morbidity and mortality levels in emergency situations. There is however limited context specific information on the determinants' of IYCF practices in agro-pastoral communities like East Pokot hence the need for this study.

This thesis contains structured chapters, commencing with a short introduction in Chapter 1 and followed by a literature review in Chapter 2. The study methodology is described in Chapter 3 and the results are reported in Chapter 4. In Chapter 5, the findings of the study are discussed in the context of relevant literature, the thesis is concluded, and recommendations are made for future research.

1.3 Summary

This chapter provided an introductory view on some background issues associated with breastfeeding and complimentary feeding practices of infants between the ages 0-36 months. The chapter also contextualized the research problem in relation to East Pokot Sub-county of Kenya. The next chapter, (chapter 2) will review and synthesize relevant literature.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on a broad review of some relevant and related literature that are meant to aid understanding of various concepts or topical issues already explained and those to be added in a study. Based on the above, the researcher explored existing literature and generated new ideas or concepts as well in the course of this research which were both synthesized principally in this chapter.

To start with, the effects of malnutrition in children can be severe and life-threatening (Figure 2.1). It predisposes children to disease and increases the chances of dying from common conditions such as pneumonia and diarrhoea. It is estimated that around half of child deaths are related to hunger.¹⁴ Apart from the physical consequences of malnutrition, children who do not have access to enough nutritious food are also unable to reach their full potential mentally, and thereby contributes to their poor academic performances compared to their well-fed colleagues. In the long run, their potential to financially support themselves and their families as adults could diminish significantly. Such cycle of poverty and malnutrition may also impact their next generation where stunted mothers are far more likely to have low birthweight children.² Based on the above explications, undernutrition is therefore not only a key physical manifestation of poverty but is also a mechanism by which poverty and its consequences are transmitted from one generation to the next.¹⁵

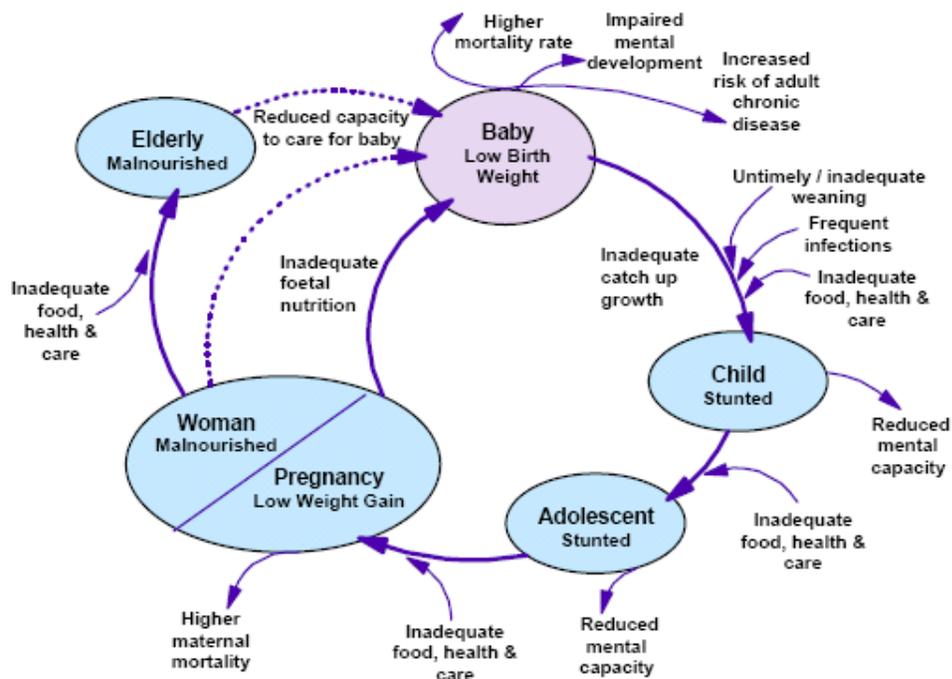


Figure 2. 1The malnutrition poverty cycle. ¹⁶

Source: ACC/SCN, 2000.

2.2 Current guidance on Infant and Young Child Feeding practices (IYCF)

It is acclaimed that children should be exclusively breastfed during the first 6 months of life and that children be given timely solid or semi-solid complementary food in addition to continued breastfeeding until 24 months or more.

Exclusive breastfeeding (EBF) is recommended because breastmilk contains all the nutrients necessary for children to grow and develop in the first few months of life. In addition, the mother's antibodies in breastmilk provide immunity to disease. Early supplementation with other fluids and foods is discouraged for several reasons. Firstly, it exposes infants to pathogens and increases their

risk of infection. Secondly, it decreases infants' intake of breastmilk that is suckling, which reduces breastmilk production. Thirdly, in poor areas, supplementary food is often nutritionally inferior to breastmilk, which can lead to poor growth. Following the EBF period, infants should be introduced to nutritionally adequate and safe complementary foods with continued breastfeeding for up to two years or beyond.¹⁷

2.3 The status of optimal early breastfeeding practices

Optimal early breastfeeding practices include:

- initiating breastfeeding within 30 minutes to an hour after delivery;
- giving colostrum (the thick yellowish secretion from the breast within the first three days of the infant's life after birth)
- not giving pre-lacteal feeds (solids or liquids given to a new born infant before initiation of breastfeeding hence before colostrum, for instance milk, black tea honey, sugar water or herbal concoctions)
- not giving post-lacteal feeds (solids or liquids given to a new born after initiation of breastfeeding, just 3 days after delivery).¹⁸

Importantly, early initiation of breastfeeding is encouraged for several reasons. The first reason is associated with mothers who benefit from putting an infant to the breast immediately because it stimulates breastmilk production and facilitates the oxytocin secretion that aids the uterus contraction process and reduces postpartum blood loss. The second reason is that, the first breastmilk contains thick colostrum which is optimally nutritious and contains disease fighting

antibodies that protect the new-born from diseases and strengthens the immune system, thus reducing risk of neonatal deaths.^{19,20}

A study done in Pakistan reported that 48.8% of infants are breastfed within one hour of birth. In other areas like West and Central Africa, it was at 40%; while South Asia recorded 42%, East Asia and Pacific had 44% of breastfeeding initiated within an hour of delivery.²¹ In Kenya, the rate at which infants are being breastfed within the first hour after birth is 62% according to KDHS 2015.¹² In Baringo County, an assessment carried out by MIYCN Knowledge Attitudes and Practices (KAP) and Communication For Development (C4D) in 2015 showed that the rate of early initiation of breastfeeding was at 86.7%. There is limited data for East Pokot, therefore, this study is aimed at filling part of this knowledge gap.

In relation to the above, the findings of a study done by Adugna in 2014 in Southern Ethiopia reported that, due to cultural belief and traditions, women perceived that giving pre-lacteal and post-lacteal feeds were a means of “cleaning the babies stomach” and they believed that milk comes out only on the second or third day of delivery. Hence, the newborn infants missed out of being given colostrum.²² In a neighboring West Pokot County, the recent “2017 MIYCN Knowledge Attitudes and Practices and Communication for Development” assessment found that 18.3% of infants were given pre-lacteal feeds. The assessment further revealed during their focus group discussions the reason why this is done is due to cultural practices. The following responses were provided: “Herbs during the first day after birth”; “Honey given before initiating breastfeeding so that the mouth of the baby does not close”; “When a child is born we give the baby warm water before breast feeding to clean the child’s throat and the stomach”. This observation is similar to that of Adugna’s study in Southern Ethiopia.²²

In the meantime, exclusive breastfeeding, according to WHO, means that the infant consumes only breastmilk and no other liquids, milks or solid foods except prescribed medicines or vitamins for the first 6 months of life.²³ Children who are not breastfed exclusively therefore stand the risk of have recurring infections, experience poor growth, and are almost six times more likely to die by the age of one month than children who receive at least some breastmilk.²⁴

Exclusive breastfeeding rates in Kenya from KDHS 2015, were reported to be 61%. Also, 10% of children under age 6 months were given water, and another 10% were given other milks, and 15% were given complementary foods respectively.¹² It was documented that one in 10 babies less than two months old were supplemented with either water or thin porridge or other milks. Furthermore, 36% of those below six months of age were given feeds other than breastmilk, including mashed or semi-solid feeds.²⁵

2.4 Appropriate complementary feeding practices

The practice of complementary feeding is not a myth but a reality. Complementary food (CF) is any food other than breastmilk and given in the complementary feeding period. Despite ongoing debates,²⁶ the recommendations that stand steadfast is that complementary food should be introduced as solid, semi-solid or soft foods at 6th month of age with continued breastfeeding up to 2 years of age and beyond.^{27,28}

Based on the above, the incidence of malnutrition rises sharply after 6 months of age in most countries, and the deficiencies acquired at this age are difficult to balance later in childhood since they are mostly irreversible after 2 years of age.²⁹ Meeting minimum standards of dietary quality thereby becomes a challenge in many developing countries, especially in areas where household

food security is poor. According to 2012 mid-year review of Kenya Emergency Humanitarian Response Plan, Baringo County is generally considered a resource poor setting, which occasionally poses a threat to food insecurity.

In another instance, too early introduction of complementary foods reduces the duration of breastfeeding, hampers the uptake of important nutrients found in breastmilk, such as zinc³⁰ and iron,³¹ and reduces the effectiveness of preventing a following pregnancy, through the lactation amenorrhea method (LAM) provided by exclusive breastfeeding.³² Late introduction of complementary foods is similarly harmful, because infant growth could be hampered and the risk of undernutrition and micronutrient deficiency increases.³³

The appropriate number of feeds during CF depends on the energy density of the local foods and amounts consumed at each feeding.³⁴ For a typical healthy child, complementary meals should be given 2-3 times per day at 6-8 months of age; 3-4 times per day at 9-11 and more than 4 times a day at 12-24 months of age.³⁵

As described in the aforementioned paragraphs, the type of food (“what”) and the time of feeding (“when”) are important factors to consider. Of equal importance is the manner, where and by whom the child is fed.³² This is referred to as “responsive feeding”, a term that calls attention to signs of hunger and satiety to avoid underfeeding and over feeding. Responsive feeding therefore refers to a reciprocal relationship between an infant or child and his or her caregiver. This relationship is characterized by the child communicating feelings of hunger and satiety through clues, both verbal and non-verbal, followed by an appropriate and supportive response from the caregiver. Literature shows that responsive feeding is the foundation for the development of healthy eating behavior and optimal skills for self-regulation of food intake.^{36,37,38,39}

Hygiene practices during preparation, feeding and storage of complementary foods are also key in IYCF since contaminated complementary foods are the main path of transmission of pathogens causing diarrhoea and other food-borne illnesses like salmonellosis and campylobacter among infants.⁴⁰

2.5 Determinants of IYCF practices

It is important to know the determinants associated with suboptimal feeding behaviors, since it is crucial for planning and implementing sustainable nutrition interventions and to appraise policies of any region. It is recognized that access to healthy food and good nutrition for children is influenced by various determinants. These determinants include cultural, social and demographic elements, such as household size, dependency ratio, environmental, historical and economic factors such as occupation, household income and education.⁴¹ Some studies have researched the determinants of IYCF practices in developing countries. Maternal issues such as education, information and work status are some of the determinants of feeding practices documented across countries. In Uganda, studies showed that educated caregivers were more probable to practice optimal infant and young child feeding practices with regards to optimal breastfeeding practices, minimum meal frequency, dietary diversity, minimum acceptable diet and iron-rich food consumption.⁴² Studies on determinants of IYCF from Nepal⁴³ and Bangladesh⁴⁴ found identical results that showed uneducated women as those who were less likely to meet the recommendations for complementary feeding.

In India and Pakistan, studies have shown that children in the underprivileged households, especially the economically compromised, were more likely to practice premature introduction

to complementary foods.⁴⁴ Similar findings were described by using pooled data from East Africa.⁴⁵ It was also established that household aspects were also found to be influencers of IYCF. For example, children living in families that grew fruits and vegetables and owned livestock had higher dietary diversity scores in Gorche district in Southern Ethiopia.⁴⁵

Three prominent determinants of IYCF, namely: maternal characteristics, household characteristics, and socio-cultural aspects will be discussed in more detail in the sections that follow.

2.5.1 Maternal characteristics

The following maternal characteristics: maternal age, age at first pregnancy, maternal level of education,^{46,47} maternal IYCF and nutrition knowledge, maternal employment status, maternal nutritional status, place of delivery, mode of delivery and household wealth status have been found to influence appropriate IYCF practices.⁴⁸ Maternal nutrition and health significantly affect child nutritional status. A woman's poor nutritional status for instance can lead to low birth weight and continued undernutrition of her children. Moreover, maternal undernutrition increases the risk of maternal death during childbirth and also neonatal deaths.⁴³ Suboptimal IYCF practices are the main cause of faltering growth and undernutrition in children younger than 2 years old.⁴⁹ Evidence also proposes that maternal education is connected to timely introduction of complementary feeding, dietary diversity as well as meal frequency, and the consumption of a minimum acceptable diet.⁵⁰ Additionally, exposure to mass media, maternal age, and the attendance of antenatal and postnatal appointments are linked to improved complementary feeding practices.⁵¹

Studies and assessments that have been carried out in different developing countries substantiate a positive association between maternal education and optimal IYFC practices in children 6–23 months old, and that it also has a strong link with household wealth status.⁵² Evidence shows further that improving maternal knowledge leads to improved child feeding practices which in turn lead to improved dietary intake and growth of infants. Additionally, a number of studies and analysis have found a major association between low maternal literacy and poor nutritional status of young children.⁵³ Other documented maternal factors that influence IYCF include: place of delivery, mode of delivery,⁴⁵ and mother's marital status. These factors were found to be determinants of delays in initiation of breastfeeding within the first hour after birth.⁵⁴

2.5.2 Household characteristics

This is another significant determinant of IYCF practices. Household characteristics like household composition and educational attainment of household members (child's father living in the household, presence of child's grandmother in household, being in a nuclear family) have an influence on childcare, and consequently infant feeding practices. However characteristics such as clean water which is associated with morbidity were not investigated in this study, Clean water and refrigeration was not assessed in the study since East Pokot Sub-county is a typical rural area where electricity, piped water and even road network in most areas is not available hence the mention of poor infrastructure in the area. None of the populations interviewed owned a fridge, this was known beforehand hence not included in the study Studies have reported household wealth ranking and geographical positioning of the area often have substantial effects on infant feeding. These effects are both positive and negative. In a study in Tanzania for example, mothers

from rich households were found to have a higher prevalence of early initiation of breastfeeding than those from poorer households.^{55,56,57}

2.5.3 Socio-cultural determinants

Breastfeeding is traditionally viewed as central in maintaining and sustaining child development and wellbeing.⁵⁸ In MIYCN Knowledge Attitudes and Practices and Communication for Development assessments; socio-cultural norms and beliefs have been cited as having a major influence on IYCF practices. In addition, socio-cultural norms have been found to be barriers of proper IYCF practices. These beliefs influence caregiver practices which affect IYCF practices. Some of the beliefs are that: “colostrum is dirty”, “colostrum is yellow because it has been in the breast for too long and has gone bad”, “most women cannot produce enough milk, and therefore need to feed the baby other foods/milk”, “babies need to receive traditional teas and medicines”, “every baby needs water since they are thirsty”.⁵⁹

A study done in Asia among a Tibetan community found that women threw out colostrum for its yellowish color until it was white since they perceived it as bad. While 65% of mothers viewed concurrent lactation and pregnancy as harmful to a breastfeeding child; 19% of them considered it beneficial, and the rest (16%) did not express any opinion.⁶⁰ Relatedly to the above, in a semi-pastoral community in Tanzania, a study of feeding practices showed that women gave new-born babies warm water every day from the day after birth. The principal reason provided was that it “opens the baby’s stomach” and they usually give water until 3 to 4 months after birth.³⁸

To shed more light on these findings, the proposed study covered East Pokot Sub-county in Baringo County. For clarity, East Pokot Sub-county is characterized by low literacy levels, which

has led to poor health seeking behaviors, cultural practices and beliefs and skewed allocation of resources in the past.^{61,11}

2.6 Media exposure

A Vietnamese study showed that exposure to mass media was associated with better knowledge, intention, beliefs and social norms about EBF. The improved psychosocial factors, in turn, were associated with increased EBF practice.⁶² An intervention study carried out in Bangladesh found that there was improvement of IYCF knowledge and practices which could be attributed to mass media exposure of targeted television programmes with IYCF messages. The study suggested that mass media has the potential to improve knowledge and practices of mothers in relation to IYCF.⁶³

In summary it can be said that widespread scientific research has shown beyond reasonable doubt that poor breastfeeding and complementary feeding practices expose children to morbidity, malnutrition and even death. With this backdrop, the need to establish comprehensive data on IYCF practices for East Pokot was identified in order to support evidence-based programming by the implementing parties; be it the government or other civil society organizations serving the community.

2.7 Significance of the study

The necessity of this study could not be over-emphasized. This research principally aimed to generate information that could assist decision makers in improving child nutrition and care practices in East Pokot Sub-county. Findings from the study could be used to strengthen

programmes and strategies currently addressing infant and young child nutrition (IYCN) with a view to improving IYCF practices among the communities of East Pokot and other similar agro-pastoralist communities.

This study will also contribute context specific knowledge to on-going research efforts on IYCF practices. The findings may be used to guide policy makers in the government and Ministry of Health to improve nutrition and service delivery so that it may benefit the community at large. It could also provide data to all actors and stakeholders to design interventions that can enhance the impact of appropriate IYCF practices.

2.8 Summary

This chapter offered some detailed explanations on various themes and topics which are pertinent to the understanding of this study. Various determinants of IYCF have been documented in different settings. Maternal determinants such as maternal age, level of education and marital status are some of the compounding factors that influence optimal IYCF practices. Household determinants, like wealth, as well as socio-cultural determinants also influence optimal IYCF practices. Media exposure was also found in some areas to positively affect IYCF practices. A review of the literature revealed that there are significant gaps in information on the factors associated with determinants of IYCF in agro-pastoral East Pokot Sub-county. Therefore the need was identified to investigate the determinants of IYCF in agro-pastoral communities in East Pokot Sub-county.

The next chapter concentrates on the methodological approaches used in this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Chapter 1 of this research focused on the general background and key statements of the research problem, while chapter 2 provided a detailed discussion of relevant literature. Chapter 3 is structured to capture thorough explanations of research methodology with its systematic procedures that were employed in this study.

3.2 Purpose of the study

The study aimed to establish the determinants of IYCF practices of children 0-23 months of age among agro-pastoralist communities of East Pokot Sub-county in Baringo County, Kenya.

3.3 Objectives of the study

1. To establish the household demographic, socio-economic and socio-cultural characteristics of caregivers /mothers of children aged 0-23 months of age in East Pokot Sub-county, Baringo County, Kenya
2. To assess infant young child feeding practices among children 0-23 months in agro-pastoral communities within East Pokot Sub-county.
3. To establish relationships between demographic, socio-economic characteristics of the caregivers, infant and young child feeding practices among children 0-23 months in agro-pastoral communities within East Pokot Sub-county

3.4 Delimitation of the study

The study was carried out among mothers of children aged 0-23 months in the agro-pastoral community of East Pokot Sub-county in Baringo County, Kenya. Thus, the research findings are applicable to the area and possibly other areas with similar characteristics.

During the data collection period, there was political unrest from a contentious election in the country, hence, there was tension while data collection was going on.

3.5 Definitions of terms

Exclusive breastfeeding was used in the study to describe an infant who received breast milk only for the first 6 months of its life. Oral rehydration solution (ORS), drops, syrups (vitamins, minerals, medicines) were not considered in the study.⁶⁴

Timely initiation of breastfeeding was used to describe the percentage of infants who were put to the breast within one hour of birth after birth.¹⁴

Minimum dietary diversity was used as a measure of the percentage of children 6–23 months of age who received foods from 4 or more food groups out of the 7 food groups sources such as: 1) grains, roots, and tubers, 2) legumes and nuts, 3) dairy products, 4) flesh foods, 5) eggs, 6) Vitamin A-rich foods, and 7) other fruits and vegetables recommended for this age group.¹⁴

Minimum meal frequency denoted the percentage of children 6–23 months of age who received solid, semi-solid, or soft foods and the minimum number of times they are fed per day and the

proportion of non-breastfed children 6–23 months of age who received solid, semi-solid or soft foods or milk feeds the minimum number of times or more.¹⁴

Minimum acceptable diet was the proportion of children 6–23 months of age who received a minimum acceptable diet and the proportion of non-breastfed children 6–23 months of age who received at least 2 milk feedings and had at least the minimum dietary diversity not including milk feeds and the minimum meal frequency during the previous day before the survey.¹⁴

Mixed feeding was defined as baby being fed on both breast milk and breast milk substitutes during the first 6 months of life.⁶⁵

Caregivers/mothers was used interchangeably. When there was reference to exclusive breastfeeding, the word “mother” was used. Where other feeding information was concerned, and the caregiver was interviewed, the word “caregiver” was used in the study.

3.6 Research design

The study adopted a cross-sectional, analytical design to establish the determinants of infant and young child feeding practices of children 0-23 months among agro-pastoralist communities in East Pokot Sub-county in Baringo County.

3.7 Study variables

Dependent variable: infant and young child feeding practices specifically breastfeeding practices; early initiation of breastfeeding, whether pre-lacteal feeds were given, EBF and bottle feeding.

Complementary feeding practices; introduction of solid, semi-solid foods and soft foods; dietary diversity; meal frequency and minimum acceptable diet.

Independent variables: the determinants of IYCF practices: maternal/caregivers' demographic characteristics and socio-economic and cultural characteristics influence on IYCF practices

3.8 Target population

The target population was agro-pastoralist mothers/caregivers and their children 0-23 months living in East Pokot Sub-county of Baringo county

3.8.1 Study location

Baringo County is one of the 47 counties in Kenya. The county borders Nakuru County to the South, Laikipia and Samburu to the East, Turkana County to the North and Elgeyo Marakwet and West Pokot to the West. The county is divided into six sub-counties, that is, Baringo South (Marigat), Mogotio, Koibatek, Baringo North, Baringo Central and East Pokot (Figure 3.1). The

county covers an area of 11,015 km² with an estimated population of 609,910 persons.⁶⁶

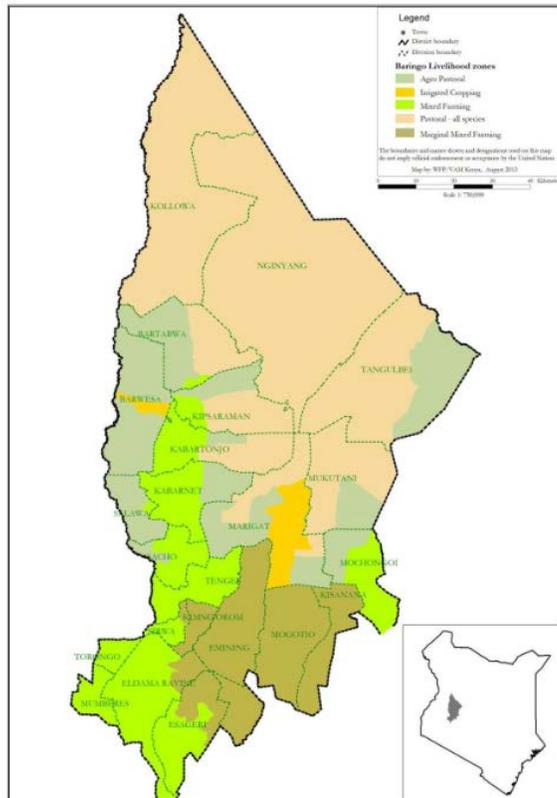


Figure 3. 1 A map of East Pokot Sub-county Source: NDMA drought bulletin, 2014

East Pokot is mostly a mountainous area with many crisscrossing rivers; the main ones being the Nginyang, the Amayian, and the Kerio. The terrain is rough, characterized by harsh, semi-arid climatic conditions, remoteness, and poor road infrastructure. Generally, the people of East Pokot are mostly agro-pastoralists whose livelihoods depend predominantly on their livestock. Prior to the recent rains, rain had not been experienced in the region for the past two years. That led to water scarcity across the district, loss of livestock, and very low milk production from the remaining livestock.

3.9 Target population

The target population was agro-pastoralist mothers/caregivers and their children 0-23 months living in East Pokot Sub-county of Baringo County.

3.9.1 Inclusion criteria

Mothers/caregivers of children 0-23 months and their children who had been residents of East Pokot Sub-county in Baringo County for more than three months prior to the data collection period of the study were eligible for inclusion in the study. However, only those who gave their consent to participate in the study were finally included.

3.9.2 Exclusion criteria

Mothers with children 0 - 23 months old not willing to participate in the study were excluded. Also, children with special medical needs and conditions (e.g. cerebral palsy, congenital disorders) were excluded since their IYCF practices are compromised, and they might require therapeutic interventions.

3.10 Sample size determination

The sample size targeted 307, 0-23months old children as calculated using a formula by Cochran.⁶⁷

$$n = Z^2 p q \div d^2$$

n = the desired sample size

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

P = 0.26 the estimated prevalence of stunting adopted from Kenya Demographic and Health Survey 2015¹⁴

q = 1-p (1-26)

e = desired level of precision (0.05)

$n = (1.96)^2(0.26)(0.73) \div (0.05)^2$

n=292

The sample size was inflated by 5% to cater for non-response; this equated 15.n=(292+15)

n =307

However, during data collection only 302 children were interviewed and included in the study due to non-response during data collection.

3.11 Sampling techniques

The Cochran formula was used to determine the sample sizes for calculating the WHO IYCF indicators. Exclusive breastfeeding practices (for children below 6 months), introduction of complementary feeding for infants aged 6-8 months and complementary feeding practices for ages 6-23 months with continued breastfeeding (for children between 6-23 months) were assessed using the IYCF core indicators. The indicators include; rates of exclusive breastfeeding, and timely

initiation of breastfeeding, minimum dietary diversity and minimum meal frequency which when entered to the calculator yielded the minimum size of sample (Table 3.1).

Table 3. 1 IYCF Indicators (Source: WHO, 2008)

Indicator	Inclusion criteria	Description of the variable
Children ever breastfed	<24 months	% ever breastfed
Timely initiation of breastfeeding	<24 months	% put to breast within one hour of birth
Exclusive breast-feeding rates	0-5 months	% of infants who received breast milk only for the first 6 months of their life
Infant given pre-lacteal feeds	0-3 days	% of infants that were given anything else before breastfeeding was initiated
Timely introduction of complementary foods	6-8 months	% who received solid, semi-solid or soft foods during the previous day. The child can drink breast milk and any food or liquid including non-human milk and formula.
Continued breastfeeding at 1 year	0-11 months	% fed with breastmilk the previous day
Children breastfeeding at 2 years	20-23 months	% fed with breast milk the previous day
Minimum dietary diversity	6-23 months	% Receiving food from at least 4 food groups the previous day or night preceding the study
		Grains, roots and tubers
		Legumes and nuts
		Dairy products (milk, yogurt, cheese)
		Flesh foods (meat, fish, poultry and liver/organ meats)
		Eggs
		Vitamin A rich fruits and vegetables
Minimum meal frequency	6-23 months breastfed and non-breastfed children	% Receiving complementary foods, the minimum of times or more than the previous day
	Breastfed children aged 6-8 months	At least 2 meals a day
	Breastfed children aged 9-23 months	At least 3 meals a day
	Non-breastfed 6-23 months	At least 4 meals a day
Minimum Acceptable Diet		% of Breastfed children – minimum dietary diversity and minimum meal frequency as above.

		% of Non-breastfed children – minimum dietary diversity but excluding the dairy products category (4 out of 6 groups) and minimum meal frequency and 2 or more milk feeds.
Bottle feeding	0-23 months	% fed with a bottle the previous day
Age-appropriate feeding	0-23 months	% appropriately breastfed the previous day
	0-5 months	% exclusively breastfed
	6-23 months	% Given complementary foods

The study participants were sampled through a multistage sampling technique. The hospitals with maternity units in East Pokot district were visited to establish a register of the number, names and contact details of reported births of children over the previous 2 years (i.e. children aged 0-23 months born in the public and private hospital during the time of data collection). The researcher also visited the chief's office to establish the births that were not reported. The compiled list was not ordered in any way to prevent any bias in the selection. Calculation of sampling interval was done by selecting a random number between 1 and 5. A count from the top of the list down to the first randomly selected number was done. That child was the first child. For selection of the second child, the number of the first child on the list was taken and the sampling interval number was added. This process was repeated until the study population size of 307 was achieved. Therefore, every mother was sampled into the study if she met the inclusion criteria and provided consent. This was done until the intended sample size of mothers with infants aged 0-23 months was achieved.

3.12 Research instruments

3.12.1 Semi- Structured questionnaire

Data collection was collected using a researcher-administered semi-structured questionnaire as the main data collection tool. The questionnaire was adapted from a validated Kenyan Knowledge Attitude and Practices Study tool (KAP) that was adapted from the WHO and standardized as per the Kenyan context.⁶⁸ The questionnaire was expanded with some additional questions on media exposure by the researcher and thus finally adopted to collect data on current infant and young child feeding practices.

The questionnaire therefore captured the following information: (1) Household level characteristics; (2) Maternal characteristics. The questionnaire was also used to collect data on infant and young child feeding practices. Analysis of the data provided information on the determinants by looking at social-demographic data supplied by mothers and then drawing associations between these and poor/optimal infant feeding practices.

3.13 Quality control measures employed during the study

Research assistants were recruited from the study area. The administration authorities were briefed and made aware of our presence in the community. The health centers are usually in market centers, which are very safe as there are no grazing points for rustlers. All markets had law enforcement stationed there. The researcher randomly selected households and visited several households every day while the data collection was going on, to certify that the appropriate data collection procedures were adhered to. The researcher thoroughly checked the research assistants' methods used in administering the questionnaire to the mothers/caregivers to ensure accuracy of

asking questions consistently was followed. The researcher went through all the questionnaires that had been filled during the day for to ensure accuracy, quality and completeness.

3.14 Recruitment and training of research assistants

Four research assistants were recruited to assist with data collection. They had attained the Kenya Certificate of Secondary Education fluent in Kiswahili and English languages. They also understand the local dialects- Kalenjin and/or Pokot. The researcher trained the research assistants over a period of three days in East Pokot rural town where the study was later carried out. The training entailed the use of discussions, role plays and mock interviews with the help of training aids. It also involved rigorous guidance on questionnaire administration.

3.15 Pretest of the study

To assess the accuracy or otherwise of questionnaire in terms of its completion time ,content, wording and language level, the study tools were pretested prior to the main study. It was administered in the same area on 10 children. The mothers were randomly selected from the list of the mothers who gave birth within the 23 months' research period; and they were excluded from the main research study.

3.16 Validity of the questionnaire

All steps of the research process were strictly followed to check for internal validity. To ensure validity of the instruments, the researcher ensured that the questions were framed without

ambiguity. The questionnaire was revised and improved according to the supervisors' advice and suggestions.³⁰

3.17 Reliability of the questionnaire.

A pretest was done to check the reliability of the questionnaire. The questionnaire was administered to mothers of 10 children in the same area. The mothers were randomly selected from the list of the mothers who gave birth within the 23 months' research period and they were not included in the study population. The pre-test subjects were allowed to make comments and give suggestions concerning the questionnaire.

3.18 Data collection technique

Mothers were interviewed in their respective households according to the randomly selected sample. The researcher herself, or with the assistance of the research assistants, administered a coded semi-structured questionnaire to a mother/caregiver in a face-to-face interview. Mothers/caregivers with children aged 0-23 months of age were asked specific questions to elicit information on IYCF practices (related to the IYCF indicators in Table 3.1) and demographic and socio-economic characteristics of the respondents.

Assessment of dietary intake was conducted through a 24-hour recall. During the 24-hour recall, the respondents were first asked to list the foods and beverages the children consumed during the 24 hours preceding the study. Thereafter, probing was done for any forgotten foods. Following on the time and eating time for the listed food items were recorded. A detailed description of each food item that was eaten namely: ingredients, amounts eaten, and any additions were collected. In

conclusion probing was done for anything else the child may have consumed during the 24-hour dietary recall period.

3.19 Data analysis

Data collected through the semi-structured questionnaire was entered in a pre-defined data entry template. Data collected was rigorously checked on the questionnaires at the end of the day to identify errors which were corrected in the field daily. Data analysis was then carried out with the aid of Statistical Package for Social Science, Advanced statistics, Release 20.0 (SPSS for windows, SPSS Inc., Chicago, IL, USA).

Frequencies and percentages characteristics of the categorical variables were calculated. Furthermore, inferential statistics were used to examine the co-relations and the associations between the variables under study. The relationships between nominal variables were associated using chi-square tests (Pearson and Fisher's exact). The statistical significance was tested using a p -value of < 0.05 at 95% CI between the variables. Descriptive statistics was also used to describe maternal demographic determinants and social-cultural and economic determinants of the study population in relation to IYCF indicators.

Categorical variables of interest associated with EBF, early initiation of BF, bottle feeding, minimum meal frequency, minimum dietary diversity and minimum acceptable diet was determined by using a Chi-square test (χ^2). To establish the determinants of infant and young child feeding practices aged 0-23 months among agro-pastoralist communities in Baringo County, Chi-square tests were used to compare the categorical variables.

3.20 Logistical and ethical consideration

The study protocol was submitted for ethics clearance to the Health Research Ethics Committee, Stellenbosch University (Reference nr: S16/10/193). Permission to conduct the research was also obtained from the Baringo County Government Headquarters Department of Health. At the household level, informed consent was gained through the participants' signature or thumb print. Respondents were assured of confidentiality; which was achieved by coding questionnaires so that the respondents' names and contact details could not be linked back to personal information. Participants were informed that the information provided was only to be used for research purposes, and records would be password protected on the researcher's computer.

Each mother received an educational toy for her child as a thank you gesture for her time to participate in the study.

3.21 Summary

This chapter discussed in detail the process in which the research was conducted. Various research procedures such as population sample, sampling procedures, data collection techniques, data analysis tools, research design among others were explained with necessary and corresponding research data. The next chapter will discuss various results or findings of this study.

CHAPTER 4

RESEARCH ANALYSES AND RESULTS

4.1 Introduction

This chapter is aimed at reporting the data collected from the study participants. Researcher-administered interviews were conducted with a semi-structured questionnaire. The questionnaire data was analyzed quantitatively.

To start with, a response rate of 98% was obtained. Out of the 307 mothers/caregivers of children aged 0-23 months sampled, only 302 were interviewed and included in the study results while five respondents were not included because no data was collected from them due to non-response / incomplete data during data collection.

4.2 Demographic and socio-economic characteristics

Demographic characteristics that were investigated include: population characteristic, age, marital status and household size; while socio-economic characteristics included maternal education, occupation and household income (Table 4.1).

4.2.1 Maternal demographic characteristics

The maternal demographic characteristics this study assessed include: mothers' marital status, maternal age, and maternal education. While the maternal age was found to be between 15 and 38 years old; the mean caregiver age in years was recorded as 26.57 (± 4.936) years. During the analysis, the mothers' ages were segregated into four different age sub-categories from which 25

to 35 years of age was noted as the largest age group (63.9 %), whereas the smallest age group comprised mothers aged 17 years or younger (1.3 %).

The study found that 60.6% (n=183) of the caregivers attended school, and out of which 48.3% (n=146) reached primary school level; (n=34; 11.3%) attained secondary education; while the rest 1.0% (n=3) reached tertiary level of education. The majority of the mothers interviewed were married (83.4%; n=252), while those who were either widowed or separated/divorced made up 16.6% (n=50). (Table 4.1.)

Table 4. 1 Demographic characteristics of the mothers

Demographic characteristics	N =	302	%
Mothers' age			
36 years and older	13		4.3
25–35 years	193		63.9
18–24 years	92		30.5
17 years and younger	4		1.3
Mothers' education			
Had attended school	183		60.6
Had not attended school	119		39.4
Mothers' education level			
College/Tertiary institution	3		1.0
Secondary school	34		11.3
Primary school	146		48.3
None	119		39.4
Mothers' marital status			
Single	32		10.6
Married	252		83.4
Separated/Divorced	9		3.0
Widowed	9		3.0

4.2.2 Household size

Members of the same household were defined as the people who eat from the same pot. The mean household size was six (± 1.95), which is larger than the average size (4.7) of rural Kenyan households.¹¹

4.3 Socio-economic characteristics

4.3.1 Source of family income

The study found that the main source of income for most families was casual labour with 44.0% (n=133). Small-scale businesses, e.g. charcoal sales and livestock sales accounted for 28.8% and 25.5% (n=77) respectively (Table 4.2).

4.3.2 Occupation of the mother

The study found that most of the mothers were homemakers (49.3%; n=149), while others were small scale traders and casual labourers with 29.1% (n=88) and 20.2% (n=61) respectively. (Table 4.2).

Table 4. 2 Socio-economic characteristics -Source of family income and occupation of the mother.

Source of family income		
N=302		
	n	%
Formal employment	4	1.3%
Casual labour	133	44.0%
Small scale business	87	28.8%
Livestock Sale	77	25.5%
Other	1	0.3%

Mothers occupation		
N=302		
	n	%
Not employed/house wife	149	49.3%
Employed (salaried)	0	0.0%
Small scale trading	88	29.1%
Casual labour	61	20.2%
Caregivers	4	1.3%

4.3.3 Household income allocated to food

The largest percentage of family income that was allocated to food was 38.7% (n=117) of the total income. The smallest percentage was 19.5% (n=59) of the total family income. This was calculated by using the estimated percentage of household income that was reported to be allocated to food. (Figure 4.1)

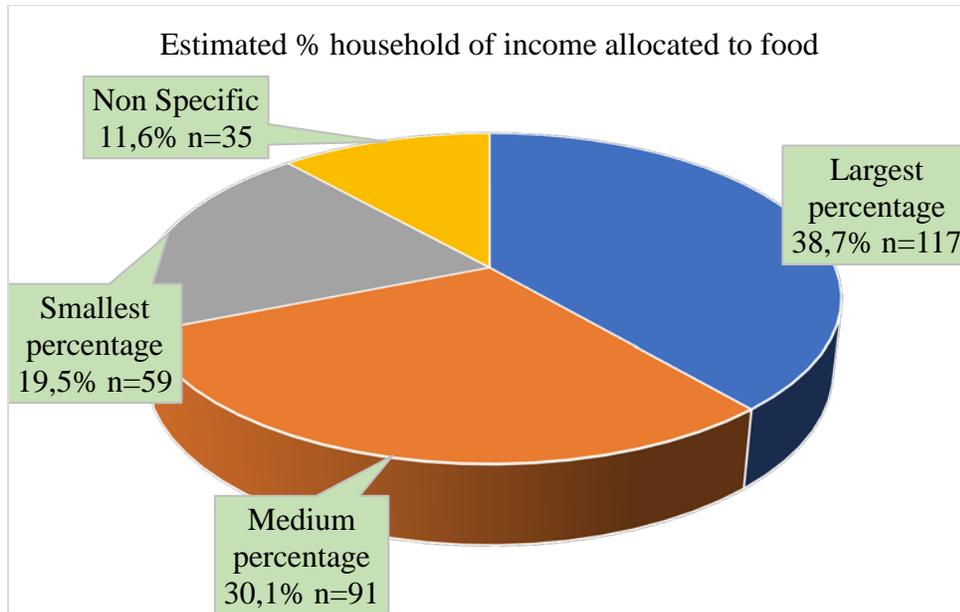


Figure 4. 1 Socio-economic characteristics - household income allocated to food

4.4 Characteristics of surveyed children

4.4.1 Child age and sex

The mean age of the children was 10 months (± 6.44). The age of children in months was further categorized into the following : 0 to 1 month, 2 to 3 months, 4 to 5 months, 6 to 8 months, 9 to 11 months, 12 to 17 months and 18 to 23 months; in line with WHO guidelines for assessing IYCF indicators.² The data also indicated that 23.1% were aged 6 to 11 months ($n=70$), 28.5% were aged 12 to 17 months ($n=86$) and 68.2% were aged 6 to 23 months ($n=206$). The sex distribution of study participants was 51.3% females aged 0-23 months ($n=155$); while their male counterparts were 48.7% for the same age category ($n=147$). (Table 4.3).

Table 4. 3 Distribution of children by age and gender (N = 302)

Age in no. of months	Female n (%)	Male n (%)	Totals n (%)
0-1	10 (3.3)	0 (0)	10 (3.3)
2-3	17 (5.6)	36 (11.9)	53 (17.5)
4-5	20 (6.6)	13 (4.3)	33 (10.9)
6-8	29 (9.6)	11 (3.6)	40 (13.2)
9-11	21 (7.0)	9 (3.0)	30 (9.9)
12-17	31 (10.3)	55 (18.2)	86 (28.5)
18-23	27 (8.9)	23 (7.6)	50 (16.6)
Total (0–23 months)	155 (51.3)	147 (48.7)	302

4.5 Infant and Young Child Feeding practices among children 0-23 months in agro-pastoral communities

In this study, seven indicators of feeding practices were assessed. They were: 1) whether a child was ever breastfed; 2) continued breastfeeding at one year; 3) continued breastfeeding at two years; 4) introduction to solid, semi-solid and soft foods, that is, complementary feeding practices; 5) minimum dietary diversity; 6) minimum meal frequency; and 7) minimum acceptable diet.⁶⁴ The results of this study indicated that some complementary feeding practices were poor while others were optimal while breastfeeding practices also showed the same with largely appropriate, except at two years. The results for the seven different indicators will be detailed in the sections to follow.

4.5.1 Breastfeeding practices

About half (52%, n= 157) of the infants were breastfed within an hour after birth, while the rate of exclusive breastfeeding at 5 months was found to be 38.5% (n=55). The children who were breastfed to one year constituted 58% (n=67) of the sample while those that were breastfed for 2

years and beyond stood at 7.9% (n=3). Children 0-23 months that were ever breastfed amounted to 96.7% (n=292). Since the ages of the participating children ranged from 0-23 months and the indicators differed in months measured, the total (n) for each category of breastfeeding differed. (Table 4.4)

Table 4. 4 Breastfeeding practices in East Pokot

Breast feeding practices	n	%
Early initiation of breastfeeding (0-23mths) within 1 hour (N=302)	157	52
Exclusive breastfeeding 0-5 months (n=109)	55	38.5
Continued breastfeeding at 1 year (n= 115)	67	58
Continued breastfeeding to 2 years(n=38)	3	7.9
Child (0-23 months) ever breast fed (N = 302)	292	96.7

4.5.2 Frequency of pre-lacteal feeds given

The study data revealed that the percentage of infants in East Pokot that were given pre-lacteal feeds of different kinds was 42.5% (n=127), (Table 4.5). The types of pre-lacteal feeds that were given include plain water, sugar water, cow's milk, formula milk, herbal concoctions and "gripe water" (a non-prescription product believed to relieve gastrointestinal discomforts of infants, but no scientific evidence supports this claim).⁶⁹

Table 4. 5 Pre-lacteal feeds given to infants (n = 127)

Type of pre-lacteal feed (n = 127)		
	N	%
Herbal concoction	102	80.3
Plain water	12	9.4
Sugar water	7	5.5
Cow's milk	4	3.1
Other liquids e.g. Formula and "gripe water"	2	1.6

4.5.3 Bottle feeding rates

Bottle feeding was also assessed during the study. Respondents were asked if they were feeding their babies below one year of age from the bottle at the time of the study. In their response, 31% (n=49) said they were bottle feeding while the majority (65%; n=104) said they were not bottle feeding. The rest (4%; n=6) did not have a response for this question since they were just caregivers taking care of the children and had no knowledge of bottle-feeding practices of the child.

4.6 Complementary feeding practices

4.6.1 Timely introduction of complementary foods

Close to two-thirds (60%; n=24) of the children aged six to eight months (n = 40) had received complementary foods at the time of study, with more females than males receiving complementary food (Table 4.6).

4.6.2 Minimum meal frequency

The minimum meal frequency was determined by calculating the percentage of breastfed and non-breastfed children aged 6 to 23 months who received complementary foods (including milk feeds for non-breastfed children) at least several times or more the previous day. The minimum in this case was defined as twice for breastfed infants of to 8 months, thrice for breastfed children of 9 to 23 months and four times for non-breastfed children of 6 to 23 months.⁴

Over half of the children studied had achieved the minimum meal frequency (59.2%; n=122). The minimum meal frequency was higher in children aged 18 to 23 months than it was in the other age categories. (Table 4.6).

4.6.3 Minimum dietary diversity of studied children

The minimum dietary diversity of complementary foods was determined based on seven food groups,⁷⁰ which are shown in Figure 3.2. Minimum dietary diversity is the consumption of four or more of the seven food groups⁴. More than half of the breastfed (68.4%; n=80) and non-breastfed children (67.8 %; n=61) achieved the minimum dietary diversity. (Table 4.6)

The study findings indicated that the highest consumed food groups for children aged 6 to 23 months, based on the 24-hour recall, were grains, roots and tubers as well as dairy products. The least consumed food groups were eggs and flesh foods (Figure 4.2).

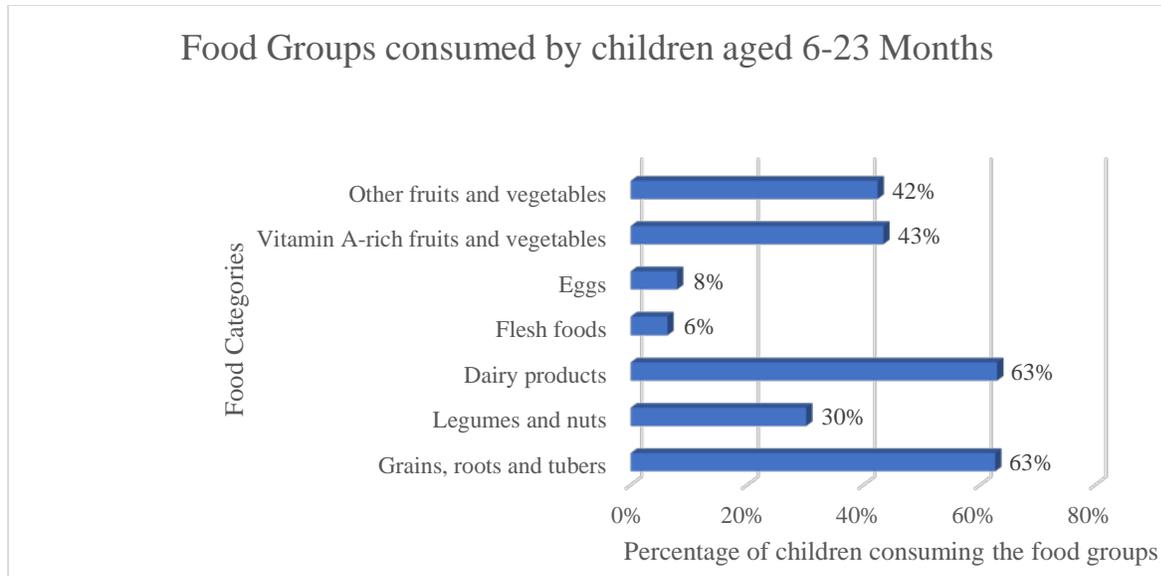


Figure 4. 2 Food groups consumed by children aged 6-23 months, based on 24-hour recall
N=302

4.6.4 Minimum acceptable diet

The minimum acceptable diet was used as the cumulative proportion of breastfed children who achieved both minimum dietary diversity and minimum meal frequency, with only about 23 percent of the children aged 6 to 23 months recorded to have attained the minimum acceptable diet. It was also used for non-breastfed children 6–23 months of age who received at least two milk feedings and had at least the minimum dietary diversity, not including milk feeds and the minimum meal frequency during the previous day.⁷¹ (Table 4.6)

Table 4. 6 Complementary feeding practices

Complementary feeding practices among children 6-23 months old	n=	%
Timely introduction of solid, semi-solid or soft food for children 6-8 months old (n=40)	24	60
Female	20	55.5
Male	4	15.4
Minimum meal frequency for children 6-23 months old:		
Children aged 6–23 months (n = 206)	122	59.2
Breastfed children (n = 116)	70	60.3
Non-breastfed children (n = 90)	61	67.8
Children aged 6–11 months (n = 70)	40	57.1
Breastfed children (n = 52)	31	59.6
Non-breastfed children (n = 18)	11	61.1
Children aged 12–17 months (n = 86)	50	58.1
Breastfed children (n = 50)	27	54.0
Non-breastfed children (n = 36)	19	52.8
Children aged 18–23 months (n = 50)	33	66.0
Breastfed children (n = 14)	10	71.4
Non-breastfed children (n = 36)	23	63.9
Minimum dietary diversity for children 6-23 months old (n=92)	49	53.3
Minimum acceptable diet for children 6-23 months old		
Children aged 6–23 months (n = 206)	47	22.8
Breastfed children (n = 116)	29	25.0
Non-breastfed children (n = 90)	28	31.1
Children aged 6–11 months (n = 70)	14	20.0
Breastfed children (n = 52)	9	17.3
Non-breastfed children (n = 18)	4	22.2
Children aged 12–17 months (n = 86)	16	18.6
Breastfed children (n = 50)	11	22.0
Non-breastfed children (n = 36)	4	11.1
Children aged 18–23 months (n = 50)	20	40.0
Breastfed children (n = 14)	6	42.9
Non-breastfed children (n = 36)	14	38.9

4.7 Determinants associated with Infant Young Child Feeding practices

The determinants associated with IYCF found in the study can be described in three broad categories: 1) demographic and socio-economic determinants which encompassed maternal

characteristics, 2) determinants and its association with IYCF practices, and 3) media exposure, studied in relation to the media sources and its influence on IYCF practices. These three categories will be discussed in more detail in the sections that follow.

The Pearson's chi-square test showed a significant relationship between a child being breastfed and the caregiver's age ($\rho = 0.000$) whether the caregiver had ever attended school ($\rho = 0.027$) as well as caregiver's marital status ($\rho = 0.001$). It was found that older mothers that had some education or those that had been married were more likely to breastfeed than the ones who were younger and had hardly attended any school and also applicable to those who had not been married. (Table 4.7).

A significant relationship was identified between the child's sex and continued breastfeeding at one year ($\rho = 0.023$). It was found that more female children were breastfed at one year than their male counterparts (Table 4.7).

A significant relationship was found between the caregiver's marital status and continued breastfeeding at two years ($\rho = 0.033$). Caregivers who were married, tended to breastfeed their children for a longer period up to two years old. However, education level had no relationship with the duration of breastfeeding. (Table 4.7)

There was no significant relationship found between the demographic and socio-economic characteristics and the timely introduction of solid, semi-solid and soft foods ($\rho > 0.05$) (Table 4.7)

4.8 Demographic and Socio-Economic characteristics and minimum dietary diversity, meal frequency, minimum acceptable diet

There was a significant relationship between the age of the child and minimum dietary diversity ($p = 0.000$). A significantly higher percentage of older children (18–23 months) consumed ≥ 4 food groups (i.e. attained minimum dietary diversity) than the percentage of younger children (6–11 and 12–17 months) (Table 4.7).

There was a significant relationship between caregiver/maternal age and minimum meal frequency ($p = 0.026$). It was deduced that the older caregivers scored a higher percentage as compared to the younger mothers, for providing a minimum meal frequency for their children (Table 4.7).

There was a significant relationship between the caregivers who had attended school and minimum acceptable diet ($p = 0.022$). The caregivers who had received some sort of formal education were found to provide a minimum acceptable diet, as compared to the proportion of caregivers who had not attended any school (Table 4.7).

Table 4. 7 Relationship between demographic and socio-economic characteristics and IYCF practices

	Child ever breastfed	BF to one year	BF to 2 years	Introduction to CF	Dietary diversity	Meal frequency	Minimum acceptable diet
Demographic and socio-economic characteristic	Chi-square test; P-value	Chi-square test; P-value	Chi-square test; P-value	Chi-square test; P-value	Chi-square test; P-value	Chi-square; P-value	Chi-square; P-value
Gender of the child	π 0.624	π 0.018*	π 0.897	∞ 0.069	π 0.905	π 0.539	π 0.695
Age of the child		∞ 1.000	∞ 1.000	∞ 1.000	∞ 0.000*	∞ 0.653	∞ 0.096
Age of mother/ Caregiver	∞ 0.000*	∞ 0.938	∞ 0.102	∞ 0.167	∞ 0.053	∞ 0.026*	∞ 0.095
Maternal education level	∞ 0.978	∞ 1.000	∞ 0.555	∞ 0.299	∞ 0.659	∞ 0.661	∞ 0.473
Mother's marital status	∞ 0.001*	∞ 0.868	∞ 0.033*	∞ 0.439	∞ 0.737	∞ 0.947	∞ 0.454

∞ Pearson chi-square test; π Fisher's exact chi-square test; *Significance level

4.9 Morbidity determinants

Morbidity is determined by (diarrhea, vomiting, fever, cough, intestinal parasites, difficulty in breathing and chills like malaria), and the significant relationships were established between the child being sick preceding two weeks to the day of the study and whether the child was fed anything other than breast milk within three days after birth ($p=0.006$) and timely initiation and exclusive breastfeeding ($p=0.000$), however whether the child was still breastfeeding ($p=0.532$)

did not have a significant relationship. Meal diversity ($p=0.000$) as well as meal frequency ($p=0.002$), were also found to be associated with child morbidity (Table 4.8).

Table 4. 8 Relationship between morbidity and IYCF practices

Morbidity	Df	Chi-square test; P-value
Infant fed on colostrum	2	0.006*
EBF	12	0.000*
Still breast feeding	1	0.532
Bottle fed	2	0.022*
Child consumed vitamin A-rich fruits and vegetables	2	0.002*
Baby consumed other fruits and vegetables	1	0.003*
Baby consumed iron-fortified solid, semi-solid or soft foods designed specifically for infants and young children	1	0.042*
Minimum meal frequency	3	0.002*
Minimum meal diversity	1	0.000*

Chi square test; *Significance at $p < 0.05$

4.10 Media exposure and influence on IYCF practices

The majority, (74.5%; $n=225$) of the respondents indicated that they were exposed to the radio. News and politics were the two broad topics that 76.5% ($n= 231$) of the respondents chose to listen to mostly. Others (6.3%; $n=29$) chose religious topic and relationship talks as their favorite topics. When asked if media had influenced their IYCF practices, 52.2% ($n=129$) said it had not influenced, while others (30% $n=74$) said they did not know if media had influenced their IYCF practices. Only 17.8 % ($n=44$) respondents agreed that media had influenced their IYCF practices.

4.11 Summary

This chapter presented detailed data analyses of data generated from a researcher-administered questionnaire. Some key results were also exhibited in various forms such as tables and figures. The next chapter will present highlights of the study aim, discuss findings from Chapter 4 and make conclusion as well as recommendations.

CHAPTER 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the researcher presents the findings established according to the data analyzed in the previous chapter. This chapter is discussed in terms of the aim and objectives of the research. The chapter also discusses the limitations of this study, the conclusions, the recommendations, and the need for future research.

As a reminder, this study aimed to investigate IYCF practices among agro-pastoral communities in East Pokot Sub-county, with a focus on the determinants of these practices in this community.

5.2 Discussion of findings

5.2.1 Breastfeeding practices

According to KDHS 2015, 62% of infants were put to the breast within one hour of birth¹⁴ while the Baringo MIYCN KAP and C4D assessment found the rates to be 86.7%.⁷² The practices in East Pokot Sub-county was much lower at 52%. This difference in breastfeeding initiation rates could be attributed to better access to health facilities and infrastructure (better roads and mobile phone coverage) in the broader Baringo County. Better health facility access and infrastructure means mothers have improved access to IYCF support and health care providers can also follow-up mothers to ensure optimal practices are adhered to. In the study area, however, a lowland with inadequate infrastructure coverage which has been aggravated by the cattle rustling and insecurity in the area makes it difficult for mothers to access support for IYCF. This finding is important, since this study provided a clearer picture of the rates of the Sub-county compared to the collective

figures of the county. The results were consistent with findings from other East African countries like Uganda with 42% and Tanzania with 49% breastfeeding initiation rates.⁷³

Exclusive breastfeeding rates in Baringo County were found to be 31.6%,⁷¹ which is consistent with our study findings of 38.5%. This rate is however much lower than the country rate of 61%.¹⁴ This difference of the County and the Country can be due the fact that Baringo is characterized as an arid and semi-arid (ASAL) county in Kenya and ASAL counties lag behind in terms of access to many services like safe drinking water, development services, infrastructure facilities, electricity and telecommunication facilities.⁷² This leads to poor access to information on IYCF promotion and support for optimal health.

The EBF rate was consistent with findings from other East African countries like Uganda at 60% and Tanzania at 50%.⁷⁰ Although Kenya and some other East African countries as a whole have reached the WHA 2025 target for exclusive breastfeeding i.e. to: “increase the rate of exclusive breastfeeding in the first six months up to at least 50%”, Baringo County and East Pokot have not reached this target. East Pokot has not achieved this due to some reasons like entrenched cultural practices, for example, pre-lacteal feeds are given to children like herbal concoctions, emanating from cultural beliefs. Poor health seeking behaviour is caused by poor access, which might also be attributed to the ensuing insecurity caused by cattle rustling in the region. Disaggregating country-level data is therefore important and should be communicated to national authorities to alert them on the need for support of EBF at decentralised service levels.

Kenya is committed to promoting the Baby Friend Hospital Initiative (BFHI) since 2009. However, due to government changes and a split in the Ministry of Health, the successes were derailed. The country revitalised the efforts in 2013 and has since been carrying out the assessments, trainings to create centers of excellence, curriculum integration of BFHI to medical

students (University of Nairobi), and continuous medical education for in-service health care professionals. Baringo County is among the counties where there were marked strides due to resource support from UNICEF and WHO. With that, there are more successes envisioned through augmenting of the BFHI and Baby Friendly Community Initiative (BFHI) to strengthen linkages between facilities and communities.⁷⁴

In another view, a study in Tanzania found that pre-lacteal feeds were given to one in four infants from Igunga region and a similar number in Dar-Es-Salaam. These feeds were commonly formula milk or glucose mixed in water.⁷⁵ This is very similar to findings of this study where it emerged that mothers had given pre-lacteal feeds. This practice stems from a cultural belief that it helps remove meconium from the infant's gut. In some areas in Nigeria, there is a similar belief that colostrum is not clean milk and considered harmful for the baby.⁷⁶ These cultural beliefs and practices undermine EBF and puts babies at risk of compromised immunity and disease.

Importantly, the rate of children that were ever breast fed in most studies have been above 99% as seen in KDHS,¹⁴ which is similar to the current study findings. This means that there is uptake of BF as a feeding mode for infants, which provides a basis that could be strengthened by a combination of interventions, as mentioned.

5.2.2 Complementary feeding practices

Our study findings indicated that two out of three children were given complementary feeds timeously, i.e. between 6 to 8 months. In West Pokot County, which borders Baringo County to the North, almost all children (89.8%) received complementary feeds at the right age. This was attributed to the children receiving milk with their solid foods.²⁴ In contrast, in the Baringo MIYCN

KAP and C4D assessment, the rate was noted as 26.2% and an overall appropriate IYCF practices rate of 22% countrywide was reported.⁷² This could be due to the fact that West Pokot county has had more support in terms of infrastructure development than their neighbour, Baringo county. Eighty two percent (82%) of the population in Baringo have no formal education while in West Pokot 55% of the population have no formal education.¹⁴ Factors that influence optimal IYCF practices are access to food, access to education and information on recommended practices and also access to support from health care facilities.

Similarly, the number of infants receiving the appropriate meal diversity was 35% while those receiving a minimum acceptable diet was 33%.⁴³ Studies in other African countries reported that the children of 6–23 months did not receive minimum dietary diversity. Examples are countries like Malawi (29%), and Ethiopia with (5%).⁷⁰ In the KDHS 2015,¹⁴ adherence to the minimum dietary diversity recommendation among all breast-fed children 6-23 month was 41% while in the Baringo MIYCN KAP and C4D assessment it was 50.8%.

The low adherence to appropriate complementary feeding practices in this study may be partly attributed to challenges relating to mothers/caregivers cultural beliefs, knowledge and level of education as seen by the low levels of education of the mothers.

5.2.3 Determinants associated with IYCF practices

Different studies across the globe have indicated some demographic characteristics related to IYCF. Demographic factors correlated with EBF included age and education level of the mother,⁷⁷ income status, and whether the child was born in hospital or not.^{78,79}

Although no significant difference was recorded in this study reported here, younger mothers (15-21years) tended to give their children more pre-lacteal feeds than older mothers. A study carried out in Nigeria also agrees with this philosophy of giving pre-lacteal feeds, which was strongly associated with low maternal age.⁸⁰

In another instance, maternal or caregiver's knowledge on IYCF was related to high dietary diversity scores in Ethiopia,⁸¹ and caregivers who had four or more prenatal visits were more likely to report feeding their children with the recommended dietary diversity.⁸² In addition to the above, most of the mothers in Ethiopia had never attended school (47%) and for those who had attended school, most had only reached primary school level (45.8%). This study shows that the education level of the women living among agro-pastoralist communities is quite low. East Pokot, where the study was conducted is situated in one of the areas of the country where infrastructure, such as roads and schools, are poorly developed and the menace of cattle rustling causes rampant displacement which may distress the education enrolment numbers. A study that was conducted in Ethiopia by Shumey also found similar results in relation to the significance of maternal education in determining IYCF practices.⁷⁹ This shows that education level was an independent predictor of the timely initiation of complementary feeding. Women empowerment and classroom education are nutrition-sensitive interventions that can support caregiving practices⁸³ and these interventions should be strengthened in this community.

Marital status on the other hand has been shown to affect the care practices given to a child because both the parents are able to contribute to the care of the child by providing the basic needs, support each other psychologically as well as the general welfare of the child.⁸⁴ Kimani-Murage, et al.'s⁶⁹ study, which was conducted in Nairobi's urban slums, also found substantial associations between mothers who were married and their breastfeeding practices.

Furthermore, mothers with access to financial resources was described to have beneficial associations with dietary diversity and minimum acceptable diet measures.⁴² On the other hand, the women with higher education are more likely to have work outside the home (71%), therefore tend to be away from the children, and therefore are not present to breastfeed all the time. This is supported by studies that show that mothers that return to work after giving birth stop breastfeeding or breastfeed their children less often than those that stay at home.⁸⁵

In Nigeria, a health survey stated that mothers from households that had more wealth were found to observe early initiation of breastfeeding. It is assumed that wealthier households might have access to better health care at their disposal where health workers would encourage or sensitize them on appropriate breastfeeding practices.⁸⁶ This is further enhanced by the BFHI initiatives taking place within Kenya, as mentioned.

The morbidity burden was high, with 45% of the participating children having been sick the last 2 weeks leading to the study. The most common illness recorded was diarrhoea, coupled with fever and acute respiratory infections (ARIs). This is comparable to a study by⁸⁷ Hossain, et. al., who found a high prevalence of morbidity, especially diarrhoea and vomiting, which may be due to the fact that very few households treated drinking water and poor hand washing practices.

The study did not test media exposure and its association on IYCF explicitly in the current study, therefore no deductions could be made in this regard. However, exposure to media was found to positively influence adequate dietary diversity in infants in Madagascar. Mothers of infants who did not listen to any radio, were more likely to consume inadequate dietary diversity as opposed to those mothers/caregivers who tuned in to radio channels regularly.⁸⁸ Since media can play a positive role in advancing knowledge on health topics, it could be of value to suggest this medium to reach remote rural areas such as East Pokot.

5.3 Study limitations

The major limitation observed while carrying out field work is that the study was conducted just after a heated electioneering period in Kenya, when tensions were high. This could have influenced the results of the study unlike if the study was done during a peaceful atmosphere in the country. The study investigated known determinants of IYCF, as established in literature review, among agro-pastoral communities in East Pokot Sub-county and no new determinants were investigated.

5.4 Conclusions and recommendations

5.4.1 Conclusions

Classifying IYCF practices as well as the determinants associated with inappropriate IYCF practices, is paramount in designing and implementing cost effective and sustainable nutrition interventions. This study established that in East Pokot, 31.8 % of mothers are younger than 25 years and the majority have no formal education or had primary education only. These households are generally large, thereby making the corresponding household income to be largely spent on food and feeding.

The majority of the mothers and the spouses are mainly casual labourers with characteristic long working hours, which have a negative influence on appropriate IYCF practices. This is also promoted by the low level of education and little exposure to various information-giving media. Young mothers require practical support on IYCF. Some of the inadequate IYCF practices that were observed can be attributed to the low education level of the mothers/caregivers.

Demographic and socio-economic characteristics of the people can be targeted by policy and practice in trying to tackle the challenges of poor child development related to inappropriate IYCF practices.

This study established that there were significant associations between caregivers' age and whether the child was ever breastfed, and maternal marital status and whether the child was breastfed. The study also established a significant association between the sex of the child and continued breastfeeding, where the mother continued to breastfeed the female child as opposed to their male counterparts. Mothers who were married were found to continue breastfeeding their children; as opposed to unmarried mothers. The child's age was found to have a significant association with dietary diversity and caregivers' age was significantly associated with minimum meal frequency. The maternal education status had no significant association with minimum acceptable diet in this study.

In summary, breastfeeding practices were poor, with not even half of the study population practicing exclusive breastfeeding for 6 months. Timely initiation of breastfeeding was done by more than half of mothers. Half of the study population practiced optimal complementary feeding practices, with specific reference to minimum meal frequency and dietary diversity. Poor IYCF practices can be attributed to demographic determinants, like maternal characteristics, such as low level of maternal education and marital status.

5.4.2 Recommendations

5.4.2.1 Recommendations for practice

Broad-based IYCF strategies should integrate Strategic Behavior Change Communication programmes with the aim of sustaining appropriate IYCF child feeding practices. This would ensure that the causes of inadequate IYCF practices are significantly addressed across the counties.

Factors that dishearten mothers from breastfeeding should be countered by educating mothers, nurses, physicians, and other health care providers and other community leaders. This can be done by reiterating the value of breastfeeding to infant health and advancing the knowledge of maternal infant and young child feeding practices among agro-pastoral communities and the consequences of inappropriate cultural practices to infant and young child health.

There are policies in place that have created an enabling environment for improved IYCF practices e.g. initiatives like BFHI and Baby Friendly Community Initiative. More emphasis should now be placed on integrating the actions in the county's nutrition action plans that should be implemented by all counties in Kenya. These actions should be accompanied by an implementation roadmap of activities that will ensure resources for accelerated implementation.

The concept of training traditional birth attendants on modern methods of delivery, as stipulated in the Baby Friendly Hospital Initiative, as well as updated nutritional information can be used to reach more mothers and to pass on the right information about IYCF practices. These birth attendants have the possibility to monitor the mothers within a realistic geographical area. They can be facilitated by both government and private sector to become more effective change agents and more professional in their activities.

Nutrition education should also focus on dispelling myths and cultural perceptions around IYCF practices as seen in the study e.g. the herbal concoctions. These practices have been shown to have negative influences on infant nutrition and health.

5.4.2.2 Recommendations for policy-making

Policies that seek to empower women should be enforced and included in nutritional programmes in various forms, such as income generating activities. Promoting family planning can also help in reducing the household sizes to be able to live well with the available financial resources.

5.4.2.3 Recommendations for further research

For the purpose of future research, the researcher recommends that multidisciplinary, qualitative studies should be planned to determine the socio-cultural aspects influencing feeding practices, such as why boys, in comparison to girls, tend to be fed more poorly in agro-pastoralist communities.

5.5 Summary of findings

The primary caregivers of the infants and young children in East Pokot Sub-county were mostly their mothers. The mothers were young and had very little education. They lived in households with about five members, indicating an overstretch in the financial resources as most were unemployed and still had to widely rely on purchased food rather than producing their own food. The majority of the households in the Sub-county spent more than half of their income on food, leaving very little for spending on other items.

The majority of the mothers initiated breastfeeding at the correct time and a similar proportion of the mothers also practiced exclusive breastfeeding for the first six months. There was still some negative influences of traditional beliefs on breastfeeding and health-seeking behavior as some mothers did not breastfeed, citing some traditional beliefs. However, there was a substantial percentage of mothers who were breastfeeding their infants beyond nine months.

Complementary feeding was introduced at the correct time by close to two thirds of the households sampled within East Pokot Sub-county. Pertaining to other complementary feeding indicators, the recommended rate of at least four food groups for dietary diversity was not met with some of the households feeding the infants with just two food groups. The recommended meal frequencies for the different infant age groups, as indicated by the World Health Organization, was met by more than half of the respondents. Bottle feeding was not a very popular practice in East Pokot Sub-county with a few mothers feeding their babies with a bottle.

Targeted maternal, infant and young child health promotion programmes will be key in promoting optimal IYCF practices in East Pokot Sub-county.

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APPENDICES**7.1 Appendix 1: Questionnaire****ADMINISTRATIVE DETAILS**

Date: _____ / _____ / _____			Household Number
2012	<i>Day</i>	<i>Month</i>	
Questionnaire identity number			Team leader
Team number			Questionnaire checked by
Village name			

SECTION A: HOUSEHOLD DEMOGRAPHIC AND SOCIO-ECONOMIC DATA

[INSTRUCTIONS ON HOW TO RECORD ANSWERS: Circle the number corresponding to the response that a mother gives. Record the appropriate response in areas where choices have not been given. All 'Any other' responses should be specified]

	QUESTION	RESPONSES	CHOICES
A1	Sex of household head	Male Female	1 2
A2	Age of the mother	..... Years	
A3	Marital status	Single Married Separated Widowed	1 2 3 4
A4	Occupation of the household head (skip to A6 if the mother is the household head)	Not employed Employed (salaried) Small scale trading Casual labour Any other (specify)	1 2 3 4 5

A5	Occupation of the mother	Not employed/house wife Employed (salaried) Small scale trading Casual labour Any other (specify)	1 2 3 4 5
A6	Education level of the household Head	No education Primary Secondary Tertiary	1 2 3 4
A7	Household size (people who usually eat from the same pot)	..... People	
A8	How many children do you have?	..... Children	
A9	How many children are below 2 years of age?	..... Children	
A10	Main source of family income	Formal employment Casual labour Small scale business Any other (specify)	1 2 3 4
A11	How is food obtained in the family? <i>[Probe for all responses]</i>	Farming Buying Food aid/donation Any other (specify)	1 2 3 4

A12	Who has the primary responsibility of providing food for the household?	Father Mother Grandparent Relatives Any other (specify)	1 2 3 4 5
A13	What is the estimated percentage of household income that is allocated to food?	Largest percentage Medium percentage Smallest percentage No specific allocation	1 2 3 4
A14	Who usually decides how family Income is used?	Husband/Partner Wife/mother Any other (specify)	1 2 3
A15	Who usually decides on what food to be cooked each day in the household?	Husband/Partner Wife/mother Any other (specify)	1 2 3

SECTION B: CHILD'S DATA

(Fill information for the child under 2 years of age)

[If there is more than 1 child 0-23 months in the household, identify each child's mother or primary caregiver, starting with the youngest and arrange to interview her once section A of the interview schedule is completed. After you have completed the questionnaire for the first child repeat section B of the interview schedule for the 2nd child, substituting the correct NAME for this child].

[The household number (B1) must be the same for those children who are from the same household]

	QUESTION	RESPONSES	CHOICES
B1	Household number	.....

B2	Child umber	.....
B3	What is your child's name? <i>[Use this NAME in remaining questions]</i> Please get his/her card	.....
B4	Is [child's name] a boy or a girl?	Male Female	1 2
B5	Child's date of birth <i>[If there is no documentary source, probe using memorable dates /calendar of events until a mother provides the most accurate answer]</i>	Date: ____ / ____ / ____/ <i>Day month year</i>	
B6	Source of birth date	Child health card Mother/caregiver Any other source (specify)	1 2 3
B7	Order of birth of the child	.....
B8	How many months old is [child's name]?	___ ___ Months	

SECTION C: CHILD MOBILITY

	QUESTION	RESPONSES	CHOICES	SKIP
C1	Has the child been sick in the past 2 weeks?	Yes No	1 2	D1
C2	If yes, which one? <i>(More than one response possible)</i>	Diarrhoea Vomiting Fever with chills like malaria	1 2 3 4	

		Fever, cough, difficulty in breathing	5	
		Intestinal parasites	6	
		Measles	7	
		Eye infections	8	
		Skin infections	9	
		Accident	10	
		Malnutrition	11	
		Stomachache	12	
		Tooth ache	13	
		Other (Specify)		
C3	When the child was sick did you seek assistance?	Yes	1	D1
		No	2	
C4	If yes, where? (<i>More than one response possible</i>)	Traditional healer	1	
		Community health worker	2	
		Private clinic/Pharmacy	3	
		Shop/Kiosk	4	
		Public clinic	5	
		Mobile Clinic	6	
		Relative or friend	7	
		Local herbs	8	
		NGO/FBO	9	

SECTION D:INFANT AND YOUNG CHILD FEEDING PRACTISES

	QUESTION	RESPONSES	CHOICES	SKIP
D1	Did you ever breastfeed [<i>Name</i>]?	Yes	1	D3

		No	2	D2
		Do not know	3	
D2	If no, why?	No milk	1	D6
		Did not want to breast feed	2	
		Traditional beliefs (child will die)	3	
		Other (Specify)	4	
D3	If yes, how soon after birth did you put[Name] on the breast?	If less than an hour	00	
		If less than 24 hours record number of Hours	.....Hours	
		If more than 24 hours record number of Days	.....Days	
		If mother does not know record	88	
D4	During the first 3 days after delivery, did you give [Name] the fluid/liquid that came from your breasts? <i>Please clarify that this question specifically refers to the colostrum (breast milk produced the first few days after birth, which tends to be more yellow, more liquid, and less thick than mature breast milk)</i>	Yes	1	
		No	2	
		Do not know	3	
D5	In the first 3 days after delivery, was the baby given anything to drink	Plain water	1	
		Sugar water	2	

	other than breast milk?	Milk	3	
		Herbal concoction	4	
		Not given	5	
		Other (specify)		
D6	During the first 3 days after the child was born did you receive any practical support or advice to help you start breastfeeding?	Yes	1	
		No	2	
		Do not know	3	
D7	Yesterday during the day or at night, did [Name] consume breast milk from you or someone else?	Yes	1	
		No	2	
		Do not know	3	
D8	Are you still breastfeeding [Name]?	Yes	1	D10
		No	2	
D9	If no how old was the child when you stopped breastfeeding?	..... months.		
D10	At what age did you feed the baby her/his first solid/ semi-solid food?	..... months.		
D11	Was [Name] given any vitamin drops or other medicines as drops yesterday during the day or at night?	Yes	1	
		No	2	
		Do not know	3	
D12	Was [Name] given ORS yesterday during the day or at night?	Yes	1	
		No	2	
		Do not know	3	
..	Was [Name] Given Micronutrient sprinkles or Lipid based nutrient	Yes	1	
		No	2	

	supplement yesterday during the day or at night?	Do not know	3	
D13	Do you give your child ultra-processed foods(data collector to elaborate)	Yes No	1 2	
D14	If so how many times a day	Never Once Twice More than three Times	1 2 3 4	

D15. Please describe everything that the baby ate yesterday during the day or night, whether at home or outside the home from the time he/she woke up to the time he/she went to bed.

No.	Food groups	Examples	Yes	No	Don't know
	Grains, roots And Tubers	Bread, rice, porridge, maize, Wheat	1	2	8
	Legumes and Nuts	Beans, peas, lentils, nuts, seeds or food made from these	1	2	8
	Dairy products	milk, curds, cheese or other Milk Products	1	2	8
	Flesh foods	Pork, lamb, goat, rabbit, wild game, chicken, duck or other birds. Fresh or dried fish.	1	2	8

		Poultry, liver, kidney, heart and other organ meats or blood based food.			
	Eggs		1	2	8
	Vitamin A rich fruits and Vegetables	Ripe mangoes, Pumpkin, carrots, squash, or sweet potatoes that are orange inside	1	2	8
	Other fruits And Vegetables	Other fruits including wild Fruits	1	2	8
		Iron fortified solid, semi-solid or soft foods designed specifically for infants and young children	1	2	8
		Micronutrient powder or Sprinkles	1	2	8
		Lipid based nutrient supplement (LNS)	1	2	8

SECTION E: MEDIA EXPOSURE

	QUESTION	RESPONSES	CHOICES
E1	What kind of media do you listen to or read?	Radio Television Newspaper	1 2 3

E2	What topics do you choose to read about or listen to?	Name them	
E3	Has the media influenced in any what your IYCF practices? Has the media influenced any of your IYCF practices?	Yes No Don't know	1 2 3

7.2 Appendix 2: Participant Information Leaflet and Consent Form (English)

Title of the research project: DETERMINANTS OF INFANT AND YOUNG CHILD FEEDING PRACTICES OF CHILDREN 0-23 MONTHS AMONG AGRO-PASTORALIST COMMUNITIES IN EAST POKOT IN BARINGO COUNTY, KENYA

Reference number:

Principal investigator: BIBIANA JUMWA MUASYA

Address: 8012-00300 NAIROBI

Contact number: +254723030501

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is entirely voluntary, and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part. This study has been approved by the Health Research Ethics Committee at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

- Infant and young child feeding practices for Kenya as a whole is far from good. Very little information on infant and young child feeding is however, available for the region of East Pokot.

- This study wants to find out how you feed your child and why you feed your child in a specific way. This will involve the researcher asking you questions. It will take about 30 minutes of your time. Your participation is voluntary, and it will be greatly appreciated.
- Mothers of children will be asked some questions about their education, source of income, marital status, how they feed their babies, and other necessary information about infant and young child feeding.
 - ❖ The number of participants selected for this study is 302.
 - ❖ No medication will be used in this study.

Why have you been invited to participate?

You were chosen because you have a child 0-23 months and you are a member of East Pokot agro pastoral community.

What will your responsibilities be?

You will be asked to answer questions truthfully and to the best of your ability.

Will you benefit from taking part in this research?

There are no personal benefits to you, but the information will help in improving the relevant information needed by mothers about their babies' nutrition and health.

Are there in risks involved in your taking part in this research?

There are no risks in taking part in the study. No medicines or other chemicals or injections will be given to you or the baby.

If you do not agree to take part, what alternatives do you have?

If you do not agree to participate there is no action to be taken. You have the right to refuse and you will not be mistreated for your decision.

Who will have access to your medical records?

The information will be treated as private and will be protected. If it is written in a document your identity will remain a secret. The researchers will work with the information, but they will also keep it secret.

What will happen in the unlikely event of some form of injury occurring as a direct result of your taking part in this research study?

No injury will come to you or your baby.

Will you be paid to take part in this study and are there any costs involved?

No. You will not be paid to take part in the study, but the researcher will give your child a small toy to say thank you for the time you offered to take part in the study.

Is there anything else that you should know or do?

- You can contact.....at telephone number..... if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the people carrying out the study.
- You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I agree to take part in a research study entitled (insert title of study).

I declare that:

- I have read or had read to read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurized to take part.⁵⁰
- I may choose to leave the study at any time and will not be penalized or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the study doctor or researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (place) on (date) 2017.

Signature of participant.....Signature of witness.....

Declaration by investigator

I (name) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.

- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter. (*If an interpreter is used then the interpreter must sign the declaration below*).

Signed at (place) on (date)2017.

Signature of investigator.....Signature of witness.....

Declaration by interpreter

I (name) declare that:

- I assisted the investigator (name) to explain the information in this document to (name of participant) using the local language
- We encouraged him/her to ask questions and took adequate time to answer them.
- I conveyed a factually correct version of what was related to me.
- I am satisfied that the participant fully understands the content of this informed consent document and has had all his/her question satisfactorily answered.

Signed at (place) on (date)2017.

Signature of interpreter.....Signature of witness.....

7.3 Appendix 3 Stellenbosch University Authorization letter



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvenoot • your knowledge partner

15 May 2017

TO WHOM IT MAY CONCERN

RE: Ms Bibiana Jumwa Muasya (Student number: 17579694)

Ms Muasya is currently enrolled as a Master of Nutrition student in the Division of Human Nutrition, Department of Global Health, Faculty of Medicine and Health Sciences, Stellenbosch University.

She has received ethics clearance from the Health Research Ethics Committee, Stellenbosch University (Reference nr: S16/10/193) to conduct a research study titled: DETERMINANTS OF INFANT AND YOUNG CHILD FEEDING PRACTICES OF CHILDREN 0-23 MONTHS AMONG AGRO-PASTORALIST COMMUNITIES IN EAST POKOT IN BARINGO COUNTY, KENYA

Please feel free to contact me for any further information.

Kind regards,



Dr LM du Plessis
Senior Lecturer and Study leader



Fakulteit Geneeskunde en Gesondheidswetenskappe • Faculty of Medicine and Health Sciences



Verbind tot Optimale Gesondheid • Committed to Optimal Health

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Webblad / Web page: www.sun.ac.za/nutrition; www.sun.ac.za/nicus

7.4

Appendix 4: County Permission letter



TO WHOM IT MAY CONCERN

RE: MS BIBIANA JUMWA MUASYA (STUDENT NUMBER: 17579694) MASTER RESEARCH IN EAST POKOT BARINGO.

Ms Muasya is currently enrolled as a Master of Nutrition student in the Division of Human Nutrition, Department of Global Health, Faculty of Medicine and Health Sciences, Stellenbosch University.

She has received ethics clearance from the Health Research Ethics Committee, Stellenbosch University (Reference nr: S16/10/193) to conduct a research study titled: DETERMINANTS OF INFANT AND YOUNG CHILD FEEDING PRACTICES OF CHILDREN 0-23 MONTHS AMONG AGRO-PASTORALIST COMMUNITIES IN EAST POKOT IN BARINGO COUNTY, KENYA

She will be thereby given permission to do her research here in East Pokot

Signed by

A handwritten signature in black ink, appearing to read 'Joseph Nakopir', is written over a faint, illegible stamp.

Joseph Nakopir